

The Changing Academy – The Changing Academic Profession  
in International Comparative Perspective 15

David M. Hoffman  
Jussi Välimaa *Editors*

# RE-BECOMING UNIVERSITIES?

Higher Education Institutions in  
Networked Knowledge Societies

 Springer

# **The Changing Academy – The Changing Academic Profession in International Comparative Perspective 15**

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Editors

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Knowledge Societies

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# Preface

As editors of this book, we would like to express our sincere gratitude to our coauthors, for the hard work necessary to complete this volume. This study has been a long, challenging, and highly interesting research, development, and writing process. We also would like to thank the European Science Foundation, especially Ms. Sarah Moore, for supporting the implementation of the international comparative research project *Change in Networks, Higher Education and Knowledge Societies* (CINHEKS). The CINHEKS project was a part of the EUROCORES/EuroHESC (European Higher Education and Social Change) research program together with three other collaborative research projects (TRUE, EUROAC, and RHESI) coordinated by the European Science Foundation between 2009 and 2011. We would also like to express our gratitude to the following national funding agencies which supported national research teams through the funding instruments they pledged to the EUROCORES program: The Academy of Finland (Finland), The Economic and Social Research Council (UK), Fundação para a Ciência e a Tecnologia (Portugal), Deutsche Forschungsgemeinschaft (Germany), and the National Science Foundation (USA).

At Springer publishing, we are deeply indebted to Ms. Yoka Janssen and Ms. Natalie Rieborn for their patience, professionalism, and encouragement.

The empirical material for the CINHEKS study was mainly gathered during the academic years of 2010 and 2011 in five countries of the CINHEKS project (Finland, Germany, Portugal, the United Kingdom, and the United States of America) and in Russia during 2013 and 2014. Empirically, theoretically, and intellectually this book is a critical, comprehensive account of an international research project. In addition to opening fresh perspectives on comparative approaches to higher education in contemporary networked knowledge societies, the CINHEKS project also proved to be a nexus for highly situated academic, cultural, and personal encounters that challenged existing understandings of and assumptions about higher education, in general, and the execution of international, comparative research projects in particular.

This book is an important outcome of the CINHEKS research project. We hope that the efforts of our team both challenges our readers to reflect on the relationship between higher education and society and further develop and critique the ground-work we have laid on this particular topic. We hope this study serves as a concrete example that high-risk/high-gain studies are not only possible in international comparative higher education research. They also are needed for the development of our field.

Jyväskylä, Finland  
October 31, 2014

David M. Hoffman  
Jussi Välimaa

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**Part I**  
**Theory, Design and Context**



# Chapter 1

## Introduction to the Book and the Comparative Study

Jussi Välimaa and David M. Hoffman

### 1.1 Changing Societal Contexts

The world, socially, economically and geopolitically was very different in the spring term of 2008, as we were finalizing the Forward Look research project (see Brennan et al. 2008) and planning the research project that would later be called *Change in Networks, Higher Education and Knowledge Societies* (CINHEKS). In 2008, the USA was the strongest economic power followed by Japan and the EU. Emerging economies like Brazil, Russia, India, China and South Africa provided an alternative perspective for imagining an emerging, multipolar planet. However, many in higher education appeared to be following ideological assumptions that seemed to be guiding higher education systems around the world, as opposed to considering viable alternatives. While there were important exceptions and critical voices (Currie and Newson 1998; Marginson 2007), higher education systems and institutions around the world seemed busy uncritically adopting and legislating what Kauppinen would later term *transnational academic capitalism* (Kauppinen 2012). The irony of this, in retrospect, is that the global economic meltdown of 2008/2009 rested on what turned out to be a vulnerable set of assumptions based on neoliberal ideology. These, in turn, manifested in the wholesale enthusiastic adoption of new public management practices supported by the OECD's modernization agenda (Kallo 2009) that were based on private sector global corporate culture, yet embraced by higher education (Slaughter and Leslie 1997; Slaughter and Rhoades 2004; Slaughter and Cantwell 2012). A further irony is that even amidst the global economic crisis, higher education actors in several countries continued to push through measures designed

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to imitate ideals embedded in the higher education systems in the very economies that spawned the global economic crisis of 2008.

The CINHEKS study was conceived and planned as the economic meltdown blossomed and rapidly impacted the global market – and the study itself. The study was carried out during the crisis, amidst powerful knock-on effects, many of which were acutely felt by our team (See Chap. 3). Further, the geopolitical reality of multi-polarity has shifted significantly in a fairly short period of time which has seen the ascendance of several of the strongest emerging countries, while other regions of the world underwent changes that were unforeseen by many of us in 2008, like the Arab Spring. Together with the unfolding crisis in Ukraine, as this book goes to our publishers, ground-breaking social movements in these regions underscore how important information and communication technologies (ICT) including social media, networks and the contents of information are for the organization and actions of political movements. This potent combination: ICT, networks and knowledge is discussed in more detail in Chap. 2.

While larger world events were directly related to several very real challenges the CINHEKS team faced, they also provided an interesting time for a study of this nature. This is because when the world seems to be shifting beneath one's feet and profound uncertainty has been forced on the very people and institutions in the business of interpreting and explaining the social world (the university), as fundamental continuities and discontinuities in complex systems are far from clear. Instead, normative oversimplifications and binary ways of thinking – The Global North/South; East/West, obscure more than they reveal when focusing on the way in which global higher education is changing within and between networked knowledge societies. The CINHEKS study and our team's problematization of the normative *stasis* linked to higher education, calls into question fundamental relationships about higher education and society. In part, the continuities and discontinuities within the countries in which CINHEKS operated were easier to see because the larger continuities and discontinuities continually forced us to both *reflect* on the implications of our studies within the scope of CINHEKS, and also *project* what the implications of our analysis might mean outside the geographical scope of CINHEKS.

In recent decades, economic challenges have focused more attention on the innovative potential within regions with creative, cutting edge higher education, which have developed sustained capacity for innovation and the economic dynamism connected to this. In this socio-economic context, well-supported by theories of knowledge societies and knowledge economies, higher education institutions (HEIs) are increasingly been seen as central institutions, vital to the futures of societies. What underpins this view is the role that HEIs play in the production of new knowledge which is, in turn, seen as the most important single factor explaining economic growth and creating societies of the future (see Chap. 2).

However, the role of HEIs in societies is complex and even paradoxical in a sense that HEIs are often given less resources, from the very nations and regions which expect to benefit, in order to produce a more highly qualified labor force and a steady stream of innovations (see Bleiklie and Byrkjeflot 2002).

In addition to the fact that all contemporary higher education institutions exist in a globalized world, the digitalization of industrial production, societal life and the production of knowledge together with environmental challenges all have a potential to fundamentally alter life as we have known it, during the industrial and post-industrial eras. Simultaneously, new social formations and forms, especially networks, have challenged traditional hierarchical structures of societies and industrial production and altered the very nature of innovation, as it plays out in the countries in which the CINHEKS team operated.

These processes of change seem to be taking place in a world where the speed of change is accelerating continuously. And these changes are especially interesting for universities and (other HEIs), historically speaking, in which past, present and future continuously interact with each other, on a daily basis. This is because universities are both one of the most ancient social institutions and organizations in the Western world (Kerr 1963) but simultaneously tightly connected with the transformation of future societies through their research and teaching/learning functions and through their innovative capacities. Because of this unique status, understanding the connections and networks within and between universities and societies is, therefore, crucially important for understanding the nature of society itself.

The intellectual goal of this book is to better understand how higher education institutions are linked with and connected to not only each other, but within and between networked knowledge societies. The analysis of networks within higher education is a formidable challenge, because we were not only aiming at a rapidly evolving target, but we were also executing our analysis from a quickly shifting academic base, continuously informed by new intellectual, social and industrial landscapes.

## 1.2 The CINHEKS Study

In order to pursue our admittedly ambitious goal, we designed and executed a complex international comparative study. The comparative point of departure, while challenging is ultimately necessary in topics like this, mainly because it spotlights unquestioned assumptions as to the roles and goals of higher education, within highly situated national contexts. In other words, within domestic contexts, ‘the way higher education works’ involves assumptions that are seldom questioned, unless or until another national context, with entirely different assumptions, are encountered. While this seems like stating the obvious, comparative researchers from Clark’s time (1983) till today (See Kosmützky and Nokkala 2014), still fail to appreciate the profound extent of these differences and their implications.

CINHEKS was carried out across six countries: Finland, Germany, Portugal, The United Kingdom and The United States of America and later joined by the Russian Federation (see Chaps. 6, 7, 8, 9, 10, and 11). Despite the fact that nation

states continue to be an important context for all HEIs, we did not want to treat the nation state as a taken-for-granted analytical category, because of the known challenges linked to methodological nationalism (Shahjahan and Kezar 2013) we anticipated. Therefore, our comparisons of institutional cases, across and within national contexts, while based on a common point of departure, the HEI profile (See Chaps. 3 and 5) and linked by a common interview protocol, were developed along distinct lines, determined by CINHEKS teams in the field (See Chaps. 3, 5, 6, 7, 8, 9, 10, and 11). In this sense, the HEI profile and interview protocol were both developed and used in a highly iterative manner, with the hopes of illuminating significant continuities and discontinuities *across* the scope of CINHEKS, but also useful to highlight features unique to *particular* focal settings. As is detailed in Chaps. 3 and 5, focusing our teams on similar social phenomena turned out to be a challenging intellectual exercise. In other words, we quickly abandoned the search for simple lexical equivalence (position or organizational units with similar names) as the basis for establishing focus, but rather focused on functional and conceptual equivalence, that illuminates to similar phenomena or activity (See Merton 1968; Teichler 2014; Välimaa and Nokkala 2014).

Empirically and methodologically, the CINHEKS design is exploratory in nature, combining several distinct modes of inquiry and aims at opening up a new vista of comparative analytical generalization and theory building.

### 1.3 The Themes of the Book

The intellectual goal and research challenge for this book is to understand how higher education institutions are linked with, connected to and related within contemporary societies. Unlike many books on comparative higher education all these aspects are discussed methodologically and theoretically to some extent, in every chapter instead of just in the theory chapter (Chap. 2) or in the design and methodology chapter (Chap. 3). This is because the CINHEKS research design challenged each research team to reflect on empirical social realities, within an overarching, interconnected framework, but also encouraged our teams to draw on the intellectual approaches which best serve the analysis of those highly situated realities. This said, the CINHEKS study is most powerful, when read, as a whole, unlike many comparative studies, which are more like anthologies of stand-alone chapters. The connections and interrelatedness of the chapters are explained in Chap. 3.

We assumed theoretically and also noted empirically during the research project that the social dynamics of higher education systems and institutions vary greatly, despite the fact that each national system of higher education and institution also had outwardly similar elements (see also Välimaa and Nokkala 2014). The final aim of this comparative research project is to explain these complex social phenomena both theoretically and empirically as they are seen in and from different theoretical perspectives and cultural contexts.

In order to better understand the similarities and differences between national contexts, we recognized the need, from the outset in CINHEKS, to understand the policy contexts in which HEIs exist. Because of this, we took a critical look at the political discourses on Knowledge Society in the countries included in the study (see Chap. 4).

The knowledge society refers to the sociological theory which aims to explain the most crucial social phenomena that currently explains contemporary societies, together with a number of other sociological and economic theories. Our theoretical chapter (Chap. 2) focuses on the analysis of three families of explanations: *the knowledge society*, *information society* and *network society*, which all are needed to better understand the nature of contemporary change in societies, even though each of them purports to provide a comprehensive explanation in and of itself. For this reason we assert their interrelationship is better served by the analytical synthesis we developed during the CINHEKS study: *Networked Knowledge Society*.

### ***1.3.1 Why Finland, Germany, Portugal, Russia, The United Kingdom, Russian Federation and United States of America?***

The selection of countries included in an international comparative research project is often based on good and bad academic reasons. In the case of CINHEKS, our initial point of departure was geography. In Europe this meant countries in the North (Finland), South (Portugal), West (UK and Germany) and the East (Russia). In addition, we took in to account the size and differentiated socioeconomic structure that included both large countries (Russia, the USA, Germany and the UK) and small countries (Finland and Portugal); nation states (Finland, Portugal) and federal states (Germany, The Russian Federation and The USA). These types of selection criteria bear in mind that the social dynamics of higher education depend both on the geographical location, the size and the political structure of the state (see Vålímaa and Nokkala 2014). In addition, in order to develop a more substantively and empirically generate meaningful comparison, we choose to seek out countries in regions outside of Europe, one of which worked out, the USA and one, in Asia which did not (See Chap. 3).

However, we do not live in perfect world. As academics we are strongly influenced by political and economic matters and we needed to make pragmatic adjustments during CINHEKS. In this regard, we also selected an important nation state in Eastern Europe, whose Ministry of Education ended up preventing their participation (See Chap. 3). Fortunately, Eastern Europe is now represented by the Russian Federation, which we were fortunate to include in the CINHEKS study close to the end of the research project. In addition, the impact of the 2008/2009 economic crisis, led to the closing of one of the institutes in which one of the CINHEKS team was operating, specifically the Center for Higher Education and

Information (CHERI), Open University, UK, which was responsible for the coordination of the CINHEKS institutional case studies and profiles (See Chap. 5). This made the life of our British colleagues much more difficult than what any of us anticipated in the beginning of the project. These matters are discussed in detail, in Chap. 3, because our team, as a whole, benefitted a great deal from opening up discussion on the nature of international comparative studies in the field of higher education research. We are confident that open, analytical and frank discussion on these matters is a good starting point for improving the quality of international comparative studies in our research field.

On a practical note, one of the consequences of our international comparative approach is an acknowledgement of the reality that English is written in a number of different ways. In this book we follow a modified version related to the APA style guide. However, each chapter is written using English (US or UK), according to the preference of the author(s).

### ***1.3.2 On the Contents of the Chapters***

The book consists of three parts. Following this chapter, we continue with our section on THEORY, DESIGN AND CONTEXT, which lays the analytical foundation for the rest of the book. In Chap. 2, Jussi Välimaa, Vassiliki Papatsiba and David Hoffman discuss different ways contemporary societies are explained and advance a new theoretical perspective: *The Networked Knowledge Society*. In Chap. 3, ‘CINHEKS research design: Taking Stock and Moving Forward’, David Hoffman and Hugo Horta open up a critical perspective to international comparative studies, using the CINHEKS-project as the empirically-grounded starting point for their reflections. In Chap. 4, Terhi Nokkala discusses knowledge society discourses in the context of higher education policy, in a comparative international setting. The title of this chapter is ‘National stories, convergent trends and divergent paths: discursive constructions of Higher Education and Knowledge Society – nexus in higher education policy texts of five knowledge societies.’

The second part of the book, WITHIN AND BETWEEN HIGHER EDUCATION INSTITUTIONS, focuses on analysing data gathered through a sequential series of qualitative, quantitative and relational modes of inquiry. This part of the book is opened by a cross-case comparative study of HEI profiles and case studies written by John Brennan, Vassiliki Papatsiba, Sofia Sousa and David Hoffman, in Chap. 5. This comparative analysis is followed by a series of focused case studies, framed within the perspective of national systems of higher education. The aim of these nationally-contextualized case studies is to highlight genuinely unique features within national settings, as well as significant features across cases while avoiding the trap of overreliance on the nation state as a taken-for-granted analytical category or point of departure. All national-based case studies were conducted in two different types of HEIs. One global-facing, the other with a local or regional orientation. The rationale for focusing on two different HEI types is related to

international policy discourses which emphasize the importance and need to create ‘World Class’ universities, while at the same time incorporating an ever-increasing list of tasks and responsibilities with respect to global, national and local needs. These policy goals and expectations are transnational and feed into strengthening existing and emergent status hierarchies within and across national systems of higher education. All kinds of higher education league tables are increasingly used to strengthen this trend. For these reasons we decided to analyze if there are in fact key differences, in empirical terms, between HEIs with different orientations, with respect to our topic.

The nationally-focused studies are opened with the focus on Portugal. Hugo Horta and Brigida Blasi analyze ‘Why public policies fostering knowledge networks in academia matter?’ Their Chap. 6 is followed by the case of the Russian Federation, by Anna Smolentseva: ‘Transformations in the knowledge transmission of Russian universities: social vs. economic instrumentalism’ (Chap. 7). Both of these chapters emphasize the tension between policy framing and the significance of traditions and historical legacies for understanding contemporary higher education. In Chap. 8 Brenda Little, Andrea Abbas and Mala Singh conduct a sociological analysis of values, based on the work of the Bernstein. They problematize and interrogate ‘Changing practices, changing values? A Bernsteinian analysis of knowledge production and knowledge exchange in two UK universities’. In Chap. 9, Anna Kosmützky and Amy Ewen analyse two higher education institutions in the German context of higher education. The authors problematize the tensions and limitations brought about by thinking too strictly in terms of ‘global, national and local’ focal points. ‘Global, national and local? The competitive horizons heuristic and multilevel spatial ties of universities’ are fresh, empirically grounded conceptual-level analysis that both respects the normative realities of substantive framing encountered by all higher education researchers, yet demonstrates, it is possible to move beyond ill-suited substantive framing, in conceptual terms. In Chap. 10, David Hoffman, Terhi Nokkala and Jussi Välimaa focus their analysis on a rapidly globalizing Finnish higher education system. Continuing to use the competitive horizons heuristic, they problematize the stratification of higher education in countries previously characterized by a lack of stratification. Building on insights from Chap. 5, they extend the cross-case analysis of the HEI profiles and case studies and introduce the conceptualization of *universtasis* as a normative conceptual problematization which illuminates empirical potentials, actualities and key policy choices. In Chap. 11, Aurelia Kollasch, Cecilia Rios-Aguilar, Blanca Torres-Olave and Gary Rhoades focus on: ‘Exploring social network ties of U.S. academics’. The authors illuminate the nature of the structural realities illuminated by employee status, institutional type, discipline, and geography. Their case study work is elaborated by an exploration of the way in which social network analysis (SNA) opens up a novel mode of inquiry underutilized in international comparative studies of higher education.

The last chapter of this section changes methodological approach. In Chap. 12, Blanca Torres-Olave, Hugo Horta, Aurelia Kollasch, Jenny Lee and Gary Rhoades

have two foci in their study. They begin with a methodological narrative, which they use to problematize the nature of an international comparative study, from the perspective of a single project team. Their illuminating narrative is followed by the comparative social network analysis of academics' networks in four countries (Finland, Portugal, UK and US) that combined a conventional survey, focused on attribute data with the relational approach of SNA.

The last part of the book consists of COMPARATIVE FINDINGS from the empirical, methodological and theoretical perspectives opened up within the chapters of the book. The editors, Jussi Välimaa and David Hoffman, together with the other team leaders who originally conceived of the CINHEKS research project, John Brennan, Gary Rhoades and Ulrich Teichler, aim at an overarching view of the central theoretical, conceptual, methodological and empirical outcomes of the CINHEKS study. They also outline the implications of these outcomes and new avenues for future research in higher education.

## 1.4 Re-becoming Universities?

The title of the book “Re-Becoming Universities?” aims to illuminate an analytically problematized, empirically-grounded perspective on the nature of changing relationship and roles of universities (and other HEIs) in contemporary societies. The title draws on an essay on the notion of Rhizome by Deleuze and Guattari (2004) who discuss, metaphorically, the relationship between ‘tree-like’ traditional organizations (like universities) and the logic of networks which operate on a distinctly different set of logics (see Chap. 2). In this sense, the rhizome is an a-centered, nonhierarchical social entity that operates by *variation, expansion, conquest, capture, off-shoots . . . all manner of “becomings”* (Deleuze and Guattari 2004).

If we think of universities as trees, rooted in their local environments, and networks of scholars as rhizomes, we can imagine that formal organizations and networks are interconnected and may need each other, in a symbiotic sense. *Re-Becoming University* suggests that contemporary universities, conceptually, empirically and normatively can be imagined as *perfect nodes* within networked knowledge societies. The conceptual problematization of *universtasis*, introduced in Chap. 10, illuminates a conceptual set of coordinates or ‘space’ in which a unique set of capacities, continuities and potentials intersect at a nexus of traditions, innovation and social networks. It is within this space where organizational form, notions of hierarchy, global circuits of knowledge and local need are mediated, in continuous, dynamic flux. How this complexity can be theorized, approached and analyzed within networked knowledge societies is the central intellectual challenge of this book.



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## Chapter 2

# Higher Education in Networked Knowledge Societies

Jussi Välimaa, Vassiliki Papatsiba, and David M. Hoffman

This conceptual chapter aims to initiate a discussion of the analytical synthesis of *Networked Knowledge Society*. This analytical synthesis illuminates the role of knowledge, information and communication technology (ICT) and networks to better understand the dynamic nature of contemporary societies and to more precisely conceptualise the relationships between these societies and higher education.

We have not aimed to create a single theoretical framework for this book. Rather, our highly iterative work in the CINHEKS study (See Chap. 3) allows us to highlight the importance of better understanding higher education within contemporary societal change. As a result, our aim is to advance key points of departure for better framing our empirical studies of higher education within social science scholarship.<sup>1</sup>

The crucial question we have been focused on is: *How is higher education related to society?* This is a big question that does not invite simple, nor definite answers. However, this is exactly why we believe that as higher education researchers, we should challenge ourselves to connect with the broader theoretical questions, concerns and conversations often avoided in our field of research. After all, higher education is, and has always been, a part of our societies. Because of this, conceptually gaining traction on this relationship allows us to more critically reflect

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<sup>1</sup>This also was a central goal of the EuroHESC Research Programme, in which CINHEKS was carried out.

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on the broader social dynamics which shape and change contemporary societies. It is our hope that our argumentation provides a useful conceptual understanding of the ways in which higher education institutions and higher education as a social institution can be analysed with respect to social change.

A traditional approach to examining the relationships between higher education and society is to consider this from the societal point of departure, asking: How does social change manifest in HEIs? Examples of this include Mode 1 and Mode 2 knowledge production (Gibbons et al. 1994), the entrepreneurial university (Clark 1998), the triple helix conceptualization (Etzkowitz and Leydesdorff 2000), research dependency theory and academic capitalism (Slaughter and Leslie 1997; Slaughter and Rhoades 2004). All these approaches posit social change as given matter of fact resulting *in* demands placed on HEIs, which are then required to absorb, adapt and respond to external societal change. Whether these types of conceptual approaches purport to explain how societal change is related to change in higher education, or whether they highlight social change as justification or rationale of reform is secondary to our point. What matters in this discussion is that they all assume a societal point of departure to interpret or explain change in higher education.

The approach we have adopted is by contrast more relational, with respect to the dynamic role of higher education in societies and the ways in which higher education both transforms – and is relentlessly transformed by – changing societies. In order to advance our argument, we propose to briefly concentrate more generally on the nature of contemporary forces of social change. This is intended to spotlight the active role of higher education in societal change. However, considering that social change, social order and structure are interrelated, we draw on social theories that aim to conceptualise the nature of contemporary society.

We then focus on and review the concepts of “knowledge society and knowledge economy”, “mobile network societies” and “network society”. While these concepts prove useful for reflecting on our contemporary era, we agreed, during the CINHEKS study, that when considered discretely, they lose power because the explanatory potential of their integration is lost. In other words, when integrated, a more powerful conceptualisation becomes possible.

We then argue that an understanding of, and focus on an integrated conceptualization of *knowledge*; *ICT*; and *networks* as a heuristics has more potential for empirically apprehending social ordering and structure through a focus on flows and shifting degrees of connectedness. Finally, we advance the analytical synthesis of *Networked Knowledge Society*, which both integrates a view of *knowledge*, *ICT*, and *networks* as the most important social phenomena in play in contemporary societies and also illuminates the relationship necessary to better understand the relationships between twenty-first century societies and higher education.

## 2.1 Theories of Societies: A Brief Overview

There are many ways to describe, interpret, explain and analyse the principles according to which human beings have sought to organise and to understand the societies in which they live. These include the classic sociological distinction between the two categories of social organization, namely *gesellschaft* and *gemeinschaft* where the dividing line goes between nation state machinery (*gesellschaft*) and free social formations of citizens based on societies and other voluntary organizations (*gemeinschaft*). *Social class* was long used as a point of departure that explained how and why societies have developed and how they are structured, following *Marxist reasoning*. The philosophy of history and *Hegel* is another example. Hegel's main aim was to explain history as "a process of dialectical change". This idea was developed further by Marx. The example of Marxism, in turn, shows how theoretically-based ideas can change the world when they manage to explain society in a way which is experienced and felt as real by a great number of people.

It is also possible to follow a nationalistic tradition of history writing that purports to explain national histories, cultural experiences and national languages as important social forces that create connectedness, holding societies together, in spite of relentless change (see Anderson 1991). Another important orientation focuses on social phenomena that integrate or differentiate societies, paying close attention to different kinds of solidarities following *Durkheimian reasoning*. Additionally, there is *Weber's* explanation of the emergence of capitalism and the role of the protestant ethic. Other approaches include explaining societies as consisting of different kinds of *social systems and subsystems*, like Parsons and Luhmann, who analysed the functioning and structuring of societies as systems and subsystems. A fundamentally distinct approach to the social sciences emphasises micro social elements of human experience, following a Goffman's practice or postmodern, poststructuralist and feminist perspectives that emphasise experiences unique to particular groups, for example perspectives linked to gender, sexual orientation, ethnicity or non-ascriptive distinctions, like modes of consumption. These later approaches rest on critical skepticism regarding the limitations of grand theory and/or shared societal narratives. Society can also be analysed as consisting of different *social fields*, where different varieties of capital (e.g. economic, cultural or social) define a struggle over resources that explains positions, distinctions and the nature of situated power as Bourdieu has underlined (see Burke 1992; Collins 1994; Menzies 1982). The traditional sociological problematisation of structure and agency has been tackled by social theorists, for example Giddens's (1984) theory of structuration or Archer's critical realism (1995). Beck's theory of "*Risk societies*" (1992), argues, in turn, that industrialisation, individualisation and modernisation now combine in unimaginably complex ways in which unanticipated manmade disasters in markets, societies and in the environment are now norms,

rather than exceptions (see Burke 1992; Collins 1994; Gronow et al. 1997; Menzies 1982; Beck 1992).<sup>2</sup>

This short and highly selective overview of a few key traditions in sociology and the history of ideas serves as a reminder that scholars, using distinct intellectual approaches have long aimed to *better explain the nature of society*. These different theoretical approaches help to explain how and why societies function and how they have changed historically by focusing on key potential social phenomena (e.g. traditions, social classes, solidarities, fields, etc.), almost always at the expense of others. Since the French Revolution and the industrial revolution in England, “older ideas of natural constants” (Haferkamp and Smelser 1992, p. 2) lost their explanatory power, continuously making room for conceptions of social change to develop and account for “a continual dynamic in social units” (ibid, p. 2). However, social change despite being an underlying basic assumption of all sociological theories concerning societies, are only rarely problematised as a concept or a phenomenon in itself (see Saarinen and Välimaa 2012; Boudon 2003). As Beck and Beck-Gernsheim (2012) point out, the proliferation of “zombie categories”, like bureaucracy or social class which once explained a great deal, are continuously confronted with new ideas that may offer much more convincing explanations of contemporary society.

Having made these observations, in a study like CINHEKS, put us in the position of considering the most plausible explanations related to our topic, as outlined in the previous chapter. In short: *What are the most important phenomena that shape, change and ultimately define contemporary societies with respect to higher education?*

We argue that the most important phenomena can be apprehended and conceptualised using three crucial sets of conceptual lenses that draw attention to the power inherent in *knowledge*, *ICT* and *networks*. Although the conceptual frameworks articulated around these three phenomena are often interrelated, we analyse them separately, for the sake of clarity. Following this, we consider how networked forms of social organisation, coupled with ICT enabled forms of communication and interaction changes – and is changed by – knowledge and its production. We argue that the interplay of networks, knowledge production and ICT is creating a fundamentally distinct set of circumstances that is more fluid, complex and dynamic. Ultimately this interplay defines the ways in which HEIs produce, use, disseminate and transfer knowledge. Further, because of this, relationships within and between HEIs and across the societies in which they are embedded are also fundamentally altered. We now turn to articulating this relationship, in conceptual terms.

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<sup>2</sup> The theory of Risk Society by Beck (1992) addresses some of the topics discussed in the theory of Knowledge Society. However, Beck was more interested in redefining the traditional relationship between nature and society than reflecting on the impacts of knowledge production for the society. One of his main arguments is that industrial society has made the world as its laboratory. For this reason we can understand social change from the redefinition of this relationship. In other words, “Nature” challenges “society, as society challenges nature” because each challenge the limitations of the other.

## 2.2 Explaining Social Change in Contemporary Societies: Knowledge, ICT and Networks

The aim of this section is to discuss the conceptual nature of knowledge societies, information societies and network societies drawing on social sciences literature, particularly regarding their relevance and applicability to higher education research. In so doing, definitional issues, as well as some challenges arising within these approaches, will be underlined. The question guiding our reflection is: *How have knowledge societies, information societies, and network societies been conceptualised as social phenomena, and what are the salient features that have been attributed to each of these?*

### 2.2.1 Knowledge: Definitional Issues

Before engaging with the discussion of, and distinctions between, the Knowledge Society and Knowledge Economy, we will clarify a working definition of knowledge, given its importance in our argument on the role of HEIs within societies. Our point of departure is provided by Bell (1973, p. 175) who wrote that knowledge consists of “a set of organized statements of facts or ideas, presenting a reasoned judgment or an experimental result, which is transmitted to others through some communication medium in some systematic form”. This definition is a pragmatic starting point for considering knowledge as a broad category that includes both evidence and ideas that can be communicated to others. This definition does not consider whether knowledge is accepted by others, or not. In other words, the definition ignores the social nature of the process of interaction and interpretation related to communication process.<sup>3</sup> However, this is where the definition’s usefulness lies. Bell’s approach assumes the distinction between content and form, both of which are distinct from the process of interpretation, even though all of these are needed when using knowledge. Despite offering a useful distinction regarding key distinctions needed to reflect on the nature of knowledge, the working definition does not address knowledge production. In this study, we adopted a narrow definition of knowledge, as we were focused on new knowledge produced in and through scientific research in higher education institutions.

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<sup>3</sup> According to organizational theorist Blackler (1995) there can be found at least five different ways to define knowledge as a concept. These are (1) embrained knowledge which depends on conceptual skills and cognitive abilities; (2) embodied knowledge is action oriented and probably only partly explicit; (3) encultured knowledge, in turn, refers to processes of achieving shared understanding; (4) embedded knowledge resides in systemic routines; (5) encoded knowledge is information conveyed by signs and symbols.

### 2.2.2 *On the Knowledge Society and Knowledge Economy*

Since the 1970s, propositions about the primacy of the way in which knowledge and knowledge production shape societies and advance economies have gained increasing prominence. The notion of the knowledge society is often understood in relation to major technological advances emerging from the “simultaneous growth of the internet, mobile telephony and digital technologies with the Third Industrial Revolution – which, at first occurring in developed economies, has seen much of the working population migrate to the service sector – and has revolutionised the role of knowledge in our societies” (UNESCO 2005, 18). This characterisation is supported by considerable empirical weight concerning the role and significance of knowledge in the development of the world’s societies and their respective economies. Bell (1973, p. 212) asserted that a post-industrial society is characterised as a knowledge society in a dual sense: “first, the sources of innovation are increasingly derivative from research and development (and more directly, there is a new relationship between science and technology because of the centrality of theoretical knowledge); second, the weight of the society – measured by a larger proportion of Gross National Product and a larger share of employment – is increasingly in the knowledge field.”

However, the “Knowledge Society”, as a social theory, was introduced by Stehr in the 1990s, spreading across a wide variety of public and policy arenas. His sociological inquiry focuses on the changes in societies, cultures and economies resulting from changes in the nature of knowledge. In elaborating on the shift from industrial to knowledge societies, Stehr (1994) engages with longstanding sociological preoccupations concerning the nature of social hierarchies, stratification, the distribution of opportunity in society, as well as the general nature of social life. His aim was to advance a *social theory* which explains society *better* than theories which more accurately explained *earlier* forms of society. Work on knowledge societies, starting in the early writings of Bell, was advanced in the context of sociological thinking in which theories of the information society asserted the idea that “the widespread diffusion of new information technologies serves to bring about an end to class conflict through bringing about an end to the working class.” (Cavanagh 2007, p. 14). Stehr asserted that conceiving of society, based principally on the relationships between labor and capital, no longer sufficiently provided the intellectual insight to explain modern societies. According to Stehr (1994, p. viii):

as labor and property (capital) gradually give way to new constitutive factor, namely knowledge, older struggles and contests, centered for instance on ownership of the means of production, also make room for rising sentiments of disaffection with beliefs and values once firmly associated with labor and property and ultimately result in very different moral, political and economic debates and conflicts.

Stehr did not argue that labor and capital dynamics disappeared. He acknowledged that previous social structure and struggles were not eliminated because of the emerging importance of knowledge-based social dynamics. Rather, Stehr asserted that societal relationships could no longer solely be explained without

centering knowledge production and consumption as core issues. Stehr advanced a variant of modernisation not as deterministic as Marxism, in which “modernization essentially involves multiple and not necessarily unilinear processes of ‘extension’ and ‘enlargement’” (Stehr 1994, p. 29).

Continuing to reflect on the transition from industrial to knowledge society with the help of metaphors, Stehr (1999, p. 228) characterises “the former as a community organized and controlled in a pyramid-like fashion, while the latter type of society more closely resembles delicate mosaics without definite centers.” What these metaphors illuminate, are tensions between established and emergent social structure and change. Seen from this perspective, Stehr maintains a line of sociological questioning focusing on key social issues and shifting relationships that define hierarchies, stratification and the nature of authority. As generic categories of social order, these societal features do not collapse, but become increasingly influenced by knowledge, instead of, or in addition to capital. As Stehr (1994, p. 14) said, knowledge becomes “the principle for social hierarchies and stratification, for the formation of class structure, for the distribution of chances of social and political influence and for the nature of social life.” In other words, knowledge gains increasing prominence as “major societal resource” forming a “basis for authority” and social contestation (ibid, p. 14).

In parallel and in addition to sociological theories of knowledge societies, economic theories have been advanced that draw attention to the role of knowledge in societies. Peters (2007) identified the origins of the tradition of ‘Knowledge Economy’ in the work of Hayek (1937), who emphasised the importance of knowledge for economic growth. In his critique against socialism and state planning, Hayek (1945) asserted the best way to organise modern society was tied to market logic. The central element in his vision of liberal democracy envisioned science and markets as self-organizing systems based on the price system, which communicates information. According to Peters, the tradition of the knowledge economy was developed further by Machlup’s groundbreaking work on the production and distribution of knowledge in the US economy, and Becker’s (1964) human capital theory, although these research traditions proceed from different assumptions (Peters 2007).

Higher education is positioned as a vector of individual and collective productivity and wealth in the economic argument of the Knowledge Economy. As Castells and Hall (1994, p. 231) put it, universities and their knowledge play an analogous role to “coal mines [had] in the industrial economy”. Within economics, the view of knowledge that prevails is associated with considerations of “factors of production, intellectual property, the skills-based economy, national systems of innovation, the knowledge base, the knowledge-driven economy, knowledge management, knowledge transfer, the learning economy, the learning organisation, the learning region, etc.” (Jessop 2008, 18). Far from being simply descriptive or neutral, these notions are easily read as *prescriptive* regarding the present and future of society, higher education and knowledge the value-laden nature of the discourse becoming very appealing to policy-makers (Välilmaa and Hoffman 2008).



To further consider the role of higher education within the Knowledge Economy discourse, it is helpful to distinguish three mechanisms through which (productive) knowledge is said to shape wealth. First, knowledge underpins innovation via R&D processes and application. This is based on the economic assumption of innovation as the foundation and process of value creation and competitive advantage. Second, knowledge is pivotal in the formation of a highly skilled labour force. The proliferation of knowledge-based occupations not only requires people who are highly skilled to use codified knowledge, but also who are able to expertly draw on complex knowledge relevant to a wide range of contexts. Finally, knowledge based on evidence and expertise informs the assumption of rational policy formation, as an aid to planning, which it turns aims at the optimal utilisation of resources, directed at the goals of laudable prosperity and growth.

Human capital approaches (Schultz 1961; Mincer 1984; Becker 1964), as a variant of Knowledge Economy conceptualisations, have gained considerable currency and prominence in proposals concerning higher education's role in promoting economic growth. Through the supply of "capital embodied in human beings" (OECD 1996, p. 9), namely knowledge and the capacity of "learning how to learn", individual cognitive capabilities are said to be enhanced, thus leading to increased productivity. This in turn is assumed to yield higher earnings for individuals and technological progress for collectives, affording society a competitive edge, in contrast to settings characterised by the "absence of human capital".

In times of financial constraints and demand for accountability, the rationalisation of higher education, as a key institution for shaping human capital, as well as normative debate on the utility of knowledge, have helped to both justify public expenditure and to increasingly focus higher education, as an institution, on science, technology, engineering and maths (Slaughter and Cantwell 2012). At the same time, this climate has fostered a view of higher education as an individual investment that requires cost-sharing by those who directly benefit from it, in the form of higher earnings, quality of life and increased opportunities. Less often pointed out, though, is the extent to which the ontological views of "productive" knowledge, as promoted within ideology linked to Knowledge Economy discourse (e.g. knowledge stocks, flows, access, storage and retrieval; processes of creation, distribution and sharing; facilitating the exposure of individuals to up to date knowledge, 'learning organisations', etc.), have set the scene for "knowledge management" and linked practices to emerge and rapidly expand. The implications for higher education, as an institution legitimised around the notion of knowledge, are clear. Bleiklie and Byrkjeflot (2002) argue that although knowledge increasingly assumes a central role in knowledge societies, universities experience decreasing societal recognition of their unique role, which is a result of criticisms about a perceived lack of responsiveness to the more instrumental facets of economic policy needs. They term this argument the "knowledge paradox", which underlines both the variety of ways in which knowledge can be thought about, as well as whose interests are being served within higher education, in general and higher education institutions in particular. The knowledge paradox illuminates tensions, rather than contradictions, in the sense that the *types of knowledge* being

valued, *by whom* and *why* are neither “right” nor “wrong”, in a normative or absolute sense; neither are they mutually exclusive. (See Chap. 7 as to how this is evidenced at the level of policy discourse and Chap. 10 for the empirically-grounded conceptual problematisation of these tensions.)

These points of departure draw attention to the fact that both the knowledge society, as sociological theory and the knowledge economy, as an economic theory, often cloud issues as much as they clarify them. This is especially true in the field of higher education policy making, where the terms are often used interchangeably, without reflection on the implications of confusing them. Peters (2007) stresses that knowledge, as a topic, is caught in “policy language-games without making sufficient or sound distinctions between the various definitions of knowledge, or conflate knowledge and information”. Although the approaches we have focused on recognise the centrality of knowledge and knowledge production in the development of societies and economies, the meaning of “knowledge” is ambiguous and far from being shared by diverse constituencies (Weiler 2006). Furthermore, despite claims that knowledge can be understood as value-free, ideology is not. In this sense, what counts as “profitable” knowledge has become a highly interesting focal point in contemporary knowledge societies and their HEIs (Robertson 2005). This has implications for the *kinds* of knowledge that higher education institutions have the potential to produce, transmit and transfer, as well as nature of the benefits which can be accrued from new relationships and shifting boundaries. Within these social dynamics, the potential impact on disciplinary fields and types of institutions with regard to hierarchies and stratification cannot be underestimated or ignored.

### 2.3 ICT and Mobile Network Society

In this section we discuss the nature of contemporary societies by reviewing the role of ICT, in relation to knowledge and networks. One of the shortcomings of much knowledge society discourse reviewed while preparing for CINHEKS was the conspicuous absence of the evolution, roles and relationships between networks and ICT as emerging social phenomena in their own right. The prominence of ICT cannot be ignored when studying contemporary knowledge societies and their HEIs. This is because the production and communication of knowledge, information and data required new mediums which, in turn, influenced social dynamics around the world. To generally illustrate the relationships between knowledge, ICT and networks, we draw on Castells (below), while the network approach is fully operationalised in our empirical studies (See Chaps 11 and 12).

Castells (1996, 2009) argues that knowledge not only contributes to economic growth but in fact is transformed by ICT, which, in turn, makes knowledge and information a fundamentally distinct, global source of productivity and power. Knowledge and information flows are optimally both accommodated and created within a powerful and dynamic logic that structures social organisation within networks. While Castells (1996, 1997, 1998) originally characterised his

empirically-grounded analysis, the rise of the “informational age”, this term never achieved the status of either the Knowledge Society or Knowledge Economy, the main critique being about the overly narrow or limited traction provided by a focus on information, at the expense of knowledge. Knowledge has always been concerned with social dynamics inherent to relationships between transformation, production and reproduction of social relations – and the social processes that flow from these relationships, particularly with respect to resources. Moreover, the nature of these relationships is political and social, not merely technical. This is because the quality of information and knowledge are related to social structure, in which the flow, nature and exercise of power in society manifests.

The notion of Information Society arising in the 1960s does not allow the intellectual traction necessary to deal with the tension between highly mediated reproduction and transformation which characterise the knowledge production, social reproduction and associated transformation in the twenty-first century. The advent of the information society did not lead to the dissolution of social classes since all citizens do not have equal access and resources to use and utilise information, however it has challenged the traditional borders and definitions of social classes (see Cavanagh 2007).

The concept of *Mobile Network Societies*, advanced by Castells et al. (2006), conceptually and empirically elaborates his earlier work on the “informational age”, in a manner that brings his work significantly closer to knowledge society discourses. According to Castells et al. (2006) time and space – the traditional bounding categories of human history that have defined by our physical body and its inherent limitations of being in one place at one time – have not been eliminated, but have been significantly transformed because of ICT, especially mobile wireless communication and the development of the Internet. Castells et al. (2006, p. 251) also assert that increasingly “there is an extra-ordinary strengthening of the culture of individualism” meaning the primacy of individual projects and interests over the norms of society or reference group in material terms. Although Castells et al.’s (2006) ideas about mobile network societies are empirically rooted in a study of young people and ICT, his assertions warrant a close look, because of the ways in which mobile technologies now shape the patterns of ICT-based communication and interaction.

The perspective opened by this analysis offers considerable insight into the relationship between knowledge societies and HEIs, in terms of established and emergent networks. To what extent is the medium – ICT – changing social structure, including higher education, due to the manner in which people communicate, interact and connect with each other? The answers to these questions seem self-evident, especially if considered from a historical perspective. Social structure in societies and their economies were fundamentally different at the time when communication was based on verbal communication, for example, in the Middle Ages, or limited to letters carried via horse, wooden ships and railroad; or printed books and newspapers to be individually sold; or electronic transmissions via radio and television. As Castells (1996) chronicled, ICT has transformed several facets of the era in which we currently live, in terms of social, economic, political and

cultural life. These changes have even influenced the pedagogical thinking in higher education, as teaching and learning are no longer based on rote memory, as it was in the universities of the Middle Ages, or not even rooted in a fixed locations, like a lecture hall, because of electronic delivery of teaching via ICT, like Mass Open Online Courses (MOOCs).

## 2.4 Conceptualisations of Networks

The main intellectual traditions include first, network society as a social theory developed by Castells, second, a universal theory of networks based on mathematical calculations by Barabási (2002) and, third, a conceptual toolset for studying heterogeneous networks the Actor-Network theory (ANT) by Latour (2007) and Callon (1986). In addition, Deleuze and Guattari (2004) have opened a seminal philosophical perspective to social order in their essay on rhizomes as an emergent social formation. In this section we review the most important facets of network approaches to society which have informed CINHEKS, in general and the aims of this chapter, in particular.

### 2.4.1 Network Society

The Network Society as defined by Castells (2009) is basically a description of open social structure which has no definite limits, but which does have a clear logic. Because it has no definite limits, there is not a clear-cut distinction between the outside and the inside of any given network, because the nature of networks is defined in terms of continuous change. According to Castells (2009, p. 19–20): “A Network is a set of interconnected *nodes*” (Castells 2009, p. 19) and “its function and meaning depend on the *programs* of the network and its interaction with other nodes in the network.” However, he emphasized that “the network is the unit, not the node,” and that “in social life, networks are communicative structures.” He further stressed, “a network is defined by the program that assigns the network its goals and its rules of performance. This program is made of *codes* that include valuation of performance and criteria for success or failure.” Networks can also compete or cooperate with each other. Cooperation is based on the ability to communicate between networks. This ability depends on the existence of codes of translation and interoperability between the networks (*protocols* of communication) and on access to connecting points (*switches*). “Especially when competing with each other, “networks work on binary logic: inclusion/exclusion.” In short, networks are complex structures of communication constructed around a set of goals that simultaneously ensure unity of purpose and flexibility of execution. They are programmed and self-configurable at the same time” Castells (2009, p. 25). Castells also emphasises the importance of ICT, which made the development of

the *network society* possible. Castells has conceptualised this as “a society whose social structure is made around networks activated by microelectronics-based, digitally processed information and communication technologies.” (Castells 2009, p. 24). These digital networks are global and their size, speed and complexity make them fundamentally distinct from previous forms of globalisation in earlier historical periods. More than any other era that has preceded it; *the network society is a global society*.

### 2.4.2 Actor-Network Theory

Another key perspective to networks has been advanced by Latour (2007), who asserts four promising methodological foci for the study of networks. Firstly, “a point-to-point connection is being established which is physically traceable and thus can be recorded empirically.” Secondly, “such a connection leaves empty most of what is not connected.” Thirdly, “this connection is not made for free, it requires effort.” And finally, his insight that a “network . . . is not made of nylon thread, words or any durable substance but is the trace left by some moving agent.” He also states that “in order to trace an actor-network what we have to do is to add to the many traces left by the social fluid another medium, the textual accounts, through which the traces are rendered again present.” He also emphasises that “the map is not the territory,” observing that graphical representations of networks are useless, if they do not take into account changes made by moving empirical focal points (ibid, p. 132).

According to Latour (2007) one source of confusion within the network approach to the social sciences stems from the distinction between conceiving of a network as a metaphor, (referring to mechanical or technical networks, like those needed to use electricity, or operate trains, or build highway systems) and the empirical analysis of actual networks. Like many metaphors, the intuitive “fit” introduces the temptation for substituting precise thought with colloquial shortcut: Specifically, a concept is reduced to a slogan. The term network, in lay person’s terminology refers, to formal and informal association. In this way networks are commonly used to describe social relationships in organisations, markets and states (Latour 2007). For Actor-Network Theory (ANT) -which is not actually a theory, but rather a methodological approach – power, society and social order are continuously in the process of development. ANT assumes that goals are produced through activity. This intellectual starting point raises the question of intentionality, as ANT assumes that the goals of networks are produced through activity. This easily leads to a circular logic, where activity produces goals and goals activity (Cavanagh 2007, p. 35–37). However, there are two methodologically interesting perspectives illuminated by ANT. Firstly, ANT considers two different types of actors in networks: human and non-human. Secondly, ANT asserts a useful piece of methodological advice: “follow the actor”. Due to the nature of networks as fluid and changing social formations this implies we can trace networks only when we

follow the actors. This way of thinking also means that ANT assumes that actors are always in the centre of networks. This assumption is not shared by Castells who sees networks as social entities in and of themselves (see Erikson 2009).

### 2.4.3 *Rhizomes*

One of the most radical philosophical essays opening new perspectives to social order, society and biology was written by Deleuze and Guattari (originally 1980, here 2004). Even though Deleuze and Guattari did not write about networks, their description of rhizomatic logic has fed into thinking of networks as a form of social order. Their work has had a profound influence on seeing networks as distinct social formations in the social sciences and, in addition, was foundational in developments of network-based programming in ICT. According to Deleuze and Guattari rhizomes may be seen as an alternative logic of social order that challenges the idea of binary logic.

For Deleuze and Guattari (2004), a rhizome is a powerful metaphor which they use to re-think the relationships and connections between nature, the environment and humans. It also provides a highly interesting perspective to think about the relationships that explain how academics, HEIs, and societies are connected. This perspective is an alternative logic concerned with conceptualising and understanding social order, which is diametrically opposite to “traditional social sciences” understanding of organisations, structures and hierarchies based on binary logics (inside vs. outside, above vs. below, structure vs. actor).

According to Deleuze and Guattari (2004), rhizomes have the following characteristics. Their first and second principles are those of *connection and heterogeneity*: any point of a rhizome can be connected to any other, and must be. The third principle is *multiplicity*: “A multiplicity has neither subject nor object, only determinations, magnitudes, and dimensions that cannot increase in number without the multiplicity changing in nature”. The fourth principle is *the principle of asignifying rupture*. “A rhizome may be broken, shattered at a given spot, but it will start up again on one of its old lines, or on new lines.” To clarify their point they give an example of a rhizomatic connection between human beings, they state “we form a rhizome with our viruses, or rather our viruses cause us to form a rhizome with other animals. The same applies to the book and the world: “contrary to a deeply rooted belief, the book is not an image of the world. It forms a rhizome with the world.” The fifth and sixth principles are those of *cartography and decalomania*: a rhizome is not amenable to any structural or generative model. It is a stranger to any idea of genetic axis or deeper structure. Hierarchical thinking is based on binary logic which the authors describe as a tree. The tree articulates and hierarchises tracings: tracings are like the leaves of a tree. The rhizome is altogether different, a map and not a tracing. . . . perhaps one of the most important characteristics of the rhizome is that it always has multiple entryways;” (ibid, p. 7–14).

The challenge and charm of Deleuze and Guattari's work derives from its abstract philosophical language. Yet, the main argument is quite clear: one can think about the world (including individuals, nature and society) from other than hierarchical perspectives. They suggest rhizomes, as a metaphor and perspective, serve this purpose. The principal characteristics of a rhizome are as follows: "unlike trees or their roots, the rhizome connects any point to any other point, and its traits are not necessarily linked to traits of the same nature; . . . The rhizome is composed not of units but of dimensions, or rather dimension in motion. It has neither beginning nor end, but a middle (*milieu*) from which it grows and which it over-spills. . . Unlike the tree, the rhizome is not the object of reproduction: neither external reproduction as image-tree nor internal reproduction as tree-structure. . . . *The rhizome operates by variation, expansion, conquest, capture, offshoots.* In contrast to centered (even polycentric) systems with hierarchical modes of communication and pre-established paths, the rhizome is an acentered, nonhierarchical . . . all manner of "becomings" (2004, p. 23–24). It should be said that Deleuze and Guattari do not claim that hierarchical organisations (like trees) are an opposite to rhizomatic constellations. In fact, both trees and rhizomes can benefit each other, in the same way a symbiotic relationship occurs in nature.

Our discussion has focused on the crucial dimensions of knowledge, ICT and networks within conceptual frameworks that provide heuristic understandings of contemporary societies and their relationships with HEIs. We will now move to the next task of articulating our proposition of Networked Knowledge Societies, their relationships with higher education, followed by a critical discussion that points out their emancipatory potentials but remains also lucid of inherent power tensions and exclusion risks.

## 2.5 Defining Networked Knowledge Societies

All three families of theories explaining contemporary societies discussed above can be used to illuminate, explain and account for important social phenomena in the contemporary globalised world. The theory of Knowledge Society justifiably emphasises the importance of knowledge in all spheres of contemporary societies. However, this theory pays less attention to structural dynamics and forms of social organisation (i.e. networks) and the very medium in which knowledge is produced and transformed: ICT. The theory of the Mobile Network Society, as an example of the conceptual extension of Information Society, emphasises, perhaps too much, ICT as a source of social change, while ignoring the content of the information (and knowledge) communicated in and through ICT. The third family of theories related to the network approach in the social sciences, are primarily relational approaches giving primacy to the study of relationships and processes and the properties connecting "units", while the nature of those "units" themselves and the contents of communication (knowledge) are left largely unexplored.

Considering these limitations, we advance the analytical synthesis of *Networked Knowledge Society*, which both integrates a view of *knowledge*, *ICT*, and *networks* as the most important social phenomena in play in contemporary societies and also illuminates the relationships necessary to better understand the relationships between twenty-first century societies and higher education. This analytical synthesis productively illuminates the following aspects that are relevant to CINHEKS study:

1. *Needs and uses of knowledge*. Societies, communities, businesses and a wide variety of organisations, rely on, use, update – and in many cases produce – knowledge to accomplish their purposes and objectives. In addition, global, national and local economies need and utilise knowledge in their everyday practices and when making their products or services – both material and immaterial. Knowledge is a necessity for human activities. While this is nothing new in the history of mankind, the quantity and quality of the needs related to knowledge are a new phenomenon. It is not enough to have knowledge, but to have current and the most updated knowledge. This is where research and universities – with their demonstrated capacity regarding the production of new knowledge and innovations – become crucially important. Knowledge-related dynamics are at the core of all contemporary societies. This takes on even greater importance in societies and regions outside circuits of knowledge. However, examining issues related to the needs and uses of knowledge opens up new questions and dilemmas. These concern the nature of knowledge, and especially research-based components, as well as the relationships between HEIs and society, and finally society itself (Bourdieu 2004). Are all types of knowledge seen as equally ‘useful’ or are there dynamics of privileged knowledge? Are there unseen risks linked to research findings being “delivered” only to “customers” and “consumers”, following linear economic logic governing relationships between producers and users (Papatsiba 2011, 2013)? And finally, is this knowledge thirsty society “simply a society of more knowledge and technology” as Knorr Cetina (2007, p. 362) asks, or is it qualitatively different? Knorr Cetina negates the former and asserts that it is a “society permeated with knowledge settings, the whole sets of arrangements, processes and principles that serve knowledge and unfold with its articulation.” (ibid, p. 362). As open access logic implies, issues of knowledge “ownership” and potential benefits are far more complex than what can be reduced to instrumental, transactional, functionalist models of exchange between producers and customers.
2. *Information and communication technology*. The nature of contemporary knowledge societies cannot be understood without taking into account modern wireless information technologies, and the wider internet infrastructure. This rapidly evolving system – especially portable computers, tablets, mobile telephones and smart devices of all types – enable multifaceted connections within a plethora of dimensions, depending on the systems used. Social choices and communicative preferences continue to be framed by social structure, but a fundamentally more dynamic range of potentials than what has been possible for many groups and



individuals in the past has been opened up, when social structure was grounded in place and time (see also Giddens 1984). Within limits, wireless communication and the internet have the potential to considerably enhance one's choice of interlocutors, as well as the intensity and density of interaction. They easily create the illusion, or the delusion of this 'choice' (Davidow 2011). From the origins of the internet, HEIs and research facilities have been crucially important nodes of knowledge networks. Firstly, HEIs were one of the few organisations which typically possessed sophisticated computers, and secondly, they had the intellectual and material resources to continually develop the local nodes that have become the contemporary internet, alongside increasingly lucrative internet service providers, commercial services, other types of organisations and social movements which have sought to harness this technology for their specific purposes. While the HEI and research centre may have been the birthplace of the internet, ICT has become a much larger story. One of the most recent challenges for teaching and pedagogical practices in HEIs is the expansion of electronic learning environments and MOOCs which have the potential to remove teaching from campuses to the 24/7/365 reality of ICT.

3. *Communication within networks and the co-production of knowledge.* While the need for up-dated and new knowledge is increasing everywhere, the forms of knowledge production are also changing. Traditional hierarchical models of knowledge production have been seriously challenged by network-based, peer-production forms of knowledge. Open access is an example of a parallel logic of knowledge production that transcends the border between public and private sectors of societies. This means that production of knowledge is conducted in networks of different partners – commercial and non-profit, private and public. This kind of cooperation is not only promoted by regional actors, like the EU, but it is also a reality in many kinds of different partnerships. This kind of knowledge production could be confused with what has been termed Mode 2 knowledge production (Gibbons et al. 1994; Nowotny et al. 2001), but it is distinct; open access thinking extends far beyond simply “knowledge produced in the context of its application”. Open access logic supports relationships focused on common objectives, while at the same time acknowledging that cooperating entities may have different motivations. The defining features of these types of arrangements are that, first, the end product – whether produced in its context of application or not – will be free for the end user, and second, the system in which the effort is made, will remain open for refining both the knowledge produced and the manner in which it was produced. HEIs are increasingly involved in these types of partnerships, which may involve cooperation between academics, basic units and other stakeholders outside HEIs.<sup>4</sup> Network logic has been – from the outset – the primary logic in which these

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<sup>4</sup> Brainport area in The Netherlands gives a revealing example on this kind of development (see Lintsen 2009).

multiple and flexible academic, business and social partnerships relations evolved.

For the reasons above, mobile network societies, knowledge societies, and ICT, can be thought about in a much more integrated way: specifically, as *Networked Knowledge Societies*, to better explain the era in which we now find ourselves. This analytical synthesis allows us to get traction on the most important aspects of social dynamics playing out in contemporary societies. These include the *content* of knowledge, as well of its *social form (networks)* and *ICT* as a power-laden *medium* and *social structure* of networked relationships.

## 2.6 Networked Knowledge Societies and Higher Education

When defining in more detail *Networked Knowledge Societies*, we have to reflected on the ways through which HEIs are connected to the *content of interaction* (knowledge), the *technology of communication* (ICT) and the *social structure in which interaction occurs* (networks).<sup>5</sup> Research and HEIs – as a site of either critical production or facilitation of new knowledge and innovation – are important in all these respects.

It is evident that the locus of knowledge production<sup>6</sup> is, indeed, moving from universities to new constellations existing ‘between’ universities, the state and industry and other types of organisations. It is also evident that the notion of Mode 2 knowledge production did in fact illuminate trends of changes in knowledge production, even though when originally asserted, the argument was not empirically grounded. These changes in the modes of knowledge production mean, among other things, that the production of knowledge is becoming more collective than an individual processes, involving more and different individuals, groups and organisations in these processes. The changing mode of knowledge production may also mean that the access to knowledge is changing because it was much easier in the past to restrict knowledge through patenting, or keeping it inside the borders of nation states and their institutions (like universities and research institutes). The closed cities and research institutes of the former Soviet Union provide illuminating examples of this kind of knowledge restriction. In a globalised world, these types of restrictions do not seem to make sense to many actors, as the advancement of knowledge is so rapid and knowledge is needed and used

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<sup>5</sup> We refer to social structure in a broad, pragmatic sense, for example, the durable manner in which social relationships are patterned (Dewey 1929) reproduced and transformed (Bourdieu 1988) and in which new phenomena continuously emerge.

<sup>6</sup> The changing locus and mode of knowledge production has been reflected in the conceptualisations such as Mode 1 & 2 knowledge production and the Triple Helix (Gibbons et al. 1994; Nowotny et al. 2001; Etzkowitz et al. 2000; Etzkowitz 2003) as discussed by Välimaa and Hoffman (2008).

everywhere in society. Networked Knowledge Societies are characterised by an increasingly open flow of free knowledge, whereby knowledge producers are connected with other producers and end-users in ways which are said to potentially benefit societies, via cooperative, open peer-production of knowledge (Benkler 2006). In other words, a great deal of knowledge is produced and shared in and through networks – as Castells (2009) has suggested. With the rapid developments of ICT, access to knowledge is much easier because much information, data and knowledge can be found on the internet – at least for those who have access. Important developments in this area include advances in the storage of older forms of information and knowledge, like books and scientific articles, which can be found in digital forms in a rapidly expanding system of open-access portals. The implication of this is that free access to knowledge, in globally connected networked knowledge societies, could one day replace restricted access still prevalent in many societies, where access to knowledge is controlled and physically located in separate places (libraries and archives).

These developments are linked to accompanying changes in organisations and key qualifications sought by employers in networked knowledge societies. It is not enough to give only narrowly-focused and conceived academic education to students because many employers need students to have a good capacity for teamwork, communication skills and leadership traits suited to organisational structures that have incorporated ICT infrastructure in a way that has made traditional long-established boundaries, like organisational, national, cultural, linguistic, geographical less relevant in some ways, irrelevant in others and, paradoxically, untouched or more relevant than ever, in others (See Chaps. 7, 10 and 11). Furthermore, in industrialised societies many forms of work organisation were based on assumptions about economies of scale being achieved through strict divisions of labour, tasks being disaggregated into their constituent parts, employees trained narrowly with duties aimed at very few types of tasks, and management responsible for oversight of such processes and ensuring efficient and effective overall performance. In many places these assumptions disappeared in the last century, replaced by “high performance” work practices (see for example, Sung and Ashton 2005).

In order to problematise assumptions about knowledge production, knowledge dissemination and the nature of knowledge we contrast some of the main assumptions the idea of networked knowledge societies brings into view, in Table 2.1.

The most important point about the oversimplified assumptions we contrast in Table 2.1 is that while there is an empirical basis for the simplifications, taking them too literally runs the risk of missing the complexity, unexpected outcomes and possible paradoxes, such as hierarchical institutions that emancipate and highly coercive networked organisations (cf. Musselin 2007). In order to qualify our argument, and better connect it to the network approaches in our case studies and finally distance ourselves from programmatic agendas, we will offer some critical insights on network approaches.

**Table 2.1** Assumptions linked to knowledge production and transfer in traditional hierarchical societies and in networked knowledge societies

	Traditional hierarchical society	Networked knowledge society
Changes of knowledge:		
Locus of knowledge:	Local & national institutions	Global networks
Nature of knowledge:	Controlled, often closed	Open & free
Access to knowledge:	Limited, controlled, local	Free, open & global
Production of knowledge:	Individual academics	Collective cooperation, co-production, peer production
Storage of knowledge:	Libraries & archives	Internet
Mode of knowledge production (research):	Academic: universities, research centres	Cooperation: universities, business & stakeholders
Mode of knowledge transmission (teaching):	Teacher-centered, lecture rooms, local	Student-centred, 24/7 based learning, MOOCS, global

## 2.7 The Challenges Inherent in the Network Approaches

### 2.7.1 *Networks: Promise and Challenges*

To start with a discussion of the notion of a network orientation and the debates surrounding the general approach, it would be fair to say that the network approach, as a point of departure, has provided a relational logic, well-suited to a number of disciplines. Hardt and Negri (2000, p. 142) observe that “the network has become a common form that tends to define our ways of understanding the world and acting in it.” Yet this should not disguise the fact that networks are highly challenging, ontologically, conceptually, methodologically and empirically. One could argue that the popularity of this approach, across so many disciplines and utility in describing people’s own experiences of social life, produces its strengths and limitations, in the same instance. Cavanagh notes that networks create “a new isomorphism, a common form with differing content, of the times” (Cavanagh 2007, p. 23) and Latour (2007, p. 129) ironically criticises the network after advancing ANT, stating “the word network is so ambiguous that we should have abandoned it long ago.”

These ideas suggest two things. First, network as a concept and as an intellectual perspective departs from different theoretical premises and develops along a number of different intellectual traditions (Erikson 2009). Similarly, Knox et al. (2006, p. 133) advise that “we should be cautious of attempts to suggest it [the concept of network] offers an easy interdisciplinary resolution to deep-seated disciplinary differences”. Second, its inclusive and hybrid nature count for its involute form, which despite its appeal as an alternative approach to positivism and functionalism, poses serious challenges to conceptual and methodological analysis. How to mobilise codified disciplinary knowledge and its underlying epistemological and

ontological assumptions conveyed in established categories in order to study “a hybrid imagined in a socially extended state”, as Strathern (1996, p. 521) put it? The network, as a “tracery of heterogeneous elements that constitute such an object or event, or string of circumstances, held together by social interactions” (ibid, p. 521) is in a permanent state of production and reproduction, of inclusion and exclusion. “Yet analysis, like interpretation, must have a point; it must be enacted as a stopping place” Strathern, (ibid, p. 523) points out.

### 2.7.2 *Power in Networks*

A second theoretical challenge lies in the way in which power manifests in networks. Power can be defined and understood in many different ways even though most theories accept that power directly or indirectly implicates relationships between people. Many theoretical perspectives afford the possibility of analyzing various aspects of power that can be used to interpret or explain the nature of power in societies and how it manifests in particular social relationships. If so, how is power used in networks?

In the theory of Global Network Society Castells (2009) elaborates on the challenges linked to power in and across networks, and argues that networks in communication and programming are the most powerful. Castells identifies four forms of *power*. These are (1) networking power; (2) network power; (3) networked power; (4) network-making power. He goes on to emphasise that power in networks operates through mechanisms of exclusion and inclusion. Amongst the crucial social actors in networks, *programmers*, set the goals for the networks, and *switchers*, control connecting points between various strategic networks. An example of a switcher would be people who connect academic and business networks “to provide knowledge and legitimacy in exchange for resources for universities and jobs for their products (AKA graduates)” (2009, p. 46). Castells asserts that common features of networks are cultural materials, like ideas, visions, projects and framing, rendering communication and programming functions powerful. For these reasons the most important fields of power in network society are in the realm of communication and the field of programming (Castells 2009, p. 45–47). Castells further claims that social actors, aiming to “reprogram” society need to work through communication networks, to have any hope of success. This is why different discourses frame the options of what networks can or cannot do. Based on his analysis, Castells asserts that power in the network society is *communication power* (2009, p. 53).

In addition to principles defined by Castells, there is a need to discuss the status of actors. The challenges are in identifying and defining elements of network actors which may be both human and non-human, following Latour (2007). Another challenge is analysing the nature of the linkages and adequately accounting for power. Contrary to traditional understandings of power within sociology where it is used as an explanatory variable (who uses power), in ANT power is seen “a

property that emerges from interaction” (Cavanagh 2007, p. 32). This focus allows ANT to challenge traditional definitions of power, related to social structure, within society, even though in ANT this raises the same question of intentionality as can be inferred from Castells. Specifically, where are the goals of and for networks produced?

## **2.8 The Threat of Exclusion in Networks: The ‘Soft’ Power of Non-hierarchical Links?**

King (2010) offers an additional insight into the analytical foundations of networks, asserting that in absence of hierarchical links as it is the case with network relations protocols are serving as regulatory devices and conventions. As he puts it, “a protocol regulates the interaction of social and technological actors who are formally independent of one another. A protocol enables interdependence on the basis of independence.” (ibid, p. 4). King explains the qualitative difference of power in networks. It is no longer the power of repression that leads to compliance, but the power of the threat of exclusion.

This kind of “network power” can be defined as a “soft power” because it has the capacity to influence people, enmeshed in protocols and standards in order to avoid exclusion. Soft power is not however less persuasive than traditional “hard” power. As the Open Method of Coordination, as operationalised by the nation states that comprise the European Union shows, the threat of exclusion can be a more powerful mode of power than coercion, which can be resisted. This is especially the case when considering optimal methodological and empirical approaches that explain relationships between higher education institutions within and between societies.

It is much easier to locate higher education studies that leave the nature of power unproblematised, than to find compelling analysis of the nature of contemporary power. Often, power has been defined in terms of hierarchical organisations from top-down, by the founder(s) of an organisation, or by an outside entity, legislation, etc. Power in traditional organisations follows the idea of a top-down, hierarchical organisation with clearly defined power relations between its members. In networks, power can manifest in very different ways than what is thought to be the case in conventional hierarchies, because power relations can be created within and are constrained by network logic. For this reason different kinds of protocols and standards become important focal points when considering the power to include or/and exclude, within a network, because they delimit, to some extent, the most obvious access to the network and what happens inside the network. For the same reason power within networks is not defined from the outside, rather it only fully manifests and is embodied within the network. The dynamics of inclusion or exclusion, for example within nodes or as controlled by a switcher, have the power to accept or reject new members (human or non-human actors) into the

network. The power relations in networks can be distinct from other forms of organisations because of the highly fluid, high-speed and multiple options for identity processes linked to a relentlessly expanding number of options within network formations. Being and becoming a member of a network is also related to the sense of belonging to and contributing to the network. For this reason the identity of a network, and identity-work within a network, can be fluid and open to change, whereas in traditional hierarchical organisations identity is often shaped by a fairly finite set of reference points in organisational culture and mission(s).

## 2.9 Concluding Thoughts

The challenges to higher education have often been characterised as originating ‘within’ the institution of higher education itself and from ‘outside’ the increasingly blurred boundaries of the multiple societies in which contemporary universities are embedded. The very nature of networks suggests the twenty-first century is more complex than dualities of inside/outside will allow for.

Common to all different intellectual perspectives to networks discussed above is the way of thinking which emphasises interconnectedness, links and non-hierarchical social entities and change as a constant element of societies and different kinds of social organisations (see Erikson 2009). Our argument does not assume network logic “replaces” other forms of social structure. However, different network approaches are akin to a more relational view of society theoretically, methodologically and empirically supporting thinking about key social institutions, like higher education, in a novel way, especially in the field of higher education studies.

The integrated perspective opened by Networked Knowledge Societies has a potential to open new perspectives to the *emergent* dilemmas and paradoxes that cast *established* dilemmas and paradoxes of social stratification in a new light. It also helps to approach the problem of intentionality from a fresh perspective because the purposes of networks are not created within the networks only but in relation to the content of the communication exchanged in and through ICT, and beyond.

Yet, the sociological imagination still entails understanding *history, biography and their intersection in society* (Mills 1959). This has not changed within Networked Knowledge Societies. Like the societies that preceded them, networked knowledge societies, have no predetermined goals, owner’s manuals, nor instructions: only *potentials*. Furthermore, human agency in its many forms will still play out within historically situated and culturally grounded social structure. The social dynamics that the idea of networked knowledge societies draws our attention to opens up a spectrum of possibilities that we simply did not have a few years ago.

That said, conceptually speaking, the potentials of higher education as a node *par excellence* are more clear than they once were, as higher education is a *very particular intersection* in a networked knowledge society. If an exclusive focus on knowledge in its various forms (creation, transmission, transfer, application), is

acknowledged as its uniquely defining feature, higher education has long played a role in wealth creation agenda but perhaps in terms that are more nuanced than narrow utilitarian approaches allow us to see. Firstly, higher education, through research, is as a producer of novel knowledge and the modes of inquiry that enable the training of new scholars. In addition, new knowledge often finds relevance, through R&D aimed at application. This can happen in many ways, including commissioned research, the development of spin-offs and start-up firms and collaboration with government, industry and any other type of organisation or stakeholder. Research and teaching also means the provision of a highly skilled labor force. Secondly, higher education's role in policy formation and planning occurs through channels of professional expertise and research-based evidence for use in decision-making. Increasingly, higher education can be called upon as part of accountability operations aiming to evaluate the public's return on societal investment, to underpin resource allocation, and finally to assess efficiency and effectiveness. Lastly, higher education constitutes vital participation, in many forms in networked knowledge societies, in the form of everything from scholarly networks and societies, collaborative professional arrangements and inter-institutional consortia to housing. These aspects of higher education illuminate institutional boundaries becoming far more porous as institutions, groups and individuals pursue niche strategies and profiling in their attempt to exist on a continuum formed by *survival* at one end, the other limited only by imagination.

Higher education in many places still exists, empirically and conceptually, in socially stratified, hierarchical space. That said, networks of several types have long cut across the boundaries of nations, domains, organisations, disciplines, and the missions used within higher education to interpret and explain social dynamics in any focal context.

Another way of thinking about the tension between established and emergent social structure would be the metaphor, following Deleuze and Guattari (2004) of trees and rhizomes. Defining HEIs as hierarchical, tree-like organisations with fixed tasks to take care of and with clearly defined organisational structures, helps to contrast it with academic networks which follow the nature of rhizomes by being social processes rather than structures. However, these two different "life forms" exist simultaneously in HEIs and they may, in ideal circumstances, benefit each other, because rhizomes live among the roots of the trees and trees have rhizome-like small roots. Continuing with this metaphor, it follows that higher education institutions can be imagined as old, deeply rooted trees, with established organisations, but fundamentally dependent on rhizome-like cooperation processes which take place in and through the missions of the university at the local, national and international levels. It is evident that universities as 'trees' cannot live without the rhizomes (networks) of academics who, in turn, need strongly rooted 'trees' to survive on the often harsh globalised 'soil'. It may well be the case that universities and other HEIs are ideal organisations in and for networked knowledge societies. In this scenario, HEIs can be significant actors which shape the objectives for networks and networked knowledge societies.



Central to saying something new about higher education, in terms of networked knowledge societies, is the capacity to analyse the nature of the relationships between networks and knowledge production and dissemination. This approach allow us to think about the multiple and highly varied perspectives and interests brought to bear on social dynamics related to knowledge, as the core focus within the conceptual space that defines higher education, in general and higher education institutions, in particular.

In Chaps. 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, and 13 of this study we engage these challenges, comparatively, regarding higher education institutions in different networked knowledge societies. These chapters help to conceptually illuminate and empirically ground the idea that the highly situated scholarly traditions and the sociocultural resources of societies, in distinct geographical locations result in unique, highly dynamic resolutions to tensions. These resolutions materialise in institutional missions and with respect to domains, which in turn explain higher education as a conceptual space, like no other in society. The empirical grounding of these dynamics offer ample opportunity for explanation-building as to the crucial role higher education institutions play, when attempting to locate themselves in highly situated perceptions of ‘local’, ‘national’ and ‘global’. However, more importantly, our approach provides us with the capacity and tools to problematise the degree to which HEIs have succeeded in resolving the tensions that define them, fallen short or perhaps missed more fundamental issues. In this sense, the idea of the Networked Knowledge Society, as an analytical synthesis, allows analytical traction on key social dynamics, which in turn allow us to ask new, comparatively robust questions about the relationship between higher education and society around the world.

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# Chapter 3

## The CINHEKS Research Design: Taking Stock and Moving Forward

David M. Hoffman and Hugo Horta

*Plans are useless. But planning is essential*  
General Dwight D. Eisenhower

### 3.1 The CINHEKS Research Design: Challenges, Novelty and Potential

The quote by Eisenhower occurred to the authors, during their time as PIs of specific projects within the CINHEKS study. It is clear that planning is integral to research. However, it was during CINHEKS that we became very interested in the highly different ways in which we, ourselves and our colleagues perceived and experienced the dynamic relationship between *planning, design, execution, challenges* and opportunities.

Comparative research design, at its best, in an international project focused on a complex topic, is a dynamic, iterative and on-going process. In the CINHEKS study (here and after ‘CINHEKS’), this proved to be the case, both by design and in several ways our team did not, nor could not, anticipate. The tensions between purposeful planning, inevitable setbacks and serendipity were one of the most interesting aspects of CINHEKS and deserve elaboration. Therefore, the purpose of this chapter is to take a step back, well outside methodological convention, to holistically and critically reflect on the lessons learned during the preparation and execution of CINHEKS. Our efforts can be understood as an exercise of hindsight, but where the objective is not a simple *either/or* eulogy of planning successes or an autopsy of things-gone-wrong. Research is far more complicated than that, as the

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CINHEKS team experienced. So, rather than painting overly simplistic either/or pictures, our analysis of our efforts with regard to research design is about the *relationship* between successes beyond our wildest expectations and challenges we did not always fully appreciate or anticipate – and the ways in which the two ends of that spectrum are inextricably bound together.

Our reflection is on the complexities of the evolution of an international research project from its genesis to its conclusion. This is clearly outside methodological convention. By ‘outside methodological convention’, we underline a unique aspect of CINHEKS. Specifically, the fact that our team was highly conscious of – and continuously reflected on – our process, or ‘*how and why*’ we went about approaching our topic, parallel to our efforts focused on the substantive, theoretical and empirical aspects of ‘*what*’ we set out to study. In addition to this overview chapter, this can be clearly seen in Chaps. 5 and 12, in the collaborative, critical efforts of the team focused on the cross-case qualitative analysis of the CINHEKS fieldwork and the development of the CINHEKS survey. Our focus on process was also seen in presentations, studies and projects carried out, in part, by CINHEKS team members aimed at the challenges inherent in twenty-first century international comparative higher education studies. These efforts are elaborated throughout this chapter.

To accomplish our purpose, we firstly elaborate the CINHEKS research design. This section contextualizes and frames the design in which both challenges and novelty arose. Secondly, we draw specific attention to the challenges we encountered while preparing for and executing CINHEKS. When the research plan was prepared, we began with a high degree of complexity and the aim of carrying out ‘blue sky research’ more typical of the hard sciences. The authors of the initial project knew that if something truly novel was to come out of CINHEKS, we would have to identify something fundamentally new, empirically speaking or conceptually – probably both. This was a key distinction from the three other projects in the European Science Foundation (ESF) EuroHESC research program in which CINHEKS was carried out and this distinction gave CINHEKS an edgy quality that many peers, close colleagues and even some CINHEKS team members never became entirely comfortable with (as we detail below). Our efforts were sometimes viewed as naïve, distracting and overly optimistic. Some colleagues in our sister projects considered our efforts ‘vague’, ‘ambiguous’ and speculated that ‘even we did not likely know where we were going – or would end up.’ Yet, this was a calculated risk, and at least there was an acknowledgement from the start that things would be messy, nonlinear and often problematic, and the risks of failure were very real. The proposition that kept our team moving forward, from the start, was that we were betting all our chips on the type of design that was needed in a research field known for its unimaginative and narrow, bordering on stagnant substantive, theoretical and methodological approaches (Hoffman et al. 2013a; Tight 2012). It could even be argued that our agenda, behind CINHEKS, was to go a few steps further, well beyond the norms of our field. To what extent this was accomplished, remains to be seen, as impact depends on the way in which our findings are received. This said, we underline that at this stage the biggest supporters of this idea were the independent project evaluators of the CINHEKS project for ESF, which gave the

green light to a high risk/high gain project, and to ESF program staff our national funding agencies that provided the support for our efforts.

While the challenges we faced can be perceived as quite situated and specific on the one hand, they have a generic character, on the other. They are the types of challenges many international teams may face, in the social sciences and humanities, when attempting high risk/high-gain, comparative studies. These challenges included *teams that could not – or did not – participate* in ways others anticipated, coping with the challenge of *ill-timed budget cuts – which eliminated a key project team*, along with the Research Institute in which they were located. In addition, the CINHEKS team encountered the inevitable tensions that arise from simple *inexperience with – or appreciation of – the stark differences between the highly varied and situated settings* inherent in project teams spread across several countries in international comparative projects.

Thirdly, with regard to the potential we encountered and drew on in CINHEKS, we spotlight examples of novelty that arose during the project. Some more serendipitous than others, that resulted from a sometimes volatile mix of situation management, damage control and opportunity (see Chaps. 5 and 12). Specifically, our development of *higher education profiles*, our above-mentioned attention on process, in *opportunistic studies* and our work with an *open science approach to overcoming key limitations* in CINHEKS are all examples of this.

Methodologically speaking, the authors are of the opinion that researchers in international comparative higher education are not always as ambitious as we could be, specifically, finding crucial, critical and challenging research questions to ask and then fully engaging them, rather than conforming to fads and fashions (Birnbbaum 2000) or focusing exclusively on well-beaten topics. In this regard, one of the main challenges of the social sciences and humanities today is a perception of an increasing gap between the scientific world and multiple realities experienced outside higher education institutions. Many topics are best characterized as of interest *only within academe*, leaving those outside academe puzzled with our navel gazing. The question as to whether or not arcane academic pontificating is relevant to the most important challenges perceived in society, in general, remains very acute to the authors of this chapter. This holds equally true for substantive framing, theoretical work and data analysis as well. There are exceptions to our concerns, *but not enough of them* in higher education research. To go beyond the state-of-the-art, *in any respect*, requires both frank reporting and critical assessment of limitations, attempts at novelty and their relationship, in the hopes to see if the kinds of ideas we raise are worth repeating. Or if the ideas warrant our – or anyone’s – spending more time and effort on them.

We conclude by reflecting on the implications of our original design and its execution with three questions:

- What would we repeat?
- What would we do differently?
- What new ideas come to mind, given the experience we just shared and what are the implications of our efforts, when viewed as a whole?

This chapter is intended for those who wish to more fully understand the rationale of the research design we proposed and executed and especially the implications, risks and challenges inherent in this type of undertaking. At the same time, this chapter will benefit others considering this type of project, whether initiating a funding application or joining an effort initiated by others. Further, this chapter is written with evaluators in mind. Whether one is evaluating a project in a competitive funding process, an assessment of completed research or reviewing a journal article concerning a comparative study in the peer review process. We stress that design work is seldom scrutinized, process even less so, as are the decisions left tacit or glossed over by methodological convention that obscures far more than it reveals (Bourdieu 2004). In this respect, it is our express desire to depart from convention. This is because our studies and reflection on process have led us to conclude that the unquestioned assumptions inherent in international comparative higher education do not serve our field well (Hoffman et al. 2014). We realize some readers and colleagues find our explicit emphasis on the role of process, project execution and reflection both distracting and irritating. This acknowledged, we would respectfully remind the reader that the knowledge produced in studies like CINHEKS hinges on the relationships between the institution of scholarship, the focal topics we choose to study and the manner in which we accomplish our work. This is not a new idea in the social sciences, rather one that is forgotten much more than it should be (Bourdieu 1988, 2004).

### 3.2 The CINHEKS Design Matrix and the Potential of Mixed-Methods Synthesis

The main idea concerning the CINHEKS design, at the application stage, was to take full advantage of incorporating design angles normally omitted in smaller, narrowly-focused studies aimed exclusively at journals, conference papers or reports. This in and of itself is both a major departure from convention and introduces serious challenges. While there is nothing wrong with smaller studies, the team gathered for CINHEKS recognized and attempted to take full advantage of our opportunity to simultaneously exploit *several* avenues of approach, concerning our topic. Because of this, we adopted a *both/and* stance to a conventional decision that project designers are often faced with, when regarding mixed methods designs, rather than viewing our options as *either/or* choices. The two most conventional mixed methods designs in use, in areas where most of the CINHEKS team members operate, are the *concurrent* and *sequential* designs (Creswell 2002). We detail, below, how CINHEKS operated with respect to these two basic design options. Short funding horizons, limited time and the availability of personnel often make a choice between these two strategies and either/or decision when considering mixed-methods – or even determine if mixed-methods is affordable.



However, the time we had for our project, 3 years, the substantive, methodological and geographical angles we wanted to cover, as well as the teams involved in our project, allowed us to attempt a design that contained both *concurrent* contextual elements and *sequential* elements.<sup>1</sup>

The resulting matrix offers considerable advantages, especially with regard to tackling a complex topic. That said, as in elaborated below (and in Chap. 12), this approach holds many challenges, which were already spotted in the evaluation of the project for its' initial funding. Specifically, the evaluators noted that the design was both ambitious and high risk. The authors of this chapter can both confirm it was both and that our team paid the full price entailed in undertaking something novel. Many of the central challenges, in practice, were glaringly apparent from the outset and several key aspects were presented for wider discussion in an international conference only one year into the project (Hoffman 2010). These issues are elaborated below, as they are instructive, in particular, for persons considering whether or not to initiate or become involved in an international comparative research project.

The CINHEKS matrix was not an original idea of the authors. Rather, the basic design idea was outlined by Bleiklie (*personal communication*) in a workshop discussion focused on international comparative research designs that could escape the critique of (paraphrased) 'amounting to nothing more than a loose, poorly-related collection of country reports, in which an editor or two do their best to give an appearance of coherence in an introduction and conclusion'. This approach has been strongly criticized within the international comparative higher education research community (See Kosmützky and Nokkala 2014). On the same day, Teichler (*personal communication*), one of the PIs of the CINHEKS teams proposed the central focal elements of the CINHEKS study, which were operationalized in the form of the CINHEKS matrix design, which was used in the project application of CINHEKS. The way in which Bleiklie's idea was operationalized, in the case Teichler's focal ideas, was that each project team, rather than being viewed as a 'country expert' (only), was instead assigned primary responsibility for an area of substantive, theoretical, methodological or operational focus. This meant, in practice, that each team would identify the types of specific data they needed from all other teams, aiming at a highly integrated comparative analysis, from the outset. In addition to each team's primary responsibility, they would, in addition, act in the capacity of country-experts, as they presumably would

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<sup>1</sup> The third major type of mixed-methods study, the *transformative* design (Creswell 2002) was grounded in our efforts and related to CINHEKS, in part, although outside the scope of the CINHEKS study per se. Specifically, several opportunistic studies, fully focused on process, arose during the course of the CINHEKS study and were jointly undertaken with members of sister research projects in the same ESF research program as CINHEKS (Hoffman et al. 2013a, 2014). In this sense, depending on the perspective one took, three major design options (Sequential, concurrent and transformative) were fully in use when thinking about CINHEKS, in the broadest sense.

CINHEKS concurrent / sequential design matrix		Time table			
		2009/2010	2010/2011	2011/2012	2012-2014
Level of abstraction, focus & scope of analysis	Exploratory explanation building <i>across</i> nations/regions			Write-up & integrative analysis	
	Exploratory explanation building <i>within</i> nations/regions <i>sequential study 3</i>		Internet based survey and network analysis		
	Interpretation: <i>sequential study 2</i>		HEI case studies		
	Description: <i>sequential study 1</i>	HEI profiles			
	Contextual concurrent studies 1 & 2	Comparative policy <i>and</i> historical analysis			
		Methodological approach			

Fig. 3.1 The CINHEKS emergent design

know how to best locate the type of data specified by the project team leading a specific facet of the investigation.

As Fig. 3.1 shows, the development of *concurrent contextual elements* of CINHEKS (policy and historical analysis), were planned as on-going, throughout the study, as a whole. This meant that the teams responsible for carrying out their analyses were available, throughout the project, to have their respective investigations shape – and be shaped by – any other phases that were occurring in sequence.

On the other hand the *sequential elements* of CINHEKS were conceived in an incremental manner, with each phase taking place at a higher level of abstraction than the previous stage. In other words, we initially thought it possible to advance through increasingly high levels of abstraction, in sequence, each aimed at a distinct form of generalization. Specifically, interpretative analytical generalizations *to theory* and statistical or relational generalizations *to populations and networks*.

In practice, the operationalization of the CINHEKS matrix design (Fig. 3.1) was modified, in progress, with respect to design, from the original plan, as it appeared in our project application. The execution of the project elements was not nearly as precise as the diagram might lead a reader to believe. That said, *this is the case in all planning and design work*, as the quote by Eisenhower at the beginning of our chapter underlines.

The three central points to bear in mind are firstly, that a design is needed in the beginning of most research processes; secondly, that the efficacy and potential of designs of this nature, in general and the events which led us to initially conceptualize this approach are worth reflection, in order to better our practice. Thirdly, *the way in which plans actually materialize – or don't – in fact contain new knowledge as valuable (methodologically speaking) as those derived regarding the topic (s) under study, if we bother to recognize this as such*. Chaps. 5 and 12, respectively,

are particularly instructive in this regard, as the authors are explicit about the exigencies experienced by project teams and emergent tensions within the design, as a whole, which had to be engaged. In order to contextualize our efforts and explain how we came to initially ‘lower our expectations’ regarding the sequential studies (starting off at a descriptive level of analysis, rather than an interpretive level of analysis), we briefly outline the rationale underlying the key elements of CINHEKS, and some of the challenges which led to concrete modifications of the design, before more fully elaborating key challenges and novelty that arose during project execution.

Readers interested in comparative research design will note that it is highly instructive to read this chapter in tandem with Chaps. 5, 10, 11 and 12, in order to form a more complete picture of our team’s focus on process, the phenomena of relative perception from various angles, across several teams working within a single project and the way in which this shaped our work, during execution.

### ***3.2.1 Concurrent Contextual Elements***

True to the purpose of concurrent logic in mixed-methods designs, the main advantage of having simultaneous aspects of the study, unfolding at the same time derives from distinct modes of inquiry, (in our case, historical and policy analysis) which inform – and are informed by – the data collection and analysis linked to other facets of the investigation (Creswell 2002). In practice, how this worked out was that the PIs leading our two concurrent projects could specify the data they needed from all other project teams, located in their respective locations. As a reading of Chap. 4 highlights, this worked out better in some locations than others, regarding data requests. However, the main advantage, with respect to design, from the project coordination point of view, was that the requests from the concurrent projects, if nothing else, continuously illuminated the larger, more complex and comprehensive nature of our topic than would have been the case if all project teams would have been focused solely on the single purpose of their own facet of CINHEKS. In other words, the nagging assertion *‘It’s more complicated than that,’* was constantly with many team members, throughout the study, because of the requests for data and associated efforts of the concurrent teams focused on history and policy.

The disadvantages linked to concurrent approaches were also clear. Specifically, the demands placed on the personnel assigned to concurrent projects meant that they often were serving multiple masters in multiple projects. Not only were they responsible for their primary (concurrent) task, but were simultaneously investing a great deal of time in the data collection and analysis being requested by other project teams, especially the team leading our comparative case studies, a sequential aspect of the investigation. As detailed below (and indicated in Fig. 3.1) we had to sacrifice the time needed for one of the concurrent studies we planned, historical

analysis, because all of the available time of the history team was spent either in the sequential studies or the tangential efforts outlined (below) in this chapter.

Big-picture-wise, it was a considerable advantage to have key angles that are not always included in many research projects on the one hand, or that comprise the entire methodological focus, on the other. Topics suffer from both varieties of overly narrow design. While it would be incorrect to say that our design suffered from being overly broad, it would be correct to agree with Creswell (2002) that concurrent designs are very demanding in general and that in CINHEKS, the researchers on the concurrent projects bore the brunt of this design feature. This was compounded by many of our teammates' desires to become involved in several aspects of the larger project which were interesting to them. A chronic, more general problem this brings into view is the academic reality of multiple, competing requirements from several duties that continually tug from all directions, whether these are connected to other ongoing research projects, teaching, advising, writing grants, administrative or management duties. Because of these competing demands, CINHEKS-related tasks easily dropped off the bottom of 'to do' lists. Because of this, as we elaborate in the conclusion, developing an accurate and coherent articulation of international research project work, involving several moving parts, becomes a challenge.

A major issue with leading and participating in a research project of this complexity – and ambition – is the constant lack of focus “forced” by exogenous requirements to the project. Many participants noted, informally that loss of focus on the CINHEKS project, due to competing priorities, contributed to losing track of events, work to do, and other activities linked to CINHEKS. The more pressing and intense these competing demands were, the more effort it required for team members to re-engage in the project. The focus required, over time, to stick with and balance an academic workload is something worth seriously considering when contemplating participation in complex, high-risk/high-gain, international, projects. Especially work/life balance came into sharp focus in one of our tangential studies (Hoffman et al. 2014) and the way which this plays out with regard to the internationalization of higher education and the mobility of university personnel is currently being pursued in a study involving three CINHEKS PIs, including both of the authors of this chapter.

### 3.2.2 *Sequential Elements*

It was in the sequential elements that our first novel adjustment to our design occurred, in response to a concrete methodological challenge. The sequence we originally planned could be termed a straight-forward *sequential-explanatory design*, where a qualitative methodological approach (specifically, a *qualitative case study*), is elaborated, in sequence, in terms of a quantitative methodological approach (specifically, a *survey*) (See Creswell 2002).

However, what the CINHEKS team experienced was anything but straightforward. This was because the question ‘what constitutes a case study’ was regarded in wildly different ways across the six project teams active in the case studies, focused on five countries. While a single team had primary responsibility for the design, specification and analysis of the case studies, the data collection and preliminary write-ups, in practice, would be done by members of all project elements. While the lead case study team did ask opinions, about the way in which the case study could best be approached, there remained considerable disagreement regarding an optimal, overarching approach. Upon reflection, the major differences could be easily identified and are further elaborated below. That said, reconciling the major differences – even when identified – remained problematic. The positive result of the methodological roadblock was the development of the HEI profile (elaborated below.) The casualty that occurred – *at that same roadblock* – was an inordinate usage of time, on a foreseeable problem (See Chaps. 5, 10 and 12). This time was not insignificant as this design adjustment resulted in one of the teams that initially was planned to do a concurrent study (historical analysis), instead using up all their resources on data the collection and analysis needed to accommodate this change in plan.

A second methodological challenge, again, grounded in the more fundamental challenges elaborated below, was the tricky transition between an interpretive cross-case analysis of case studies and a survey and social network analysis aiming at explanation-building (Miles and Huberman 1994). The positive result of that phase of the sequenced studies was – more than anything else – an object lesson in ‘when to listen, and whom to listen to.’ Projects like CINHEKS draw together a lot of talent and it became extremely clear, in hindsight, the persons who do the most talking are not necessarily the same persons who will best help a team negotiate a tricky or sensitive transition between sequences, in an open-ended, emergent design like CINHEKS (See Chap. 12). A drawback that was highlighted at this juncture was that sometimes, as in the case study, there is often more than one promising route forward and no team ever has the resources to try all of them. It is inevitable that the most optimal approach(es) may remain in the mind(s) of the those who advanced them. (Please see Chap. 12 for a more detailed account of the transition between the case studies and survey.)

Both of the roadblocks we encountered in the sequential studies were outwardly due to a generic challenge that defines, in some ways, in the social sciences and humanities, from which our team personnel were drawn. Specifically: several approaches or ‘routes’ are often available to the same topic. In general, this is a good thing. But when executing a quickly moving design, it is instructive to closely examine the challenges that emerge, the novelty that sometimes arises at an impasse, and especially the foreseeable causes of challenging situations. That last point is particularly instructive, as those of us who do comparative investigations – or want to – will repeatedly encounter the types of challenges we now outline in more detail.

### 3.3 Central Challenges and Novelty

The basic ideas underpinning the CINHEKS design hold great potential. However, in practice, very real challenges arose rather early, as did the means by which some of these challenges were ultimately addressed. In many write-ups of research, regardless of approach, many of the decisions and complications are veiled behind *ex post facto* narrative that bears little resemblance to the most important events that actually shaped the study – while it was in progress – and ultimately, analyses and contributions (Bourdieu 2004). Rather than sweep these under the rug, we are attempting to learn from them. Whether we did (learn anything) is a question for future studies. That said we feel that reflection on the relationship between challenges and novelty might afford us, and hopefully others, a more realistic chance at benefitting from our team’s experiences, going forward.

#### 3.3.1 Challenges

There are basically two categories of challenges that await teams undertaking an international comparative study. Specifically, the challenges we know to expect or shortly discover, upon beginning the study and challenges that are harder to predict, but never the less, need to be engaged.

**Foreseeable Challenges** Several challenges to execution were identified early on, in CINHEKS and bear elaboration here, as there is nothing we would ‘cross off the list’ of features presented to our peers for discussion in 2010, one year into CINHEKS (Hoffman 2010). Researchers designing studies of this type should fully expect challenges linked to these features of international research team dynamics.

**Similar Fields, Different Approaches** As Clark (1983) pointed out, in what now seems an oversimplified set of banalities, higher education plays out very differently across the globe. While many might assert Clark’s observations dated, we are not sure many in CINHEKS would be too quick to claim we have really grasped many of the nuances and implications of what he was trying to say. In this textbook, we might be seen as departing from many of his central ideas about international comparative higher education, but – ultimately – in this chapter, we underline what he so patiently; perhaps too patiently, given his humble nature, was trying to tell us. As relevant are Becher and Trowler’s (2001) insights, regarding the disciplinary cultures that govern the ways in which researchers operating within different modes of inquiry and specialist traditions, in some cases span global distances, in other instances, fall considerably short of that, especially due to the methodological nationalism that Shahjahan and Kezar (2013) point out. In other words, established modes of inquiry, regarding the topics we choose to focus on – and ignore – in particular higher education settings, often seem quite mysterious, when viewed

from outside one's national borders, methodological conventions and disciplinary traditions. Looking across combinations of these powerful contextual forces, it is not difficult to locate unquestioned assumptions that are easy to overlook.

***Working with Open-Ended, Complex Topics*** Cutting across both geographic and disciplinary boundaries, there is a general tension – and set of temptations – linked to working with ‘hot topics’, particularly those viewed as desirable by policy-makers or vested interests willing to fund studies. In what seems like as an ‘opposition’ to this are scholars who seem to pay little attention to ‘hot topics’, and who are rather ‘guided from within,’ focusing on curiosity-driven scholarship or a long-standing research agenda. These are not strictly ‘opposites’, as it is inevitable that sometimes an aspect of one’s research agenda *is* a ‘hot topic’ in the eyes of others. However, we ‘state the obvious’, specifically: *that different types of researchers are drawn to different types of projects, for different reasons*, in order to make a point. In projects like CINHEKS, with large teams, researchers laboring under very different sets of assumptions regarding ‘what should be researched and why’ end up working together. If one is only familiar with scholars of the ‘same’ orientations, getting used to ‘other ways of looking at things’ takes adjustments – all around.

***Working Outside or ‘on the Edge’ of Your Competitive Horizon*** Closely related to the reasons why different sorts of researchers end up focused on different sorts of topics is the tolerance – or lack of tolerance – an individual or team has for convention. It is much easier to stay well within the limitations of convention when approaching many kinds of research topics. The problem with convention is that it, by definition, can limit a topic, whether in terms of topic choice (as was described in the previous section), the goals of research, substantive framing, the way in which theory is used or generated, research design and methodological approach, data analysis and write-up. These choices – taken together – add up to the potential of saying anything worth publishing to a particular audience, be they scholars, policy-makers, practitioners, stakeholders, etc. The most conventional write-ups, ‘grey literature’ that is never published, read, nor makes an impact is *highly* conventional. If you want to aim higher, you will need to say something new and confront convention, at least in some minor way. International comparative projects will give you an immediate lesson in differences regarding the way in which convention and limitations are perceived and acted on at different competitive horizons. CINHEKS was fairly unconventional and anyone considering doing work of this nature should probably be comfortable with pushing the edge of convention.

The competitive horizon is a heuristic introduced by Välimaa and Hoffman (2007) and further elaborated by Hoffman et al. (2011, 2013b). The heuristic illuminates the tension between *reproduction* and *transformation* regarding the established and emergent global division of scholarly labor. In many cases, a particular horizon comes into view when empirically focused on a particular form of capital at stake, in a particular field, for example the *scientific power* (Bourdieu

1988) that governs the *transformation* of disciplines, specialities and even the emergence of new specialities, e.g. cutting-edge fundamentally novel scientific breakthroughs. Scholars who have nothing to do with the heavy lifting involved in breakthroughs, work at fundamentally different horizons, often responsible for knowledge transmission and transfer, utilizing *academic power* (Bourdieu 1988), a field-specific capital linked to *reproduction*, especially relying on the control of resources and the social dynamics that will produce of the next generation of scholars, in fields at lower competitive horizons. In complex higher education systems, all competitive horizons: *world class*, *national champions* and *local heroes* are often in demand, but by very different groups and audiences, for very different reasons (Hoffman et al. 2011; Also see Chaps. 9 and 10 in this volume for the ways in which this heuristic was used to illuminate the German and Finnish cases.)

Our point in introducing the heuristic is to conceptually contextualize the challenges scholars will face upon coming into contact with the completely different social dynamics what govern distinct strata of the scholarly enterprise and the stakes of the game within and between them.

**Generational Differences** Differences between generations are quite profound, even within the confines of a single focal setting (Bourdieu 1988; Geiger 1999; Aittola 2001). However, *between* settings, for example cultures, countries, continents and competitive horizons it was the generational differences – in combination with other aspects of the challenges we outline here – which were nothing short of remarkable, in the sense that they were at the same time *not* perceived by team members who might universally agree that many of the biggest challenges CINHEKS encountered were originated in *other* generations of scholars (not ‘theirs’). The truth is clear in hindsight, that scholars are products of their generation. There is nothing new about our observation of this. What is interesting, though, is how easy it is to locate a scholar – and we include ourselves – who, at times, fails to realize *just how little they truly understand the forces and phenomena that have shaped different generations and the clear implications this has for being part of an effective international research team* (Hoffman et al. 2014).

**Career Stage** The CINHEKS team employed research assistants with Master’s Degrees, internationally renowned scholars who are undisputed leaders in our field and everyone on the scholarly food-chain in between, including early-stage, early, mid and late career scholars. While these general *levels* carried different position titles in different countries and HEIs, it was clear that the conversations across generally similar career stage levels worked better – *sometimes* – than some of the vertical communications, within research teams and especially *between* research teams. This, of course, in combinations linked to setting, generation, cultural or linguistic differences came to our attention as a factor that consistently has to be kept in mind. Another key aspect linked to career stage (and especially the competitive horizon one was working at) was the difference between team members in *secure* versus *precarious* employment situations. As reflected in some of the studies of research team dynamics (elaborated below), secure versus precarious



employment bears heavily on a research team's potential to purposefully accomplish complex tasks, over time. While this, in and of itself might seem like stating the obvious, we assert that it is very easy to locate scholars – again we include ourselves – who for many plausible reasons tend to forget the realities of living on short-term funding and that a valued team member might have no other employment opportunity – or way forward – than the *single project* in which they are currently working.

**Experience-Level** ‘Years of experience’ means different things to specific persons, groups, cultures, organizations, institutions etc. In international comparative higher education, we could caution, following Kealey's advice, when discussing his work (Kealey and Protheroe 1995), that a key focus to think about is whether a professional has ‘1 year of experience, repeated 15 times’, or ‘15 years of experiential learning, that they now bring to bear, on their profession.’ We would further underline Kealey's findings that ‘years of experience’, in and of itself, *does not predict intercultural effectiveness*. Kealey's findings are highly apt, in the context of this chapter as his research goal, as a cross-cultural psychologist, was explaining and predicting *intercultural effectiveness* of personnel working in challenging international assignments (Kealey and Protheroe 1995; Vulpe et al. 2000). We spotlight these points especially with regard to the wider research program in which we worked and the studies we initiated, focused on international research team dynamics (Hoffman et al. 2014). We further underline that several of our most interesting breakthroughs were facilitated by team members who did not have as much experience as more ‘seasoned’ researchers, in the international context; rather, they were excellent at engaging complexity and challenging situations.

**Cultural Differences** One might think that cultural differences, especially regarding the major dimensions on which culture systematically varies, across the globe (Hofstede 1991; Vulpe et al. 2000), would be routinely accounted for by international research teams. However, *this was not our experience* and was underlined as a major challenge by Hoffman (2010), as our study began. Cultural differences are brought into sharper focus both by one of our most heterogeneous – culturally speaking – chapter teams (See Chap. 12) and are tackled squarely in the tangential studies we chose to do, focused on international research team dynamics and ICT-based collaboration and our critique of internationalization rhetoric and experiences of complex mobility (Hoffman et al. 2013a, 2014). Cultural differences are more fully addressed in Chap. 12 and we defer to our colleagues to advance and argue the way in which ‘culture matters’. Our parting word of warning on cultural differences would be to underline their similarity to many challenges one can count on encountering, in higher education studies. Specifically, culture explains organizational failures and successes. Not all of them, but some of them. Where actors inside higher education deny this, we would be very cautious, even suspicious. There is a strong reason Bennett (1993), in his original conceptualization of his *developmental model of intercultural sensitivity* used the descriptive titles of *denial* and *minimization* to conceptualize distinct stages of ethnocentricity, in which persons, teams or organizations are ‘unconsciously incompetent’ with regard

effectively understanding, contextualizing and acting on relationships between cultures, attitudes and action (Bennett 1993). In the same way, in the author's work on competitive horizons shows that *overemphasizing* any one culture at the expense of others which meaningfully influence structure and agency – within the field of higher education – plays a part in inadvertently shaping several types of social stratification. The key is knowing the extent to which the several types of culture are meaningful – or not – within the complex combination of social phenomena that result in the differences between successfully engaging a complex topic in an international research project – or not.

**Contingent Challenges** The items we highlighted in the previous section are generic and can be fully anticipated in international comparative studies. However, there is a second set of challenges, things which cannot be accurately predicted, but which must be tackled, if and when they arise. It is difficult to imagine a large, comparative study that would fully escape these types of situations.

***The Teams That Never Were*** As early as the application phase of CINHEKS, as we were developing the ideas and approach that were later funded, we lost one of our key partners. Although their proposal suited our specific purposes in several ways and also was covered under the ESF funding scheme, their *national funding agency* decided to back and fund a different project, within the same funding scheme. This was a setback that occurred during a multi-stage application process, in which the interests of each projects team's national funding agency and an overarching coordinating agency, the ESF, had to be continuously reconciled. In our case, we managed to find an excellent replacement for the project team that was eliminated. But we lost a very important aspect of our geographical scope, as the eliminated team was from an area that has not been studied as much as those countries that did ultimately receive ESF funding. This type of loss is not fatal, although it is highly regrettable and has costs, in a scholarly sense that cannot be easily 'substituted'. However, the loss of a key team in the application stage was not the first team we would lose during CINHEKS.

The second team we lost was for an entirely different set of reasons, which remain unknown. The funding scheme in which CINHEKS occurred allowed for two types of teams. The first included teams funded by national funding agencies. This was the case with the European teams, participating in the ESF EUROCORES/EuroHESC funding scheme: Finland, Germany, Portugal and the UK. This was also the case for the USA who obtained funding from the National Science Foundation (NSF), which had set up cooperation with the ESF in EUROCORES. These nationally funded projects were termed *Individual Projects*. In addition, *Associated Projects* could be located in *any* country not covered by the ESF/NSF EUROCORES cooperation scheme. This was conditional that the funding needed to come from *outside* the EUROCORES funding umbrella. Given the topic of CINHEKS, a second partner was located outside Europe and North America, in a very important geographical region on a different continent. Their contribution would have greatly enhanced the final analysis of CINHEKS, had they participated.

However, for reasons that remain unknown, this partner never participated, once data collection began in earnest. It is important to note that there are several probable reasons why the participation failed to materialize and it was observed – from the coordinator’s perspective – that there has been no shortage of second-guessing and recriminations concerning the loss of this particular team, none of which was constructive. Bottom line: the fact remains that the absence of resources and direct control, especially in a scheme like EUROCORES, where funding is not centrally controlled means this type of loss, although unwelcome, must be dealt with. There is also a specific lesson for researchers designing consortiums with ‘two-tiered’ funding. As in any system where there are ‘haves’ and ‘have-nots’ – especially when this applies to funding – this kind of potential loss, must be kept in the back of one’s mind. It should be noted that there were other projects in the EUROCORES/EuroHESC scheme that successfully incorporated self-funded Associated Projects, from beginning to end. The other key lesson regarding this sort of loss, at the level of coordination, would be a caution to be fully prepared to deal with less-than-constructive speculation concerning the activities of *any* partner. Be prepared to counter with the message: ‘Get over it and move on.’

As was noted above, a key element of our project; a concurrent comparative historical analysis, had to be sacrificed because of the time demands that resulted from the way the unexpected methodological detour we took in our sequential studies, combined with the stress placed on the team when financial cuts eliminated a key project team (as detailed both above and below.) This was not the same as losing a team, it was losing an element of the study, as the team was able to fully contribute to other key roles in CINHEKS.

In all three cases, the particular country that could not or did not participate or otherwise manage to follow our original design is not important. What is important is that project designers, leaders and managers be able to adapt to events that are beyond the control of the team, in ways that allow the project to move forward, with respect to project objectives. It is foreseeable that catastrophic events could cause a well-thought-out, even well-funded project to totally collapse. That said the three concrete examples (above) underline the sort of that setbacks are inevitable in a large project.

***The Team That Wasn’t – But Was*** An entirely different set of circumstances led to the loss of a third team in the CINHEKS study, but only in a technical sense. As CINHEKS was being planned, the main grant writing team, including both authors of this chapter, was in a race against time, as the economic collapse of the global economy unfolded in 2008. It was nerve-racking to know that even in the event that we forwarded an excellent proposal, national funding agencies – at any moment – might decide to de-prioritize the national-level funding that had been committed to the ESF/NSF EUROCORES EuroHESC funding cooperation. While the financial meltdown did cause significant delays in the multistage application process, the funding was eventually committed by all national funders, allowing us to begin in 2009.

However, the knock-on effects of the global economic crisis of 2008 and a change in government in the UK's 2010 elections sealed the fate of the CINHEKS UK-based team, which was based at the Open University's Centre for Higher Education Research and Information (CHERI). In a round of budget cuts following the election, CHERI was eliminated. This closure had a profound effect on our operations, as CHERI was leading one of the most labor-intensive and complex of our projects: the institutional case studies (See Chap. 5), which had turned out to be fraught with unanticipated major challenges, in and of themselves (See Chap. 5 and our section: **Higher education institutional profiles**, below).

Challenges of closure and loss of an important project team aside, in the long run, the reaction of the CHERI team reinforced the positive English stereotype of 'carrying on, against all odds.' In an admirable display of scholarly integrity, the CHERI team continued work, as their institutional infrastructure dissolved beneath their feet. They recruited and drew heavily on their personal network of researchers, incorporating new members into the team to back up team members moving to other non-CINHEKS positions. In the end, as CINHEKS closes the first phase of our investigation with the publication of this volume, the CHERI team *delivered* on their objectives and laid the basis for extended, follow-on studies and in-depth analysis.

It is important to note, as will be clear from this Chapter and Chap. 12, which focuses on our survey; that the way in which each project team executed their particular responsibilities – or did not – may not have been what was expected, nor even welcome, by every other person, in every other team. This, *unlike an entire research unit being eliminated*, should be *fully* anticipated by any person who decides to work in or initiate a complex international comparative research project, for the reasons outlined in the (above) section on *Foreseeable Challenges* and elaborated in Hoffman et al.'s (2014) study of international research team dynamics.

While the delays linked to CHERI's closure and the methodological differences of opinion that ultimately led to methodological novelty and adaptation resulted in what some team members were not expecting, the fundamental lesson – *easy to overlook as time goes by* – regarding CHERI's closure is one of grace under pressure and perseverance. Even if many changes have affected higher education in the past decades, an altruistic, scholarly sense of integrity is not difficult to locate within the community of researchers focused on higher education, which guides scholarship. These ideals are often ignored or disregarded or even used to exploit scholars by those that understand science and higher education only in terms of outputs, outcomes, and effectiveness. Senior scholars who have lost a research unit and/or their job due to unanticipated economic circumstances might be in a position to second-guess the way in which CHERI team members did their job. Our core CINHEKS team followed their example and continued working, in the face of situations we did not create. This unique combination of anticipated and unanticipated circumstances offered a rare opportunity for learning, as did the admirable example of the CHERI team.

**Notes on Challenges** The challenges inherent in executing a design as ambitious, high-risk/high-gain and complex as CIHEKS; *anticipated or not*, offered us an unparalleled opportunity for learning. When collaborating with other teams in highly situated settings, this opportunity becomes more viable when knowing, up front, the most probable underlying causes of challenges you and your teams are likely to face are considered; as is the flexibility to deal with events over which your teams cannot predict and the willingness to take a frank, critical look at the nuanced and often difficult analysis linked to complex, process-related challenges. Analysis and evaluation of the research process is not always terribly flattering and will always reveal numerous facets of an investigation that – in hindsight – could have been done better. The trick is, when you are responsible, *to do better* – next time. An even better use of time is to learn from the accounts of others, when available, in order to benefit from experiences, both good and bad.

While challenges need to be faced and learned from, there is another side to complex designs. If paid attention to, designs like CINHEKS throw up as many – or more – positive opportunities than what are perceived as negative challenges. The reason this is not always clear is because *what is perceived, by some, as oversimplified ‘negatives’ and ‘positives’ are often grounded in the same events, issues and circumstances*. Going forward from CINHEKS, the opportunities from novelty, outlined in the following section, seem far more interesting than some of the challenges our team dealt with.

### ***3.3.2 Making a Virtue Out of Necessity: An Iterative Stance Toward Design Novelty***

While the challenges inherent in a design like CINHEKS are considerable, the novel aspects of the design work, broadly speaking, as well as the responses to these challenges and outcomes warrant mention. Especially where the risk was justified by the reward.

**Beyond ‘A Collection of Country Reports’** The most fundamental premise of our design, while challenging, bore fruit. This is easy to miss, but becomes more apparent when carefully considering the 20 authors of the chapters in this volume. While the study was directly focused on six countries, the authors of the 13 chapters were born in 12 different countries and were working in seven distinct project elements in the six countries they were employed in, while working in CINHEKS. Eleven of 13 the chapters are multi-author studies; and six of those authored by researchers who were based in two different CINHEKS project teams. In addition, seven of the multi-author chapters had authors from at least two different countries; one had authors from three countries, two chapters had author teams composed of scholars from four different countries of origin and one had authors from five different countries of origin. The two ‘single author’ exceptions to this pattern

was in one of our project elements which had to be replaced (as discussed above) while another was from an unanticipated addition, who joined us, while the project was underway (as discussed below). Finally, it is worth reflecting on the fact that 12 of our authors were engaged in extended, medium to long-term international mobility *during* the project, in the sense that they were working in a society other than the one in which they were born (and in some cases the one in which they were employed), while even those who executed CINHEKS-based studies in their own country, have had medium or long-term experience in other countries, or across sectors. Post-CINHEKS, while this study is being finalized, the authors are presently employed in 13 different HEIs in 10 different countries. This type of ‘superdiversity’, as defined by Vertovec (2006), is not exceptional in academe in many specific settings (Hoffman et al. 2013b). But it *is* exceptional in many international comparative higher education studies, where the composition of research and chapter teams is often more homogeneous, in terms of demographics, culture, disciplinary points of departure, etc. The point of underlining the potential of working in this matter is that problematizing all facets implicated in design becomes unavoidable – but ultimately easier – when working with teammates who not only understand that there are multiple ways of doing things, but are *currently living these multiple realities* (or who have done so). Normative, colloquial, folk psychology and methodological nationalism routinely surface in international comparative higher education investigations (Shajahan and Kezar 2013). The quickest way to counter these are with teammates who know these are ‘roads to nowhere’, regarding the design complexity we face in designing and executing international comparative higher education studies designed to deliver interesting results.

The integrated, incremental progression toward a better understanding of our topic, was not without challenges which became topics in and of themselves (See Chaps. 5, 12 and the section on *Problematizing our field*, below). This said, the modelling of a design which can be used to approach complex phenomena – across vast countries, regions and cultures became a reality, in part because of the design we used and the way in which we executed it. A close examination of our emergent *modus operandi*, especially those members of our original team moving forward into the next phase of studies, reveals many things *except* the overly normative scholarly realities many of us were trying to move beyond. While not perfect, we crossed two key thresholds. The first thing we avoided was producing ‘a collection of country reports sandwiched between an introduction and conclusion by the editor’. The second was the inbreeding that, at times, characterises some research teams in which ‘people only work with people they personally know, in their local environment’ (Horta et al. 2010). Although limiting efforts to persons personally known to you often benefits projects in terms of coherence and stability, there is a clear danger of incessant research work on over-researched ideas and rehashing stale topics while reinforcing closed cliques of researchers who monopolise key themes or areas (Kocher and Sutter 2000). In our team, many knew each other prior to the EuroHESC program. However many new research assistants, doctoral students and postdocs were hired and drawn into our field, which was one of the

EuroHESC program's intentions. Despite the challenges, the CINHEKS matrix design, in the final analysis produced more than the sum of its parts. It opened up better understanding of firstly, the topic under study and secondly, it pushed back the boundaries of what is possible in an international comparative higher education research project.

**Higher Education Institutional Profiles** On a more concrete level, is the methodological novelty of the *Higher Education Institutional Profile*. This idea was born out of a challenge faced by the case study team to specify a design which would accomplish CINHEKS objectives and lead to a robust cross-case analysis of all countries involved in the CINHEKS study. The cross-case analysis, sequentially-speaking, had an even more important task, concerning CINHEKS, as a whole. The analysis of the case studies – in terms of our sequential design – was planned to inform the team that would specify the CINHEKS survey.

The central challenge for the case study team was coming to an agreement on a design – accepted across all CINHEKS teams – as a viable point of departure, in terms of substantive and empirical focus, level of abstraction, use of theory, methodological specification, including a selection of methods, data and an analytical strategy. In 2009 there were several clear ideas as to what constituted a 'case study', across the CINHEKS team. *And there were exponentially more unclear ideas.* As this book goes to press, what can clearly be seen is that strong differences, amongst teams, remain. The result is Chaps. 6, 7, 8, 9, 10 and 11, all of which focus on countries and draw heavily on a combination of traditions linked to combinations of case study methodology (Cresswell 1998; Miles and Huberman 1994; Yin 2003), the academic specializations and disciplinary orientations of the authors conducting the studies, national and institutional differences. The latitude that allows for these types of distinct outcomes is one of the greatest strengths of the case study (Stake 1995). They are, at the same time, the methodology's most major limitation (Yin 2003; Miles and Huberman 1994; Tight 2012).

During the initial project meetings in 2009/2010 and first phase of work by the case study team, it became clear that coming to an agreement – especially amongst team members with extensive experience in case studies – regarding an ideal approach was a major challenge. In February, 2010, the CHERI team, who were leading the specification of the case studies, invited team members with relevant experience to a meeting in London, which members of five of the six CINHEKS teams were represented, in person or via Skype.

The result of this meeting, in methodological terms, was to *lower the level of abstraction of the initial approach* aiming for a substantive and empirical focus all teams could agree was important, in terms of *description* (as opposed to *interpretation*). The method proposed, to accomplish this was a Higher education profile template (See Appendix A), specifying a number of substantive and empirical focal points team representatives agreed were important both in terms of the objectives of CINHEKS and which could be used to lay the basis for a case study protocol. Based on our modified plan, the case study protocol, *based on an analysis of these initial profiles*, could in turn be used to focus on case studies, per se., *at an interpretive*

*level of analysis*, thus laying the foundation for the CINHEKS survey, which would be aimed at an explanatory analysis. Put another way, we added another layer of abstraction to our design. This can be seen in Fig. 3.1 (above). This is the difference between ‘a static plan’ and *dynamic design*.

In hindsight, we would have planned for this impasse and in a perfect world designed the profile template, in advance. However, the design team did not account firstly, for the different views we would encounter in our initial project meetings and communications regarding ideas as to what constituted a viable case study methodologically speaking; secondly, the way in which theory did (or did not) enter into this discussion and thirdly, the substantive and empirical foci deemed relevant by the highly situated teams and strong individuals we were working with. That there were strong differences of opinions – and even more confusion amongst team members who had not worked in this sort of situation before (See sections on *Foreseeable Challenges* above) – will be of no surprise to many in international comparative higher education research.

However, our point – *easy to miss* – is the resulting novelty arising from this situation: *The HEI profile*. The profile, as it was used by our team, shows great promise at the level of method, which might lend itself to several methodological approaches; and as an element in mixed-methods studies which utilize different methodological approaches in the same study or multi-method studies. Because higher education researchers (with all too few exceptions) win few prizes for methodological creativity, the development of this method; deliberately narrowed and focused on a low ‘common denominator’ or descriptive level of analysis, shows great promise in both future replication studies of CINHEKS and other, different comparative topics where highly diverse teams come together in pursuit of ambitious, challenging studies involving HEIs.

An important postscript to this development concerns our previous section on ‘Challenges’ (above). Between the time of profile development and the finalization of a case study protocol, as that term is understood in methodological literature (Yin 2003; Miles and Huberman 1994), the processes which led to the CHERI team being disbanded began to unfold. The furthest the members of the case study team got, was the development of an Interview protocol (See Chap. 5 and Appendix B). While versatile and adaptable, an interview protocol constitutes a ‘part’, albeit an important part, of a case study protocol, but is no substitute, as the protocol specifies *operationalization aimed at cross-case analysis*. While the methodological literature on case studies is clear on the advisability of robust protocols for multiple teams going into the field focused on the same topic (See Yin 2003; Miles and Huberman 1994), it is equally clear that the inescapable challenges to research team dynamics outlined (above), which never prevented our project from progress, did complicate – *progress as a team* on this particular issue. Because of the combination of foreseeable and unanticipated challenges, the elements typically covered in a case study protocol; specifically *conceptual problematization, purposeful selection criteria, specifications for several other types of data often collected in case studies (in addition to interviews), cross-case data analysis strategy, write-up formatting, validity specifications, data handling protocols, case study management*



*procedures and pilot study design* were handled by each team and are reflected in Chaps. 6, 7, 8, 9, 10, 11 and 12. This said, the development, collection and analysis of the HEI profiles, together with the adaptation of an interview protocol (See Chap. 5), allowed experienced CINHEKS teams in each country to complete case studies which laid the basis for Chaps. 6, 7, 8, 9, 10 and 11, the analysis of the profiles, in and of themselves, as well as laying the basis for the next generation of CINHEKS studies.

The knock-on effects from the closure of CHERI and the movement of our teams into the field, without a case study protocol, created a highly challenging situation for both case study team and the team responsible for developing our survey, which was contingent on a solid cross-case analysis of case studies (See Chap. 12 for a detailed account of the way in which the survey team met this challenge.) While challenging, moving through and beyond this set of studies underlines lessons we learned that will inform the future comparative designs of the authors of this chapter, as both were involved directly in reconciling these tensions in the analyses in Chaps. 5 and 12.

**Problematizing Our Field** One of the strengths of the ESF's EUROCORES/EuroHESC research program was the opportunity the ESF infrastructure and approach created to network and train together with researchers from CINHEKS and our three 'sister' projects in the same program: TRUE, EUROAC and RHESI. While not all teams or individual researchers took full advantage of this opportunity, the CINHEKS team, in particular, used these opportunities not only to learn new techniques and get to know their fellow EuroHESC researchers in several countries, but study and problematize several facets of the research process, in and of itself. These topics, in many instances, were as – *or more* – interesting than the topics funded by the EuroHESC program. While most in the EuroHESC community seemed very happy with the networking and training, the tangential studies initiated were, on occasion, controversial and contentious (Hoffman et al. 2013a). Our efforts regarding the problematization of our field and illumination of blind spots were particularly critical about research team dynamics and power issues, focusing not only on what we were studying, but *how and why* we researched in the ways we did. Our curiosity-driven, self-initiated and critical focus on our field, process in general and power-relations in particular was not always welcome or apprehended for what it was and the most critical points of our message, ironically got better reception *outside* continental Europe than *inside* Europe (Hoffman et al. 2013c). That said, our efforts in these areas, in the long run, served to prepare our team members – most of whom were closer to the beginning of their careers than the end – for future challenging research projects of the type that brought us together. Collectively, we were looking beyond mere 'participation', finding it more much more interesting to focus on the initiation of such projects, our own emergent collective agency and research agendas and leadership in these efforts. This necessarily entailed a critical look at what was going on around us, rather than acceptance of the status quo inherent in the powerful social dynamics that are routinely glossed-over in conference presentations and papers, books, journal

articles, the annual reports of our respective institutions and reporting to funding bodies.

We spotlighted these issues as early as 2010, stressing the challenging nature of process in what formed the basis for the section of this chapter on foreseeable challenges, *all of which were known, potentially problematic aspects of international comparative research projects*. Much of this chapter, as is the case with Chap. 12, which focuses on the specific issues our survey team encountered, locks onto ‘process’, in a constructive, critical gaze. This is because as interesting as any conceptual elaboration or empirical findings in our studies are, these remain only ‘half a story’, at best (Bourdieu 1988, 2004). This is especially the case as studies like CINHEKS can seldom be truly addressed in the initial, short or medium-term funding used to begin a project (See Appendix D). Unless teams come to grips with and develop the capacity for critique – of their own efforts – they will be, by definition, remain hobbled, with limited potential in the medium to long term. This study and the relationships forged during the study can be built on, harnessing the cyclical, contingent nature of scholarship, because we made these efforts.

The upside to paying more attention to process is that it, in the end, lets you emerge on the other side of a complex investigation, better prepared for the next one, as there is no real substitute for experiential learning. Paraphrasing Kealey (as cited above), it is not difficult to locate individuals – in any field of endeavour – who have 1 year of experience – *repeated 20 or 30 times*. What we assert, based on our experiences in CINHEKS is that more attention to process improves the capacity of one’s research team and especially sets up the conditions for not only pulling together to address the starkest of challenges, as was the case with our team, but purposefully moving forward, avoiding the ad hoc, random, churning world of low competitive horizons and seizing the serendipity that will arise, if the teams truly understand the nature of the fields in which they wish to operate. This is only possible with frank, constructive, problematization and critique.

An added bonus to our critical stance is our assertion that the aspects we bring into focus in this section are *topics of investigation in their own right*. As concrete evidence of this assertion, we briefly outline two significant efforts initiated and led by our team members. None of these efforts were envisioned as we applied for the funding for CINHEKS. And it’s easy to miss the fact that *they would not have occurred but for EuroHESC and CINHEKS*. It is even easier to miss the fact that these efforts were the only two self-initiated opportunistic significant cross-project outcomes of the EUROCORES/EuroHESC research program while the program was running, even though cross-project research is a EUROCORES program goal. While others may not be thrilled with our focus on process, we would counter it is not accidental that both of these efforts were led by CINHEKS researchers.

***Special issue of Journal*** Building on the potential inherent in the ESF-sponsored networking, training and dissemination events, two CINHEKS PIs guest-edited a special issue of *Higher Education* (See Kosmützky and Nokkala et al. 2014), focused on the state-of-the-art of international comparative higher education research. Recruiting author teams across and beyond the four EuroHESC projects,

the eight-article special issue not only re-examines and contextualizes the current state-of-the-art of our field, but offers a wide-spectrum of topics grounded in both current long-term experiences of EuroHESC researchers. The special issue is the third such effort in Higher Education and speaks to wider goals, beyond either CINHEKS or EuroHESC: *The development of our field – as a whole*.

***Information and Communication Technology and Research Team Collaboration*** During CINHEKS, the opportunity arose for a series of opportunistic studies, which began with our interest in generic research team dynamics and their relationship to information and communication technology (ICT)-based collaboration (Hoffman et al. 2014). These studies were undertaken together with team members from sister projects to CINHEKS, within the EUROCORES/EuroHESC research program and with the support of ESF research program support personnel. The initial interpretive-level self-ethnography, published as one of the eight articles in the above special issue of Higher Education, illuminated several avenues forward on further topics, substantively conceptually and empirically, several of which are being actively pursued.

**A Final Word on Problematization and Design** In complex designs, we recommend building in constructive critique and knowing – up front – that a large project is going to illuminate other interesting potential projects, some of which may warrant effort and resources. *The potential of being ready for both speaks especially to those responsible for designing, leading and managing large projects*. For project leaders, managers and PIs, there is a single salient reality linked to the capacity for problematizing and critiquing the facets of an investigation that warrant it; along with being able to spot important topics and opportunities that relate to the development of our field, in general and key ‘blind spots’, in particular. Specifically, *at the end of the project, the personnel you involved in your efforts are going to be better off or worse off, to a greater or lesser extent because of your project*. That’s a heavy responsibility not entirely in control of any one person. This said, there are aspects of design, process and the behind-the-scenes ‘articulation work’, that we can influence. Constructive critique and anticipation of opportunities are two such aspects.

**A Long-Term, Open-Access Approach to Complex Topics:** [www.eurohesc.net](http://www.eurohesc.net) A real challenge faced by the CINHEKS team, throughout the project were demands outside CINHEKS. These include but were not limited to teaching, training, travel, mobility assignments, guidance of early stage researchers and students, administrative duties funding, other research projects, conferences and publishing. We observed that the type of researcher necessary to make a meaningful contribution to a study like CINHEKS, may not always have sufficient time or other resources to accomplish the tasks they agree to take on. This is not the same as saying researchers do not honor commitments. It is saying that the constraints linked to short-term rewards structure and day-to-day realities many scholars are working in, does not always prioritize active participation in medium or long term, complex investigations. The result of this reality is that the day-to-day tasks,

actually ‘doing the work’ and outcomes needed for a project like CINHEKS easily fall off the bottom of a researcher’s or research team’s ‘to-do list’. Because of this reality, the efforts needed to fully address a topic like CINHEKS can almost never be accomplished in a way which all involved would agree does justice to the topic, in what is often an unrealistically short time period for ambitious, high-risk/high-gain topics. This was exacerbated, from the design stage, in CINHEKS by our knowledge that the topic we chose to study could only achieve its true potential with a much wider scope of analysis than our funding scheme allowed for. Put another way, the countries participating in CINHEKS are all interesting and all hosted highly qualified higher education specialists in teams with solid track records of participation in these types of studies. However, *the majority of the world’s population lies outside the geographical scope of these countries*; including both the fastest-growing economies and ‘hot spots’ of the global higher education landscape, as well as the globe’s poorest populations, arguably far more in need and deserving of our attention.

Because of the above circumstances, almost from the beginning of CINHEKS the coordinators envisioned the way in which the scope of CINHEKS could be expanded geographically, substantively – where warranted – and methodologically, where the opportunity arose. The result of this type of thinking firstly occurred as members of the CINHEKS project team began introducing our project in international conferences. In several instances, scholars based outside the geographical scope of CINHEKS approached us, interested as to whether or not they could participate, in some form of the study. The earliest and most convincing of these approaches was made by a team based in the Russian Federation, who began cooperation with CINHEKS in 2011, at a conference in the USA. This was followed up at another conference in Russia in 2012. The team from the Russian Federation was supplied with our profile template and interview protocol and executed a case study in 2013–2014, during the write-up period of this text. The result of these ideas – operationalized – is Chap. 7 of this volume.

It may have been more conventional to lump this addition together with the challenges linked to the teams who could not or did not participate in CINHEKS as originally envisioned. However, the addition of another team which significantly increased the geographical footprint of our study, in a part of the world in which much less is generally known than the other countries who originally comprised our team – *while the study was in progress* – is a design breakthrough consistent with a *long-term approach to complex topics* we would like to pursue in the future, rather than shackling ourselves to the ad hoc, random, short term, short sighted approach to our field that awaits us, if we fail to learn from the best lessons efforts like CINHEKS afford.

In terms of infrastructure, it was clear there was significant potential for long-term study of CINHEKS. To realize this, members from the original ‘Phase I’ CINHEKS group, in Europe and the USA, teamed up with the newest member, in the Russian Federation, and wrote a grant articulating an open-access approach to complex, international comparative research topics, in general and CINHEKS in

particular (See Appendix D). The generic circumstances this approach is aimed at the limited amount of time, financial and human resources needed to address complex topics like CINHEKS. While it is true, generically-speaking, that there never seems to be enough time, funding or personnel to adequately address many complex research topics, scientists in many fields have partially addressed these constraints with the use of approaches that emphasize *replication*, *methodological innovation* and *theory testing/development*. The CINHEKS team asserts these often ignored principles can be applied to some international comparative higher education topics, like CINHEKS, in order to fully exploit the labor-intensive, ‘up-front work’ *that has already been done*, in new areas which have not been studied, both outside the scope of CINHEKS or inside (where limited funding often meant only a few cases could be examined.) There are several areas which can be and are actively pursued using the vast amount of data initially collected in CINHEKS. Moreover, as in all social science, substantive framing, theory, methodology can always be improved, over time, *as long as new data is available or old data can be examined with fresh eyes*.

Appendix D offers our open-access approach designed to facilitate replication and improvement of our topic (or any topic), over time and as resources allow. The advantages to this sort of approach apply to a single Master’s degree student, who would like a set of tested tools, designed for a real-world topic, a Ph.D. or Postdoc aiming at a novel improvement to our existing approach or an entire team, applying for funding, in order to see where their country, HEI, faculty, department or personnel ‘fit’ in the global division of scholarly labor.

### **3.4 Assessment of the Design and Approach to CINHEKS: Lessons Learned and Emerging Ideas**

As this study draws to a close, a number of the design and approach features can be evaluated by three very simple questions: *What would we repeat? What would we do differently? What new ideas come to mind, given the experience we just shared?* The answers to these questions are now experientially and empirically grounded in the highly interesting years our team has shared, focused on this study. These experiences, for some of our authors, date back to the genesis of the ESF’s efforts to articulate the EUROCORES/EuroHESC funding program and a meeting, ironically hosted by CHERI, in 2008, when the fundamental elements of CINHEKS were first articulated by Teichler (*personal communication to Hoffman*). A few of our CINHEKS authors were involved even earlier, advancing the ideas that would inspire the ESF to focus a EUROCORES approach to higher education studies in Europe. From those early efforts, going forward, through a highly challenging, multistage application process – to present day – the CINHEKS effort has been continually evolving. This involved both the recruitment of new members into the community of researchers – worldwide – who focus on international comparative

higher education – and the deepening of the relationships that predated the EuroHESC funding program. While many of the authors of this volume have a record of collaboration best measured in *decades*, efforts rooted in EuroHESC program, in general and the CINHEKS project, in particular, partially illuminated a generational changing of the guard in these types of studies.

All this said, our concluding focus on design is not simply a function of replication (of successes), elimination (of challenges) and a few platitudes about ‘possible’ avenues forward. This is because the complexity of the relationships between design, execution, dissemination and *novel ideas born out of these relationships* involves a profound appreciation of the idea that *many of our best moments – as a team – arose in our most dire circumstances. And what (on the surface) should have been easy turned out to be – at times – extraordinarily convoluted and fraught with difficulties.* The design and execution of the CINHEKS study spotlights several key ‘teachable moments,’ yet few of them match the overly simplistic assumptions many of us, including the authors of this chapter, brought with us to the project (Hoffman et al. 2014). This simple observation, in and of itself, speaks to the power of the design we chose, the way in which it was executed and especially our disregard for convention that dictates we gloss over the relationship between; paraphrasing Bourdieu (2004), ‘How we write-up what happened versus what actually happened’.

### 3.4.1 What Would We Repeat?

**The CINHEKS Matrix** As counterintuitive as it might sound to some readers, including some members of the CINHEKS team, *we would not hesitate to utilize a matrix design, combining one or more mixed-methods approaches.* Further, we maintain assigning critical framework elements of the topic, per-partner can work quite well. However, there are very important qualifications to these assertions. These mainly have to do with thinking very carefully about *partner selection* and the demands we know (outlined in the section on **Forseeable Challenges**, above) in advance that these types of design will require, in terms of human resources.

In particular, team leaders should not only be chosen based on the obvious added value they bring to the team, but on the basis of their *demonstrated ability related to conveying the challenges inherent in these projects to the new early stage and early career researchers they hire and hopefully recruiting these key personnel based on their aptitude regarding these challenges.* It is clear that in a project like CINHEKS, the social dynamics that are most relevant in your local team may mean next to nothing in an international team, where a completely different, uncertain, highly relative and contingent reality will emerge (Hoffman et al. 2014). A critical area in this regard is either making sure ‘the people actually doing the work’ (research assistants, doctoral students, post-docs, etc.) have counterparts on other teams with whom they can communicate and facilitating this

communication flow amongst your early stage and early career researchers on different teams, both within teams and across teams. This may not always work, but where it does, it may help efforts. The actual nature of research team dynamics, within a complex matrix design is anything but straightforward, mainly because of social dynamics that are known, but often ignored. What is easy to miss in all this is *thinking-through the design's potential versus actual efficacy in execution in terms of known challenges and actual events*. It is easy to mix these two things up. In simpler terms, don't mix up the sentences: *'The design didn't work'* and *'The design didn't work for me.'*

**A Focus on Process** In a large team, most personnel will be focused on the task at hand and this is as it should be. This said, several individuals in the CINHEKS team had, from the beginning of the project, a keen interest in whether or not the way we were doing things was the best use of our resources, in the broadest sense of the term. Specifically many of us, the authors of this chapter included, were profoundly interested in our process. As we wrote in our tangential studies, (detailed above) the reason for this was because we have our careers in front of us and need to figure out not only the most efficient and effective ways of pursuing complex topics across the myriad issues that we identified militate against conventional, normative approaches, but – more importantly – approaches sustainable in over the long run (Hoffman et al. 2014). This means consistently manifesting respect, often in the absence of complete information and a profound appreciation of the relationships between the *limitations* of individuals and groups, as well as their *potentials*, in highly dynamic settings. Succinctly, this means *understanding your process*. While we realized some colleagues were – and remain – irritated with this focus, hoping instead for conventional presentations of empirical results that sweep design, methodological and execution choices and consequences ‘under the rug’, we respectfully point out that an examination of our efforts and outcomes, *as a field of study*, are already too conventional, often unimaginative and all too rarely novel; particularly in the areas of substantive framing, theoretical and methodological development, topic variety, topics that matter or excite the imagination within our field and outside it. We borrow far more than we discover – in all these areas. There are exceptions to our assertion, but they are a *handful*, not an *auditorium full*. We are not the first to claim this. Teichler pointed out our lack of variety in several of these respects in (1996) and (2004). In 2014 – over decade later – too few have taken his words to heart. In our future efforts, many of the team – we hope – will be mindful of the benefits of taking process seriously and sustain the practices – and novelty – we found that arose from looking inward with a critical eye and, on occasion, following Bourdieu (1988, 2004) *focusing on our own actions as topics in their own right, in the hopes of fulfilling the potential that can be part of higher education*.

**The Big Picture – Over the Long Run** Several elements of CINHEKS lend themselves to practices within our effort that have potential not only with respect to a deeper understanding of the topics we choose to focus on but the longer time scales these efforts take and the way in which these can be leveraged into the

development of early stage, early career and mid-career research personnel. As noted above, CINHEKS was being planned precisely at the same time as the 2008/2009 collapse of the world's economy. Because higher education has never been the most secure scholarly field in the world, nor the best paid, the financial austerity that was the socioeconomic backdrop of our efforts was felt vividly by our team members in precarious positions as CINHEKS was executed. That said, several of our novel efforts, in particular our tangential studies on process and efforts with regard to open-access expansion of scope offered tangible 'countermeasures' regarding outcome-orientated efforts that were both highly interesting, but more importantly, viable and valued 'ways forward' in an increasingly uncertain professional climate. One of the central goals of the EuroHESC funding program was strengthening the relationship between international comparative higher education and related disciplines and fields of study, particularly more mainstream social sciences and the humanities. Better understanding the relevance of our efforts, within the global division of academic labor – *the big picture* – is a worthwhile ambition, but can only take place *over the long run* and with a comparative understanding of the nature, potential of relevance and relationships between the topics we study. Our specialization has a lot of potential and during CINHEKS it has become clearer to many of us the way in which long-term research agendas, relevant across many countries is, in fact, a viable enterprise. But in many specific settings we have much to learn from 'outside' our field – and much work to do 'inside' it.

### 3.4.2 *What Would We Do Differently?*

While many of the novel responses to challenging circumstances gave rise to promising practices and ideas, there were many lessons we learned *the hard way*. In a medium to longer term project, which is what CINHEKS has become, there are inevitable circumstances that change the way an individual or group operates. Writing a section like this is a chance to agree, disagree – or agree to disagree – about the inevitable difficult challenges that arise in these sorts of projects. And, in the best of cases, contribute knowledge to the field in the hopes that others might avoid the same sorts of difficulties, or be better prepared for them.

**On Personnel Selection – And Being Selected** A key set of findings that arose in connection with the opportunistic studies done of research team dynamics was the need for a solid understanding of international research team collaboration, on the part of project leaders, managers and PI/team leaders of non-co-located personnel, in studies like CINHEKS. This is because some project personnel, especially early stage and early career researchers may be inexperienced with international comparative research. This, by definition, means the wide variation we outlined in the above section on Known Challenges, *has not been experienced, first-hand* in relation to attempting complex tasks. This is **not** the same as saying prior



experience working in international teams should be a prerequisite. Kealey and Protheroe's (1995) work clearly shows *prior experience does not predict future success in demanding international assignments*. It is saying that even though potential personnel may have abstract knowledge about the known challenges and wide variety of difference that will be encountered in projects like CINHEKS, this is neither a proxy nor predictor of effectiveness. In addition, in many settings, it would be unreasonable to expect to find an early stage or early career researcher who has had significant international experience. The very motivation of getting – or giving – an assignment to work in a project like CINHEKS is precisely to gain what is increasingly seen as a highly valued assignment: the opportunity to work in an international project.

Our point here is that in addition to looking for solid research skills, team leaders need to select team members based on soft skills, especially evidence that researchers will be comfortable with the higher levels of uncertainty and ambiguity that are part of working with scholars from different cultures, generations, disciplinary traditions, institutional settings and competitive horizons. As became clear in our 2014 study of international research team dynamics (Hoffman et al. 2014), *there are no beliefs, values, norms and practices* linked to research team dynamics, that hold across the current geographical territory, generations, disciplines, cultures, organizations and individuals leading and conducting comparative studies – and *even less serious reflection on the implications of this fact*. Since we first wrote those words, we have found *no* counterfactual evidence of this assertion. Predisposition to the sort of soft skills we are talking about might have less to do with how a student performed in their initial higher education studies, than the types of courses these job candidates have taken (linked to interest in the world beyond their national/cultural borders), serious hobbies, a record of service. Something that gives an indication of *what you do not want*: the ethnocentric, egocentric personality type who has only technical skills, diplomas and certificates to offer.

The same lesson is as true for persons being offered a position in an international team led by a more senior scholar fitting the description in the previous sentence. *'I year of experience, repeated N times.'* In this situation, our advice is crystal clear: *Run. Fast.*

**More and Different Disciplines** As early as the EuroHESC application stage, evaluators: perceived a lack of genuinely interdisciplinary variety on our team. This was a fair criticism. On the one hand, the fact that CINHEKS PIs were based in institutional settings that focused on higher education made things easier. On the other hand, in future investigations of this type, drawing on teams with complementary disciplines, modes of inquiry, or types of expertise that was not part of our team make-up is something we will seriously consider. To be fair, many of our PIs have their academic roots in different kinds of disciplines. To be honest, the fact is all of us spend most of our time focused on higher education studies relevant in the international, supra-regional and national contexts, and have done so for quite some time.

The deeper challenge here is the tension between the tendency to work with (only) those you know versus seeking out a set of the *best* personnel, disciplinary, topic-based, theoretical and methodological angles from which to focus on a particular topic. These are not necessarily mutually exclusive. In a perfect world, trusted, proven partners have all the scholarly horsepower we will need for a specific topic. That said, the very nature of the complexity and exigency of the topics most likely to draw top-tier funding may very well require seeking out the *very best scholars and teams* available for the job, not necessarily *our very best friends*. While that is an exaggeration, it is not difficult to locate the empirical truth that underlies this kind of provocative statement or stereotype in many settings (See Hoffman et al. 2013b; Horta et al. 2010). In reality, the type of topics we deal with in CINHEKS, as well as the tangential studies we have done, strongly indicate this is not an *either/or* choice, it's a *both/and* strategy. A novel topic, approached with a few trusted, proven partners who identify – or are identified by – unknown but strong partners who can cover other key angles (often missed by more conventional teams) might be a *better* way to approach several kinds of topics. Doing this, at the same, time cannot help but strengthen our field.

**Dealing with Difficult ‘\_\_\_\_\_’.** Across the CINHEKS team and within CINHEKS project teams there were issues, moments and incidents of the sort that are seldom written about in any sort of publication. The type of focal point we are talking about are ‘critical incidents’, as experienced by an individual, group or – in the worst case – all project personnel. Critical incidents vary for different individuals and groups and what makes them especially challenging is that they are neither experienced, nor even perceived by all persons who are – never the less – involved. This means, by definition, any learning potential connected to these is easily lost, as ignoring critical incidents is often easier, preferable – or both – to confronting them. We would assert many teams the size of CINHEKS should anticipate critical incidents. But we are far less sure of whether or not many teams have actual procedures in place to constructively illuminate, engage and learn from critical incidents. We did not, although we wish, in retrospect we did. Because of this, one area of development that we are thinking about, going forward is along the lines of the discussion in Chap. 12. Specifically that a team-wide sunset evaluation be done after the conclusion of a major project. This is type of procedure is institutionalized in several occupational sectors, *especially following critical incidents*, for example in the medical professions, emergency services and NGOs. In the next major projects we become involved in, we will seriously consider this in the application and design stage of the project. Had we had these sorts of procedures in place in CINHEKS, we would have benefitted from them. As it stands, these, especially in combination with the results of our tangential studies, illuminate one of the more promising avenues forward regarding follow-on studies, grounded in the experiences of the CINHEKS team.

### 3.4.3 *What New Ideas Come to Mind?*

Going forward, a different set ideas is distinct, but related to the lessons learned (above), good or bad. As a close reading of this chapter will reveal, these ideas are empirically grounded in our shared experiences and related especially to the relationship between design and execution; challenges and potentials. But these ideas are ‘between the lines’ of our analysis. Here we would like to make them more concrete.

**Combining Teams, on the Move** One idea, going forward that was not strictly anticipated, but worked out very well was using personnel from different project elements, in order to get traction on a topic that a single project team, by itself was experiencing difficulties dealing with. The combined team from Chap. 12, who joined forces to focus on the CINHEKS survey, explicitly pointed out that more attention could be paid to the broad array of talent these types of projects draw together. Further, they asserted we should not hesitate to draw on a wider spectrum these scholars – inside and even outside the project – to fully engage the project objectives. We fully agree. It is not coincidental that the other team that utilized this approach was our other four-person, two project team that came together to both forge a novel sub-study in our analysis of the HEI profiles and finish this demanding analysis in extraordinarily challenging circumstances.

**A Word on the ‘Management’ of Academic Personnel: The Limitations of Leadership** It is telling that in one of the follow-on studies outlined above, in progress (See section above on **Problematizing our field**), Hoffman et al. (2013a) focus on the proposition ‘*Leaders Should Lead,*’ underlining a critique – across EuroHESC projects – of dissatisfaction with leadership and management by more than a few EuroHESC program researchers. While an analysis of **Known Challenges** (above) can often explain, in part, why ‘leadership’ and ‘management’ in one region, country, culture, disciplinary field, institutional setting or between generations is apprehended as ‘chaos’ and ‘ad hococracy’ in another; this brings us no closer to the question of effectively leading and managing international non-co-located teams, in general or the smaller non-collocated elements, in particular. This said, *we know what will not work*. The nature of efforts like CINHEKS draws out strong personalities with even stronger personal preferences (grounded precisely in the areas we outline above as Known Challenges), especially regarding communication norms and the way in which these are related to power. Because this is the starting point of many international comparative studies, the only thing we can guarantee you is that there is no ‘overarching template’, ‘recipe’ or ‘magic formula’ that will render perceptions of key focal notions like trust, time or task ‘the same’ to a team deliberately assembled *precisely because of their variety*. In other words, the very variety necessary to attempt a project like CINHEKS means you *will be continuously dealing with individuals and groups who understand the world around them, broadly speaking – in terms of culture, structure – and an individual’s place in both, in fundamentally different ways*. It is important to realize this variety is a

good thing and a necessary element for a project like this to succeed. But it is equally important to realize that the tension between ‘the big picture’ and ‘the minutiae and details entailed in a single facet of every (sub)project’ is never entirely grasped by any one individual at a single moment in time. This is because the variation linked to the diversity we outline exists on multiple crucial dimensions that affect ongoing perception of complex events, on different time-scales, concerning different stakes of different games.

In circumstances like these, the best one can aim for is becoming both *comfortable* and *realistic* especially with the variation needed to tackle complex topics in a complex world, in a comparative research project. At any one moment every person in your project will be *comfortable* or *uncomfortable* with the uncertainty and ambiguity levels inherent in working in projects of this sort. And they will have *realistic* or *unrealistic* expectations and needs regarding leadership and management of the project. The paradox here is one person or group’s ‘ideal solution’ or ‘prescription’ to what is perceived or experienced is another person’s or groups **worst nightmare**. The project leadership, across the project, but also within each project element, **‘owns’ this paradox** and it is, at times, an unenviable burden, especially when critical incidents blossom.

At the same time it is an irresistible challenge for some of us. This is because we have become dissatisfied with what often passes as ‘knowledge’ about leadership that reveals, on examination, *unmet challenges and expectations that in reality will never be reconciled*. In this regard, hope for the development of better leadership, management capacity, design suited to a particular topic, in projects like these, probably lies in our focus on process (above), as challenges – known and unknown – cannot be eliminated. This will not change. However, our capacity for leadership, management and understanding aimed at *purposeful dynamic design* can.

### **3.4.4 Looking Forward to a Work in Progress**

In terms of design and approach, the CINHEKS project was novel in the sense that the backdrop of the study is a pivotal moment for higher education studies in Europe. Whether this interdisciplinary field of study will grow, shrink, in terms of perceived relevance from whichever perspective it can be viewed, is a completely open question. To some extent, the answer will depend on the topics we choose to focus on and the manner in which we engage those topics.

As CINHEKS moves into a new phase of operations, it is has been fairly easy – in hindsight – to identify the strengths in our approach and design, as well as areas that need work in the future. Design is always a challenge, as is execution.

As we pointed out in our introduction, comparative research design, at its best, in an international project focused on a complex topic, is an on-going process. What we leave you with; as we now submit this study to editors, publishers and all the colleagues who will help us share our work and help us to critique and further

develop our efforts, is the idea we are moving forward on the best topics we identified and the best practices we experienced, because of *what we found*, in our studies of network knowledge societies and because of the *way we did it*. As noted above, several facets of our efforts have illuminated concrete, new studies, some of which are already in progress. In several ways, our efforts seem far from over. Rather, the publication of this volume brings us to a new vista, from which many things are now possible.

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# Chapter 4

## National Stories, Convergent Trends and Divergent Paths: Discursive Construction of the Higher Education and Knowledge Society – Nexus in Higher Education Policy Texts of Five Knowledge Societies

Terhi Nokkala

### 4.1 Introduction

Knowledge society is commonly understood (Stehr 1994; Webster 2002) to emphasise the expansion of knowledge labour and knowledge production, and the increasingly important role knowledge plays in the prosperity, competitiveness and wellbeing of societies. Knowledge is portrayed and treated as instrumental, with emphasis on technology and commercialisable innovation. Recent developments in research funding speak of the research funders' wish to ensure the societal relevance and short-term applicability of knowledge (Rekhi and Lane 2012). Theories and policies of knowledge society have evolved over time, from information and communication technology infrastructures and skills, to ubiquitous technologies and related services as focal elements of the knowledge society.

The utility of knowledge is not limited to the knowledge production side of the higher education activity. The utilitarian approach is linked also to the education function of higher education institutions, who are expected to produce knowledgeable labour force to the needs to the internationalising, knowledge-intensive labour markets, as well as to the often loosely defined 'third mission' or 'service to society' (Brown and Lauder 1996; Allen and Van der Velden 2011).

In the context of different knowledge societies, higher education policy discourses are dominated by a sense of urgency for change, calling for a new way of organising knowledge production through increased importance of networks, collaboration, competitiveness, internationalisation, innovation and quality.

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This chapter starts from the premise that modern societies, including the five CINHEKS countries Finland, UK, Germany, Portugal and the United States are, according to their policy narrative, self-pronounced knowledge societies. Knowledge society can also be argued to be the concept that best characterises modern societies (see Välimaa, Papatsiba and Hoffman in this book). This chapter describes the higher education discourse in five different knowledge societies, which features some national interpretations and translations of knowledge society, yet share certain characteristics such as importance of knowledge for the economic prosperity of the country or region, the role of higher education institutions as producers of that knowledge and as educators of the knowledge workers needed for its application. Therefore, this chapter at the same time addresses the characteristics of knowledge society discourse in the context of higher education policy texts.

Together this dual role of the analysed texts – the higher education discourse in the different knowledge societies, and the knowledge society discourse in the context of higher education – amount to what I will call the *discursive construction of the Higher Education and Knowledge Society -nexus* in higher education policy texts. This chapter seeks to illuminate both the commonalities of the discourse across the countries, as well as the variation of the country stories across country borders and two decades. The variables of analysis are, therefore, simultaneously the country level but also the themes characteristic of the Higher Education and Knowledge Society -nexus itself.

## 4.2 Discourse and Policy

Linguistic representations of reality are part of the grain that constitutes, shapes and transforms that reality. Whilst policy discourse does not amount to “the reality”, or even the full description of “the reality”, it is a significant element in pinpointing the logical course of action towards making the linguistically-constituted reality also a material reality. Therefore, discourses in this chapter are understood to be constituted by, and constitutive of, social reality.

A few of the central concepts I have used in this chapter merit a short explanation. Firstly, this is a study about *discourses*. Following Fairclough (1995, 2001; see also Jørgensen and Phillips 2002) the word discourse is used in three parallel, intertwined meanings. Firstly, discourse is defined as use of language, and it is thus a social practice. Secondly, discourse is a specific kind of language used within a specific field, such as higher education policy, or by a particular organisation or entity such as Ministry of Education or Finland. Finally, discourse is used to refer to a way of speaking which gives meaning to experiences from a particular perspective and can be distinguished from other discourses, such as ‘Stewardship discourse’ or ‘Responsible Germany discourse’. (Nokkala 2007, 95.) Several discourses may come together to construct and define broader discursive orders; for example knowledge society gets defined in relation to the discourses of education, research, competitiveness, technological advancement and knowledge economy. In policy texts discourses construe policy problems in particular ways, argue



for the necessity and appropriateness of reform, and privilege particular solutions. Thus they legitimate and explain policy change (Newman 2001; Schmidt 2002). Due to their historical and cultural situatedness; and the different institutional context which determine who are participants in the discourse process and the audiences they are directed at; discourses vary across countries: not only in terms of ideas and value they are attached to, but also in how they are constructed and what they are focused at (Schmidt 2002; Fischer 2003, p. 30).

Secondly, I argue that the policy texts analysed in this chapter are *framing* the addressed issues from a particular perspective. Adapting from Snow et al. (1986) and Benford and Snow (2000) I understand frames as linguistic practices whereby social actors who have produced the analysed policy texts legitimate their goals and tactics from a particular perspective. For example, education can be framed primarily in economic terms, or in terms of individual empowerment. The frames give internal cohesion to the discourse. Interpretive research focuses on the meaning that the action has for the actor. By focusing on the multiplicity of meaning; the analysis of policy shifts to the framing of the problem statements, rather than taking them as given (Yanow and Schwartz-Shea 2006; cf. Schneider and Ingram 2005).

Thirdly, instead of understanding knowledge society as a single discourse or as a politico-material reality, we should understand it as a broader *meta-narrative*. Following Jessop (2004, see also Nokkala 2007, 2015), I understand knowledge society as a discursive imaginary, which has achieved a status of a meta-narrative across institutional boundaries and country borders. The material and discursive practices and framing engaged in by different economic, political and intellectual actors result in bringing the discursive imaginary of knowledge society into reality. Part of this semiotic work is determining which content is allowed in the discourse or left out of it, which practices and vocabularies are linked to it, and who gets or does not get to participate in the discourse. As a meta-narrative, the knowledge society makes different, even conflicting policy goals appear as a logical, coherent and cohesive entity. Knowledge society is also an extremely flexible concept: it travels easily across organisational and national borders. While retaining enough of its boundary-crossing essence, the notion of knowledge society also gets translated (Czarniawska and Sevón 2005) to suit different national contexts.

Higher education policy is typically manifested in (policy)texts, which are semiotic vehicles in linguistic – written on spoken – form, but which may also contain other semiotic forms, such as images, diagrams or statistics. In a contemporary society policies are carried by multisemiotic texts combining language with other semiotic forms (Fairclough 1995). Policy documents include graphs and statics to determine the societal problems the policies are aiming to solve, to sculpt the policy agenda and to construct appropriate policy responses (cf. Hacking 1991). International statistics are typically used to define the status of the nation in comparison with other nations: this way they help to cast the country either as a ‘leading nation’ or as in need of ‘catching up’ other nations, or, indeed, ‘lagging behind’ them. (Nokkala 2015.) As Saarinen and Välimaa (2012) argue, changing world itself is used to argue for the need for policy change. To do this, policy texts often use either international comparative statistics, or national longitudinal statistics as

legitimations for change (Nokkala 2015). They may present governments, ministries or higher education institutions as active agents, or use neutral language and passive forms to disguise and dilute their agency. They may also obligate authorities, organisations and individuals to act in a certain way, presenting particular behaviour or courses of action as appropriate and responsible (cf. Amoores 2004).

### 4.3 Data-Driven Study – Methods and Challenges

This chapter outlines the shared features and the most significant national variations of the elements of the Higher Education and Knowledge Society -nexus in higher education policy texts in Finland, United Kingdom, Germany, Portugal and the United States (with emphasis on the federal level and California) over two decades, the 1990s and 2000s. The chapter relies on the analysis of the discourse in a set of national policy documents related to higher education, research, science and technology in the context of knowledge society.

The data available for analysis is dependent on several factors, such as the structure of the policy making in each country, the scope of the bodies that produce policy texts as well as the language and convenient availability of the documents themselves. Whilst it is common that the challenges arising from these premises are taken into account in designing research strategies in international comparative higher education studies, the traditions of academic writing rarely offers the opportunities to discuss such challenges and their significance (cf. Teichler 2014). In the following, I have accounted for the major challenges encountered in collecting and analysing the higher education texts for this chapter.

The structure of the higher education policy making, and thus the related documents, varies from country to country. Of the participating countries Finland is a unitary state with central government, although much of the decision making power in issues related to healthcare or education is allocated to the local authorities. National level is nevertheless the most significant in terms of producing discourse about higher education. Portugal is similarly a unitary state, whilst the United States and Germany are federal states, where the sovereignty and thus the political power are shared between the federal level and the individual states. United Kingdom lies somewhere in between these two extremes. Although a unitary state by format, much of the decision-making powers have been allocated to the four constituent countries: England, Scotland, Wales and Northern Ireland (UK government 2013).

The amount of data, both lack and abundance of it, turned out to be one of the most pertinent problems for this research task. The broad subject area and the extent of naturally occurring texts ensured that the potential amount of data was vast, and cuts had to be made in order to keep the exercise at a feasible size. The abundance of data was encountered especially in terms of the United States, where both the federal and the state levels were deemed to be relevant. A limited number of Federal Department for Education and National Science Foundation documents were

chosen for analysis at the Federal level. The choice of States followed the lead of the US CINHEKS partners, who selected higher education institutions from California and Michigan for their analysis. Eventually the data from Michigan was too scarce and California alone was selected for analysis.

On the other hand, there was a lack of easily accessible data, due to the four languages in which the data was written. The international context became in many countries an important reference point for higher education policy in the 2000s and thus a significant part of the policy documents in the recent years have been translated from national languages to English. The most pertinent problems arose in German and Portuguese data, where little or no data is available in English or other language in which the researcher was fluent. Therefore for Portugal the decision was made to focus the analysis to the latter decade and include only those documents that could be found in English. For Germany a twofold analysis strategy was used in order to ensure adequate quality of the analysis: the German documents were translated by using the Google translate – service and the translation compared with the original data in conducting the analysis. While much of higher education policy in Germany is decided at the level of individual states, the limited resources made it necessary to focus the analysis on the federal level.

The variety of policy-making structures and policy instruments in the participating countries presented another challenge in the data selection. Higher education policy and science and technology policy may fall under the responsibility of different ministries. This is the case in Germany where the Federal Ministry of Education and Research is responsible for the former, while the Federal Ministry of Economics and Technology is significant actor in the latter. Similarly in Portugal the Ministry of Economics is responsible for “innovation issues”, which are therefore largely absent from the Ministry of Education documents, and thus, largely from this analysis. There may be various standing committees producing relevant documents in the policy areas of the study, as for example Finland’s Science and Technology Council, later called Science and Innovation Council. The responsibility for any given policy area may also change from one ministry to another, and different organisational contexts may construct different rationalities of action and thus different policies. For example, in UK the responsibility for higher education policy has respectively been at the Department of Education, created in 1992, the Department for Education and Employment in 1995, the Department of Education and Skills in 2001, the Department of Innovation, Universities and Skills in 2007 and finally at the Department for Business, Innovation and Skills in 2009. In the United States, there are similarly numerous committees, offices and departments, of permanent or ad hoc nature, engaged in drafting policies.

The final challenge was to decide a suitable cut-off point for the chronological dataset. As the policy making moves at different paces in different countries, following the political tides and terms of government, it is difficult to pin down any universally satisfactory cut-off point. The decision to focus the analysis on the period 1990–2010, except in those cases where a policy document itself covered a period spanning those boundaries, necessarily has consequences for the scope of the topics included. Considering the vast political importance of the economic

downturn resulting from the stock exchange crash of 2008, it may be surprising how little attention is afforded to it in the policy discourse. This may be because few of the policy documents included in the analysis were drafted after the crash, or if they were, the downturn had not yet begun to bite.

In the face of these challenges, the research strategy was designed to take them into account and, when possible, alleviate them. The data collection was based on shared guidelines and done by the local CINHEKS research teams in each country using their expertise in identifying the relevant documents. For each country a sampling memo was written by, or with the help of, each respective research team. Despite this research strategy, it was only possible to identify a consistent set of policy documents for some of the countries. The most consistent data was identified for Finland, where a national development plan for education and research has been published in a 4-year interval since late 1980s. Similarly, the United States Federal Department of Education has published a multi-annual Strategy since the 1990s. For the remaining countries, it was difficult to define a consistent, complete set of documents by a relevant body as a basis for the analysis, making the dataset and thus the results more varied. It is necessary to take this into consideration when accounting for the emerging discourse. The selection of data is introduced in the [Annex](#).

The analysis of the data proceeded through several cycles of close reading of the texts themselves. The similarities, differences and absences of the discourse were identified through a comparison of the emerging themes and discursive strategies across countries. Whilst knowledge society as a phenomenon is so analysed and theorised that it is almost impossible to bracket out its expected dominant features, the adopted research strategy was to let the data speak for itself as much as possible. This approach allowed me to highlight the multitude of themes instead of confining the analysis to a small set of normative or theoretical knowledge society characteristics or characteristics of the operational change of higher education in the past two decades. Finally, it is important to remember that analysing the construal of discourses in given policy texts and conceptually analysing policies for the purposes of generalising to theory, such as emergence of new public management (Lane 2000), multilevel governance (Hooghe and Marks 2001) or networked knowledge society (See Chap. 2) are different, although complementary processes and do not necessarily highlight the same issues.

The purpose of this chapter is, through an inductive and exploratory, data-driven method and close reading of the texts, to excavate many themes and arguments in the national policy texts which with another type of method might have evaded notice, and to shed light to the construals of discursive reality in them. However, as Huckin (2002) points out, what is not covered by the policy texts is as important for the construction of the discursive reality as the things that are covered; thus the silences in the text may also be significant. These silences must not, however, be confused with the deliberate omission of researcher-imposed theoretical concepts in the policy texts. Whilst knowledge society and information society may represent different politico-economic processes for an analyst, we should not presume such differences, certainly with the specific definitions given to them in the analytical literature, to exist in the minds of those responsible for writing the policy texts.

#### 4.4 Convergent Trends in the Discursive Construction of the Higher Education and Knowledge Society – Nexus

Finland, United Kingdom, Germany, Portugal and the United States display both remarkably convergent trends in the discursive construction of the Higher Education and Knowledge Society – nexus, as well as clear variation over time and across borders. Typical of the Higher Education and Knowledge Society – nexus in is the taken-for-grantedness of the knowledge society either as an existing fact or as a desirable development towards which countries should aspire. This taken-for-grantedness is the basis of using the knowledge society meta-narrative to legitimate policy choices (cf. Jessop 2004; Schmidt 2002; Nokkala 2015). The concepts of knowledge society, knowledge-based society, knowledge economy, knowledge-based economy, information society or sometimes also learning society are all used in the documents. Stating that these would form separate discourses would be artificial, and would indicate that the authors of the documents would see these as separate concepts, and intentionally choose one over the other. It is, instead, more likely that they stem from chronological development in the political discussion, or from different theoretical understandings about the nature of societal change (see Chap. 2). In this chapter, they are therefore treated as part of a wider concept of knowledge society and analytically separated only when that is required for illustrating a particular discursive shift over time, or across country borders.

In the policy texts, “knowledge society” is implicitly understood or explicitly characterised as a “new age” (sometimes also “learning age”, “information age” or “digital age”) which is upon us and differs in defined or undefined ways from the previous age. Thus knowledge society evokes a need for “change”, which is a key notion of policy texts. The representations about “knowledge society” or “new age” may have two tones running parallel in policy documents. One of them is the optimistic kind, which sees times changing for the better: technology will solve many problems and self-directed individuals will take responsibility of the new opportunities available for them. The other kind is, if not pessimistic, at least cautious and more prone to highlight challenges and set requirements for the state, other actors and individuals (cf. Nokkala 2007).

The developments stimulated by the new information and communications technologies will open up new opportunities in many areas of life. Increasing use is being made of modern IT facilities in health care, for instance. These technologies will also bring far-reaching changes in the transport sector; they will ensure mobility, direct traffic flows and support lasting environmentally friendly developments in our society through better means of processing information and data. The modern information and communications technologies are opening up new opportunities to provide the individual with an optimal range of basic, further and advanced training. This will promote independent self-organised learning on individual responsibility. It will also help the individual to adjust to a range of rapidly changing occupational requirements. (DE2,<sup>1</sup> 1999, p. 6.)

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<sup>1</sup> The code for each document can be found in the document list in the [Annex](#).

The mobility of people and ideas is the basis of knowledge-based economies and societies. Overcoming corporate atavisms and illusions of self-sufficiency is a requirement of the Country at this time of challenges and opportunities. (PT12, 2007, p. 1.)

The inductive, exploratory analysis of the features of the Higher Education and Knowledge Society -nexus reveals that although certain convergent trends, such as emphasis on internationalisation, globalisation, and international context; teaching, learning and skills; or knowledge, knowledge production, research, science and innovation can be found, their framing varies within and between national and chronological contexts. The divergent national stories are elaborated later in this chapter.

#### ***4.4.1 Information and Communication Technologies***

The emphasis on the importance of information and communication technologies for the overall development of the society and higher education is one of the key markers of the nexus. Especially earlier policy discourse, which often talks about information society rather than knowledge society, is ripe with technology-optimism. The earlier policy texts focus on infrastructure (networks, hardware), whereas in the later texts emphasise contents (learning, skills or services). Information and communication technology is credited with e.g. increasing competitiveness of the nation or its business and industry, enhancing the society – including democracy and inclusiveness -, improving general quality of life, and empowering the individuals both in terms of learning and employability and in terms of active citizenship.

Modern information and communication technologies (ICT) are crucial to harnessing knowledge and innovation in order to raise growth, competitiveness and employment in today's networked world – especially in such a highly developed country as Germany. (DE9, 2003, p. 2.)

The ICT is portrayed as driving these two related change processes: the – already happened or currently happening – change of society, jobs and labour market; and the needed change of education and skills. The notion of knowledge society or information society is not related to education or research policy only, but evoked in connection with several policy areas. This gives strength to our proposition that the knowledge society is in fact a meta-narrative, a broad framework through which all policy areas are argued for.

ICT and multimedia will transform the world of work. New occupational forms, especially working by wire, will become increasingly commonplace, i.e. job activities will be possible at any time, anywhere, and will occur more and more over the internet/intranet. Employee-employer relationships and career patterns are changing. Business and social networking is boosting the demand for highly qualified workers, not only among ICT and service providers, but also in traditional trades. A mounting use of ICT will characterise positions in all business sectors and skill levels. Jobs will become highly productive nodes in an economic network. (DE7, 2002, p. 40.)

#### 4.4.2 *Internationalisation, Globalisation, and International Context*

Internationalisation and globalisation are central elements in the Higher Education and Knowledge Society -nexus (cf. Nokkala 2007, 2008) and feature prominently in the policy texts of the five participating countries. *Globalisation* is typically framed either in terms of inevitability of global competition and global economy – trade, jobs, etc. (Robertson 2005) – or alternatively in terms of global problems and global responsibility – alleviating poverty, environmental sustainability, climate change, or peace (cf. de Sousa Santos 1999). *Internationalisation* on the other hand typically refers to internationalisation of (higher) education as an activity, or to internationalisation of (higher education) policy (Teichler 2004).

Higher education policies increasingly take place in an international context, that is, by noting that there are other countries which have similar – or different – problems, challenges and trends in higher education; framing national solutions as part of a bigger, content-wide or even global web of higher education policy making; or by acknowledging the potential implication of those global contexts to the proposed national actions (cf. Enders 2004). The extent and framing of this international context varies in the country discourses. Whilst the German, Finnish and Portuguese policy discourses engage actively with the international context, it is more invisible in the discourses of the United States and United Kingdom. Calling for *international collaboration* in research or in higher education or science and technology policy is a typical expression of the international context. Even more so is to use *international comparative statistics* to illustrate the comparative position of the country vis-à-vis the position of selected other countries in terms of the policy topic in question, be it literacy, research and development (R&D) investment, or higher education participation rates. These are used either to assert the success of the country and its chosen policy, or to call for urgent change. (Nokkala 2015.)

We have many strengths in the way we develop skills, learning and qualifications in this country. Thanks to recent school reforms, our young people compare well internationally in their literacy, numeracy and science skills. We are as good at developing highly skilled graduates as the best in the world. [...] But despite these strengths, the way we develop skills and their contribution to productivity remains a serious weakness. French, German and US workers produce between a quarter and a third more in every hour they work than their British counterparts. Output per worker is 16 per cent higher in France, and 31 per cent higher in the US. (UK4, 2003, p. 18.)

Internationalisation of higher education can be characterised either in terms of *competition* (e.g. attractiveness, attracting foreign students, staff and labour force to the country) (cf. Nokkala 2012); *cooperation* (e.g. engaging in and benefits derived from international research cooperation); and *skills and attitudes* (e.g. equipping individuals with the tools necessary for surviving in the international labour market and/or increasingly multicultural environment).

The U.S. has long benefited from an open-door policy that welcomes science and engineering talent from abroad. Other nations are now adopting this policy, as well as providing incentives for students to pursue their education at home or to return from abroad. Increasing international competition and workforce mobility, combined with a surge in international collaboration in science and engineering research, continue to alter the science and engineering landscape worldwide. To lead within this broader global context, the U.S. science and engineering workforce must build greater capacity for productive international collaboration. (US7, 2006, p. 3.)

The development of educational content will take account of the growing importance of international cooperation and increasing multiculturalism in Finnish society. Special attention in educational development will be paid to language and communication skills, tolerance, and knowledge about foreign cultures and mores. (FI6, 2003, p. 36.)

### 4.4.3 *Education, Training and Skills*

In addition to research, science and technology, “knowledge” refers to education, learning and skills and their role bringing about the knowledge society. However, the framing of education takes varied forms, giving a distinctly different flavour to the discourse in the participating countries. Education is framed alternately as *education and teaching*, *learning*, or *skills*. Whilst focus on learning and skills emphasise the individual and his rights and responsibilities, as highlighted for example in the extract from the UK3 (2003) document further below, education and teaching focus emphasise the primacy of the authorities and institutions and their activities in the discourse:

The completion of higher education studies will be supported by developing guidance counselling, so that degrees are completed within the normative time and students can more quickly progress to working life and further studies. Individual study plans will be systematically implemented and monitored to support students at different stages. Electronic systems will be developed for monitoring purposes. (FI7, 2007, p. 63.)

While the notion of education and teaching are stronger in the 1990s, skills become more poignant later on. The UK presents a prime example of the skills discourse, to the extent that individuals are solely framed in terms of the skills they possess, or are hoped, even obligated, to acquire.

The concept of skills themselves is complex, and refers variably to *international skills* (especially Finnish discourse from the 1990s), *labour market skills* (this may refer to qualifications, especially in UK discourse), *basic skills* (literacy and numeracy, especially in UK discourse) or *transferable skills* (e.g. team work, especially in Finnish discourse). They may also refer to *ICT or new media skills*, or be entirely undefined. They may also be referred to in a vague manner as new skills, without much definition.

The prominence of adult education and lifelong learning in the discourse of Higher Education and Knowledge Society – nexus is based on the premise that the ‘knowledge society’ or ‘new age’ require that people continuously learn new things



and upgrade their skills (Lundvall et al. 2008). In the 1990s concept of adult education or training is used more prominently, whilst in the 2000s the concept of lifelong learning emerges in the discourse, with considerable variation between countries. The discourse in the United Kingdom is strongly obligating the individual to *acquire* lifelong learning and skills, whereas the Finnish discourse obligates the state and education providers to *provide* opportunities for lifelong learning. In Germany, the focus on provider's vs. individual's responsibility varies between documents.

If we want to close the productivity gap we must close the skills gap, and that in part means boosting higher education. But we are also convinced that expansion should not mean more of the same. The pace of both social and technological change means that education, including higher education, can no longer be confined to the early years of life. This is truly an era of lifelong learning. Today's generation of students will need to return to learning – full-time or part-time – on more than one occasion across their lifetime in order to refresh their knowledge, upgrade their skills and sustain their employability. Such independent learners investing in the continuous improvement of their skills will underpin innovation and enterprise in the economy and society. Lifelong learning therefore implies a fundamental shift from the 'once in a lifetime' approach to higher education to one of educational progression linked to a process of continuous personal and professional development. (UK3, 2003, p. 18.)

The steering of adult education and training will be developed to enable the provision to be planned, monitored and qualified as an entity and to be targeted according to the age and educational structure of the population and in response to working life needs. The steering will be developed to enable provision to be better targeted to the underrepresented groups. (FI6, 2003, p. 49.)

Finland, the US and United Kingdom all place significant emphasis on increasing the number of admissions especially in the 1990s. The *Finnish discourse* gives little justification for the increase of study places across the board. The approach is bureaucratic, the increase in targets is stated but very little justification is given. The *US policy documents* call the increasing demands for study places as the "Tidal Wave II", recalling the first "Tidal Wave" of new university students and graduates which took place after the WWII and the passing of the GI Bill. The US discourse on increasing the study places is service oriented: higher education is presented as a service for individuals, who expect access and quality, while also sharing part of the costs. The later *UK discourse* calls for the increase of study places in order to increase the potential labour force. The UK discourse frames individuals mainly as labour force, reduced to skills that are needed by the employers. With only slight exaggeration, we may argue that the main beneficiaries of the increased admissions are presented differently: whilst in Finland the beneficiary or addressee of the policy is the state, the US discourse frames the individual, and the UK discourse not only the individual but also the employer or labour market, as its main beneficiaries.

#### 4.4.4 *Knowledge, Knowledge Production, Research, Science and Innovation*

Knowledge is either (1) presented as an undefined, taken for granted element or force, which work on the world by itself; or (2) operationalised into knowledge production, research, science, or innovation. The *operationalised notion of* knowledge features actors, such as institutions or individuals, engaged in the activities of research and knowledge production, whilst *unoperationalised* knowledge is described as an actor or agent in itself. The first quote illustrates knowledge as a product of human and organisational activity while the second quote portrays knowledge as an agent which in itself will bring about change. In a policy document, the latter option leaves much more questions open, pointing only a vague direction rather than concrete – and thus debatable – action for policy.

Science, scholarship and research create a knowledge base for the operation of the different social sectors and for economic, technological and social innovation. The national innovation system is based on an active interaction between different players, on knowledge produced by higher education institutions and on efficient utilisation of knowledge. Internationalisation and the creation of distinctive profiles in its areas of strength constitute major challenges to Finland. (FI6, 2003, p. 54.)

To further our understanding of our natural and socio-cultural resources, and to analyse and prospectively assess our actions are among the central tasks of science and research. They create the vital basis that we need to find answers to the urgent questions of our time – the unemployment crisis, the environmental hazards, the emergence of new diseases and the dissolution of social relationships resulting in growing deprivation. None of the global dangers can be defused without scientific and technological progress, either. The interaction of demographic growth, energy consumption and pollution of the atmosphere alone shows that scientific and technological progress opens up opportunities for sustainable development. (DE1, 1996, p. 10.)

Regardless of the context, policy discourse typically calls for better *utilisation of knowledge and collaboration of knowledge producing entities* nationally and internationally. While the discourse in United Kingdom and United States emphasise partnerships, giving a strong agency especially for the private partners, Finnish policy discourse since 1993 emphasises the notion of innovation system, understood as a holistic entity of societal institutions with a contribution to the innovativeness of the nation (Miettinen 2006), but appearing in the discourse often as agentless. A significant feature of framing the utilisation of knowledge through partnerships or innovation systems is the nexus of public and private sectors. Similarly, cross-sectoral policy collaboration became a specific feature of the higher education policy: developing each policy sector alone could no longer achieve the desired policy goals.

## 4.5 Divergent Stories of Higher Education in Five Knowledge Societies

The five elements discussed above can be found in one way or another in all of the five countries under analysis. There are, however, certain features which are specifically prominent in some countries, and thus form a significant part of the individual country stories.

### 4.5.1 *Finland: From Decreeocracy and Civilization to Competitive Innovation*

Finland's higher education discourse in the late 1980s and early 1990s, especially as presented in the Development Plans for Education and Research by the Ministry of Education can best be characterised as bureaucratic or formal; perhaps to an extent to merit characterising Finland in the early to mid-1990s as 'decreeocracy', paraphrasing Galtung's notion of degreeocracy (Galtung 1971, from Okada 2001, p. 303). They are bureaucratic and insular by nature without a wider societal or international context. The early documents spend little time framing the policy in terms of external changes. The policies are not argued for, and they contain no legitimating or persuading text, which would tell the reader why the proposed changes are done, or why they are important. Big policy changes, such as introduction of entirely new higher education sector (the polytechnics) or the move from incremental to performance-based budgeting system are conveyed in very short paragraphs, with little explanation.

By 1995, the shift to performance-based budgeting will be implemented, so that the prerequisites for management by objectives will improve and higher education institutions gain more financial autonomy. The importance of performance in steering and allocation of resources will be emphasised. (FI2, 1991, p. 25.) (Translation TN)

We may speculate about the reasoning for such a bureaucratic approach to policy. In Finland, it may reflect the strong position of the Ministry in the higher education policy making of the time. Education was not an object of intense national interest as it perhaps is nowadays, which means there were less stakeholders to whom policy would need to be justified. Instead, the Ministry decreed the future actions or changes that were to take place. The early documents are largely written in passive voice: there is no actor or agency. Qualitative measures such as numbers of study places, numbers of teachers or higher education budgets are emphasised; yet there is little or no mention of setting indicators to the targets, and instead the legal basis of the admission numbers is referred to. The documents seem to be based on the legal rather than political mandate of the Ministry, making the need for policy discourse in the documents less pertinent. Similar style can be found in German and early 1990s texts from United Kingdom, as well as in

Portuguese policy texts in the 2000s. The shift from bureaucratic, matter-of-fact style to more political, argumentative style seems to coincide with the general trend of moving from state-centric to multilevel governance, and the higher education reforms opening up new spaces for policies and ideas to diffuse.

The Science and Technology Policy Council reports on the other hand are strongly embedded in the international discourses about knowledge society and competitiveness. The reason for this difference may lie in the different position of the institutions behind the documents. Whilst the Ministry are directly responsible for the steering of higher education, the STPC, albeit comprising very high-profile individuals and public figures, only has an advisory capacity. It therefore needs considerably more justifying discourse to argue for its case.

The economic depression of the early 1990s which had a significant impact on the funding of higher education, is visible in the 1991 Development plan for education and research. It becomes the main justification for the government to adopt an extraordinary development plan in 1993 in the middle of the normal policy cycle. The recession is never explicitly mentioned, but euphemistically the “national economic reasons” are cited as the justification for the policy changes. This presents an interesting contrast to the 1990s documents from California, which is much bolder in terms of its economic metaphors. In California the economic situation is boldly called a crisis or berated as the “boom and bust finance” (CA/US3, 1999, p. 21).

In the latter part of the 2000s, the policy texts engage a more “discursive”, policy oriented approach, with more persuasion and argument. At the same time, higher education policy starts to emphasise strategies and targets, labour market and economy. Change of the operational environment, such as globalisation and changes in the demography and world of work in a knowledge-based economy, are starting point of policy and education is determined mainly in terms of the labour markets. Education enables the creation of new jobs and the adaptation of individuals and businesses; and more efficiency is wanted of it both in terms of graduation times and structural development.

This significant stylistic change may have been brought about by a change in the political power relations, but it may also indicate the end of the “autocracy” of the Ministry of Education with regards to the higher education policy, and the emergence of multiple stakeholders interested in the direction of higher education, and the resulting need for a stronger and more precise legitimization of the policy actions taken in the stringent economic climate. Education was also selected as one of the key policy strategies for beating the depression.

Two aspects that set Finnish policy apart from the other countries are the emphasis on regions (regional equality, regional innovation systems) and civilisation. Whilst the regional emphasis is exceptionally strong in the Finnish discourse, similarities may be found in the German, and in a more limited manner, UK discourse. Regional development is not seen as mutually exclusive with internationalisation: international competitiveness is based on regional vitality, and, ultimately, on education and research.

Another prominent feature in Finnish discourse throughout the 1990s and 2000s, is the notion of *sivistys*, civilisation. Whilst the term civilisation is often used to translate “sivistys”, the closest international equivalent may be the German “*Bildung*” (Nokkala 2007, 120).

The concept conveys the notions of learning, respect, wisdom, generosity and critical thinking in education; instead of the notions of skills, qualifications and employability, and it may be used as a noun (*sivistys*) a verb (*sivistää*, *sivistyä*) or an adjective (*sivistynyt*). It also forms part of conjoined words such as *sivistysyliopisto* (civilisation university, cf. German *Bildungsuniversität*). (Nokkala 2007, 120.) Civilisation is linked to personal development, equality (of people as well as regions), tolerance, internationalisation, gender equality and responsibility for environment. The early Finnish discourse and self-understanding in higher education policy cannot be understood without the concept of *sivistys* or *sivistysyliopisto*. During the 2000s’ the use of civilisation concept becomes more tokenistic, and a more utilitarian labour market discourse emerges as the main framing of education policy.

In the Finnish information society, knowledge and know-how form part of civilisation and constitute the most important production factor. Civilisation means both the individual’s aspiration to self-improvement and the community’s intellectual capital. A person is civilised when he or she has assimilated a reasonable part of the cultural heritage of their community and is able to manage their own life. The individual’s intellectual activity enhances and renews the community’s cultural heritage. Thus aspiration to civilisation and civilisation as a heritage are two different sides of the same coin. An all-around education comprises cognitive abilities, ethical and aesthetic appreciation, a highly developed emotional life, observation and communication skills, the basic qualifications needed in work, and an ability to operate as a member of society. [...] Civilisation belongs to everyone. The task of national education policy is to constantly raise the level of education, culture and know-how. Every person has the right to continuous self-improvement, to learning and to growth into an ethically and morally responsible member of society and humankind. Basic educational security belongs to all citizens. It includes the right to free formal education, sufficient freedom of choice, and a safe learning environment. The principles of sustainable development will be taken into account in the educational provision and other activities of different school forms. (FIS, 1999, chapter 1.1.)

Internationalisation features in the Finnish discourse as something desirable, obligating the state, the higher education institutions as well as individuals (Nokkala 2007). In the 1990s, the discourse emphasises on mobility and providing Finnish individuals with the skills to cope in the internationalising world. Such a strong emphasis on internationalisation, especially framed as individual internationalisation skills, is unique to Finnish discourse. The later Finnish discourse frames internationalisation in terms of global competitiveness, quality and innovation base, as well as attractiveness of Finnish higher education institutions for foreign degree students. Internationalisation in research is framed in terms of strictly utilitarian approach: direct, explicit benefit resulting from active participation in EU technology programmes. International quality is presented as inherently better than “national” quality; however, Finnish know-how is also presented in a favourable light. This duality on portrayals of national achievement is wide-ranging in Finnish

discourse (Nokkala 2007). Finally, Finland is presented to be an active player in Europe: not only competitive but also playing along with the new playing field.

As a result of a discursive shift of the 2000s the relationships between individual, education/public authorities and labour market were rearticulated. The older discourse indicates that education is there for the needs of the individual, whilst the later discourse indicates that individuals are there for the labour market, and education is a catalyst in the process.

The concept of innovation system is emblematic of the Finnish knowledge society discourse. The concept was first introduced into Finnish policy discourse by the Science and Technology Policy Council in 1993 (cf. Miettinen 2002), and was used to describe an approach which “inspects the different societal institutions through their contribution to the innovativeness, perceived to secure the national competitiveness” (Miettinen 2006, p. 5). The Science and Technology Policy Council reviews represent typical features of the Higher Education and Knowledge Society – nexus, emphasising the building of the national innovation system through entrepreneurship, knowledge-intensive industries and development of regional innovation systems. Strengthening research through collaboration and clustering, intensifying the utilisation of domestic and international research results, and developing research funding are the key themes. This inherent idea that innovation can be fostered comes to largely define the Finnish research policy. At the turn of the millenium, the policy texts of the STPC represented the height of Finland’s technology and economic optimism. The tone of the discourse is optimistic, emphasising quality of life, competitiveness and knowledge, whilst the later discourse, written in the aftermath of the burst of the hi-tech bubble in 2000, adopt a more sombre tone, emphasising challenges and urgency or change, rather than opportunities of change.

#### ***4.5.2 Germany: Responsible Leader with Balancing Acts***

The German higher education policy discourse repeats the basic tenets of knowledge society: the importance of knowledge for economic prosperity and societal and individual wellbeing, the technological development and resulting changes in jobs, skills and education. The style of the policy documents is often matter of fact, without emotive discourse or strong obligating tone towards individuals, institutions or constituent states, *Länder*. The language reflects a need for balancing the mandate and responsibilities between the state and federal level. The texts are either written in passive, or the federal government is portrayed as an active agent and its achievements presented in a favourable light. If anything, the discourse has a notion of enabling and empowering rather than obligating different actors, which may be attributable to the task division between the federal government and the *Länder*.

Much of the German policy texts focus either on internationalisation or research aspects of the higher education enterprise; and Germany’s international competitiveness and attractiveness are focal themes in the discourse. Internationalisation is

framed as attracting foreign students and researchers to Germany and internationalising the German students and researchers; whilst mobility is framed in terms of labour market skills. However, no explicit justification is given for the international attractiveness goal, indicating the taken for granted nature of the perceived benefits of international attractiveness. Like the Finnish discourse in the 1990s, also the German discourse presents the aim of benefitting from the available international research funding, and actively participating in international collaboration, such as the European Research Area.

The discourse alternatively presents Germany as a leading nation in science, or portrays a need for the country to catch up with main competitors, typically United Kingdom and United States. Both statuses, Germany as a leading nation, and Germany as needing to catch up, are typically demonstrated by referring to international comparative statistics, and followed up by calls for more policy action. (Nokkala 2015.)

In many sectors the technical conditions are excellent, as in parts of the telecommunications and IT infrastructure. Over 230,000 km of fibre glass cables have been laid, so increasing the data transmission capacities many thousand fold, especially over long distances, compared with the traditional copper networks. The German Research Network is the fastest scientific data autobahn in the world. Germany occupies a leading position worldwide in research and development in optical networks and mobile communications. (DE2, 1999, p. 7.)

Teaching, learning and conducting research beyond national borders are increasingly being taken for granted. Nevertheless, Germany has a lot of catching up to do. The country must succeed in attracting more foreign students to Germany, and it must get more foreign researchers interested in doing research in Germany. To this end, it will be necessary to offer new and more attractive conditions.[...] Germany will be able to defend and safeguard its standing in the world only if it develops its own initiatives in the field of international co-operation in science and research and if it participates actively, especially in the development of a European higher education and research area. (DE3, 2000, p. 17.)

Unique feature arising from this portrayal of Germany as a leading nation is what I will call the “Responsible Germany” – discourse, in which Germany is presented with obligations towards other countries. Germany has a responsibility to contribute to collaborative efforts in Europe and globally, for example, shape global legislation to benefit the emergence and growth of the global information society (DE 1999, Innovation and Jobs, 8) or contribute to research that benefits the global society.

The German Government’s action programme ‘Innovation and Jobs in the Information Society of the 21st Century’ covers the activities needed to launch our move into the information age. The main aims are:[...] To promote cooperation in Europe and on international level, in order to remove existing obstacles and avoid new barriers on the way to the global information society. (DE2, 1999, pp. 8–9.)

More importantly, co-operation in science and research contributes considerably towards politically shaping international relations. Germany is perceived and sought-after by many countries as a competent partner. Increasingly, Germany will have to live up to this responsibility. [...] International co-operative research is designed to strengthen the scientific community as a whole, to obtain more excellent research findings through co-operation and thus to foster the development of human society across national borders. [...] Transboundary problems – ranging from environmental hazards to migration and transport issues – require international research efforts and solutions. Given its scientific

and technological capabilities, Germany is called upon to contribute towards finding solutions to such problems. (DE3, 2000, p. 32.)

Germany's leadership position is unique amongst the observed countries. It refers not only to topping the competitive ranks based on statistics or wishful thinking, but also to leadership with a mission and responsibility to change things for others as well. The German discourse represents a more active approach to international collaboration than the more isolationist discourse in the United Kingdom, where the global context is either entirely disregarded or only referred to in terms of competition, or Finland and Portugal, where the discourse is characterised by references to what those countries can benefit from international collaboration, not what they can contribute to it.

Other noteworthy elements of the German discourse especially in the 1990s are the emphasis on the regional dimension of policy, and the dual higher education system comprising universities and non-university higher education institutions, *Fachhochschulen*. Both elements can also be found in Finland, but their framing is markedly different, reflecting a further balancing acts between actors in Germany. In terms of the dual system of higher education the German discourse lays less emphasis on the separate functions of the two sectors than the Finnish discourse, and instead, it emphasises the need to increase permeability of the boundaries. This may indicate that the relationships of the sectors were less strained and easier than in Finland at the same time. Alternatively it may reflect a difference in the educational ethos, with Finland aiming for a flexible system emphasising equality, and Germany having a more selective system of education.

Regional development manifests itself as trying to foster balanced development of the "old" and "new" states. The discourse also emphasises collaboration between *Länder*, flexibility and crossing borders between different actors, as well as overcoming the divide between basic and applied research as a means of staying at the top. This may reflect the geographic and administrative fragmentation of the German scientific system. In the later documents also critical notes about the relationships between the federal and state level surface, due either to the increasing global competition, relative lack of success of the initiatives to foster balanced development or the end of the honeymoon which followed the unification of Germany.

Renewing university research is an integral part of the restructuring process going on in the higher education sector in the new *Länder*. To complement the existing instruments of science funding target-specific funds were earmarked under the University Renewal Programme which amount to a total of about DM 2.4 billion. The objective is not only to renew the higher education sector in terms of personnel and content but also to strengthen basic research and ensure an adequate infrastructure. (DE1, 1996, pp. 27–28.)

Certainly, the innovation potential and innovation performance in the new *Laender* has not yet reached the level of the old *Laender*, but the evident weaknesses of the eastern German university and research landscape are not fundamentally different from those of the structurally-weak regions of western Germany. (DE13, 2010, p. 12.)



### 4.5.3 *Portugal: Catching Up with Technology*

The Portuguese higher education texts from the 2000s reflect the desire of a small country to catch up with the rest of the developed world, in terms of participation rates in higher education, R&D investment and well as ICT infrastructures and services and utilisation of knowledge in society. The development was sparked largely by the OECD evaluations of the Portuguese higher education system in 2006 (See e.g. document PT15, 2006). The desire to catch up is evident in the policy texts of the 2000s, and is supported by the rapid development of the Portuguese investment in science, research and development, and by the sharp increase of doctoral production during the past decade, although Portugal still lags behind the OECD average on both accounts (Heitor and Horta 2012). The Portuguese policy discourse continues the international trend in that education and lifelong learning are seen as crucial responses to the internal and external challenges, and that change happening requires more changes. Social cohesion and external competitiveness are the key goals, and the tighter connection between education and working life seen as the way to achieve this.

Whilst some catching up with US and EU has already taken place, more is required. The goals of the policy are typical to the Higher Education and Knowledge Society – nexus: encouraging innovation, developing human capital and improving the utilisation of ICTs. Information and communication technologies are credited with economic growth and employment, facilitating transparency, improving equality and global development, improving evaluation of policy and opening up of the country towards the wider world. Finally, information society is also vested with the task of enabling the country to reach the highest level of human development and stimulate social cohesion and collaboration. This very technology optimistic discourse explicitly draws legitimation for the policy goals and measures from international comparisons and policies.

The most central document, also representing very strong technology optimism, is the Technological plan – A growth strategy based on Knowledge, Technology and Innovation, from 2006. The broad spectrum of the document covers both typical technology and infrastructure oriented discourse, and more “current” elements (energy efficiency, nature conservation and arts), reflecting a more comprehensive view of the uses of technology. OECD, the European Union, the Bologna Process and international statistics are used to legitimate the policy, and numerical targets are set to operationalise the policy goals. The tone of the document is neutral and does not portray any actors as particularly significant ones: not the government, nor higher education institutions, businesses or individuals. However, the proactivity of the government is constructed indirectly, through listing various initiatives that have already been launched. Similarly, individuals are often portrayed as objects of action, and stakeholders are morally obligated to participate in the shared efforts which are construed as beneficial for the entire nation.

The success of the Technological Plan and the materialisation of the measures associated to it require the involvement of all individuals and organisations in a close and continuing manner. (PT4, 2006, p. 54.)

Networks are emphasized on several occasions, pertaining to public-private networks, networks within higher education and other knowledge producers.

As far as science, innovation and the dissemination of knowledge is concerned, it is well known that interaction between the agents involved enhances the generating capacity and the quality of results, and consequently social benefits exceed private ones. In many situations, technological dissemination has a tacit dimension that depends on immaterial factors, sometimes associated with geographical or territorial proximity, generating new coordination opportunities with a view to a better return of synergies and agglomeration effects. It is therefore important to foster a systemic logic in various types of networks: individuals' networks, organisations' networks, R&D and knowledge centres' networks, enterprise and innovation networks, broadband networks. (PT4, 2006, p. 44.)

Like Finland, Portugal displays a model student – discourse which presents the country as wanting to implement all international policies and recommendations and wanting to gain by embracing European collaboration and OECD standards. The Portuguese discourse uses statistics and the EU and OECD policy to legitimise the actions of the government, which tells how strongly the international arena has emerged as a frame of reference for Portugal. This is understandable considering that the EU membership was significant to the development of the science and technology policy and infrastructure in Portugal (Heitor and Horta 2012). The strong tendency to legitimise the policy through the references to the European Union is in stark contrast with the discourses in United Kingdom and Germany. While the UK discourse barely acknowledges the existence of the European Union, and the German documents present the responsible role of Germany in the European Union, the effect is in Portugal that of a country standing in the periphery of the Union whilst receiving the instructions and guidelines.

Where the Portuguese internationalisation discourse differs from the Finnish one, is in the lack of the notion of attractiveness of the national higher education system for foreign students: the Portuguese discourse is still embedded in the older mobility discourse, which characterises internationalisation primarily in terms of mobility of individual students and academics, instead of an international policy convergence, multilevel governance and global markets (cf. Nokkala 2007). However, we know from other sources (Heitor and Horta 2012; Horta and Blasi in Chap. 6) that Portugal did in fact have a strong drive towards international scientific collaboration e.g. in the form of partnership programmes and funding schemes with an explicit purpose of benefitting from it both in terms of scientific advancement and human resources development. Similarly, it is interesting to note that the Bologna Process is constantly explicitly referred to in the Portuguese documents. This is also in contrast with the Finnish discourse, where Bologna Process is notably absent, although its policies are implemented. This may indicate that the international process and foreign countries are used as a legitimisation of policy in Portugal, whereas in Finland the legitimisation is more indigenous. However, the scarcity of the Portuguese data may skew the analysis in this regard.

The style of the Portuguese policy documents is bureaucratic; higher education institutions have little independent agency and their role is presented mainly as adapting to the changes in the external context and legislation. At the same time it obligates the institutions to act accordingly.

#### ***4.5.4 United Kingdom: Stratified Excellence and Labour Market Skills***

The UK higher education story, mainly framed through individual and societal economic rationale, has two main foci. On the one hand, it emphasises stratified excellence for the purposes of wealth creation, especially when discussing the research aspects of higher education. On the other hand it presents a very strong discourse of empowering and obligating individuals in labour market and (knowledge) society through skills. The frame of reference in UK documents is typically national, as is often the case also in the discourse of the United States. The world outside United Kingdom is mentioned only when talking about competition or about attracting talent from abroad, but for example collaboration, international policies or the Bologna Process are for the most part not mentioned. This may stem from an idea that the country is believed to have already archived the goals of excellence and world class recognition that is often stated as the drivers behind the Bologna Process (cf. Wächter 2004).

The UK discourse also undergoes a shift in tone during the 1990s. Whilst the early discourse in the first document, the 1991 “Higher education – A New Framework”, represents the same bureaucratic tradition as the previously discussed Finnish, German and Portuguese discourse of the same era, the 1998 “The learning Age” presents a very optimistic and idealistic tone.

In analysing this document, it may be useful to consider the political context in which it was written. The labour party, headed by Tony Blair, came into power in 1997 after a long period of Conservative rule with the slogan ‘Education, education, education’. This may be reflected in the optimistic tone of the document, compared with the later, more instrumental tone in the documents of the 2000s, where individuals are increasingly portrayed in terms of their skills. While ‘education’ dominates the 1991 document, in 1998 the emphasis is on ‘learning’ and in the documents of the 2000s on ‘skills’. Although the sweeter packaging of the message emphasises the non-material benefits of education, the style that obligates individuals is similar to the tone of the later discourse, where, instead of on the benefits of learning, more emphasis is placed on the threats of not taking action. The emphasis on benefits is linked to parallel debates on whether higher education should be seen as a private good, and thus who should pay for it.

The discourse in the 2000s frames education and research primarily in economic terms; and themes such as stable society, social justice or good life receive less attention or are entirely disregarded. The two main foci in the discourse include,

firstly, *learning and skills* (expanding higher education, widening participation, basic skills and qualifications, lifelong learning and collaboration with employers and industry) and secondly, *innovation, knowledge production and excellence*. The basic tenets familiar to the Higher Education and Knowledge Society – nexus apply for both themes. Individuals are primarily presented in terms of labour force with skills, creativity, entrepreneurship and scholarship. Similarly, the benefits to individual are often characterised through the gain in earnings. Also the benefits of education for the nation are framed first in economic terms. The economic framing borrows concepts such as ‘investment’, ‘dividends’, ‘competitive advantage’, or ‘market provider’ from the economic genre.

The *skills discourse* is a crucial part of the UK policy discourse (cf. Mulderrig 2008) and the lack of basic skills on adults is presented as a major problem. The skills discourse in the United Kingdom is very explicit, listing e. g. basic skills for adults, employability skills for the unemployed, apprenticeships to provide skills for young people, technician skills and managerial skills, even university and postgraduate skills that employers have a need of in a competitive situation. The various skills are linked to particular levels of qualifications. This reduction of the purpose of education into a set of skills that an individual can offer a future or current employer is indicative of a utilitarian and economy-centred approach to education. The strong emphasis on skills seems to reduce even the concept of learning age into mere skills, in a marked contrast with the technology oriented and -optimistic discourse in some other countries. It represents ‘skills-optimism’ where skills are seen as the solution to all problems, akin to technology optimism, where ICT is portrayed in the same way.

If we want to close the productivity gap we must close the skills gap, and that in part means boosting higher education. But we are also convinced that expansion should not mean more of the same. The pace of both social and technological change means that education, including higher education, can no longer be confined to the early years of life. This is truly an era of lifelong learning. Today’s generation of students will need to return to learning – full-time or part-time – on more than one occasion across their lifetime in order to refresh their knowledge, upgrade their skills and sustain their employability. (UK3, 2003, p. 18.)

At the same time, the skills discourse is a way of obligating and responsabilising the individual to improve their learning, which then is reduced to skills. Another example of responsabilising the individual is the emphasis on employability, explicitly set apart from employment, a discourse which is mostly missing from the other countries analysed. The UK discourse has a curiously negative view of individuals, very different from the United States discourse which portrays individuals as valued customers, or Finnish discourse, in which they barely feature. Individuals can be blamed for not acting their part, or patronized, as in the following extract which conveys an idea of non-qualified objects, rather than slacking subjects.

Many individuals do not see how better skills, training and qualifications can help them achieve their personal goals, whether for financial rewards through better jobs and higher wages, for supporting their families and communities, or for their own personal fulfilment.

We are concerned that skills and learning initiatives are not reaching all of society. We want to increase the skill levels for all underrepresented groups and encourage all individuals to improve their employability. (UK4, 2003, p. 20.)

A contrasting discourse, yet stemming from the same utilitarian and economic framing of education is the *discourse on excellence*. The excellence discourse is especially strong in research, and is coupled with the idea of making good use of scarce resources through profiling and collaboration. It constructs stratification of universities and prioritisation of some institutions in terms of funding as logical way forward.

We will need to focus on resources where they can have the greatest returning excellence and social and economic benefit. In all likelihood that will mean more research concentration where institutions are strongest. It should also drive a greater insistence on the value of diversity in the mission statements of our universities. It is a key premise of this framework that a healthy higher education sector places as much stress on institutions capable of excellent service to their local and regional communities as it does on institutions capable of recruiting the world's best research talent. (UK8, 2009, p. 4.)

Occasionally excellence also refers to regional or local institutions, in addition to global research universities. This seems to question the idea that excellence discourse would imply stratification and prioritising, and instead raise questions whether it actually connotes more neutral, 'different but equal' profiles. However, the notion sometimes alluded to in the UK documents of each individual and institute excelling at their own appropriate level, may speak, alternatively, of the recognition that no one size fits all in policies, or with a more sceptical reading, give rise to an interpretation that whilst calling the United Kingdom a class society is no longer *de rigour* in policy discussion, it may still be a reality behind the politically correct policy discourse.

But we know that this is not the whole picture. The economy also needs people with modern skills at all levels. We are not choosing between more plumbers and more graduates. We need both, and we need to help individuals to make sensible and appropriate choices. (UK3, 2003, 58)

An interesting feature in the UK discourse is also its use of the concept of fairness instead of equality, which was prominent for example in the Finnish discourse. Fairness is framed in terms of fair access and fair society, but also in terms of calling for individuals to contribute to the cost of their studies. Similarly, 'opportunity', 'socially just system', or 'wasted potential' is talked about to address the gap in educational attainment and access to education

The social class gap in entry to higher education remains unacceptably wide. While many more people from all backgrounds benefit from higher education, the proportion coming from lower-income families has not substantially increased. It means a waste of potential for individuals and for the country as a whole. (UK3, 2003, p. 8)

Whilst individuals are obligated to acquire learning and skills to benefit the society and labour market, they are also treated as customers, which emphasises student choice and gives them agency. The customer approach is also dualistic in two different ways. Firstly, the strong labour market emphasis often constructs the

employer as the main customer of policy, instead of the student. Education is characterised as a service delivered to customers, yet the customers are first and foremost the employers rather than individuals. Secondly, when referring to student customers, an implicit distinction between non-qualified customer in the skills discourse and selective customer in the excellence discourse is constructed. Moral responsabilising is coupled with explicitly calling for employers and individuals to contribute to the costs. This may be the crux of the policy, which is being legitimised by describing the necessity for change and benefits to the individuals, employers and the nation.

But creating the right culture for skills will require a collective effort. It will require every individual to think about updating their skills and qualifications, to ensure that they are giving employers what they really need. It will require employers to play an active role in helping to reform vocational qualifications, to ensure that they are relevant and responsive to changes in the global economy. (UK6, 2007, p. 4.)

The notion of meritocracy, although not appearing in the policy texts in the United Kingdom, is nevertheless essential for understanding the dualistic discourse of stratified excellence on the one hand, and the skills discourse on the other, and may also account for the emphasis on fairness instead of equality. The notion of meritocracy gives legitimacy to the continued and widening gap in educational and employment opportunities and outcomes. In the words of a CINHEKS colleague from UK, “the rich and powerful deserve to be rich and powerful because they are ‘better’ in terms of their skills and knowledge. Therefore, it is important to foster a belief that opportunities should be available to all to acquire skills and knowledge, not just because the economy needs them, but because they help to justify the steep and rising levels of inequality.” (Brennan, personal communication.)

In terms of style, the UK documents especially from 2000s are rarely written in passive, and instead use the first person plural in either inclusive or exclusive way to convey different messages. The ‘inclusive we’ makes the audience of the documents and, implicitly, the nation, as part of ‘us’, the group that is called to action and responsabilised with a given task. The ‘inclusive we’ both lets the entire nation, or at least the appropriate segment of it, share the glory, but also obligates the entire nation, or possibly another relevant segment of it, to make, or live with, the hard decisions. This is in marked contrast with the Finnish, Portuguese and German documents, which often use the agentless passive tone, diluting the political nature of the policy decisions. The ‘exclusive we’ which refers to the government, portrays the government as a decisive actor. (cf. Mulderrig 2011.)

We can be proud of our universities. The number gaining degrees has tripled in the last two decades while safeguarding quality. Completion rates for students are among the best in the world. More overseas students are studying here. Our research capacity is strong and, at best, world class. Recent years have seen a dramatic increase in the number of new companies spun out of universities’ innovation. (UK3, 2003, p. 4.)

We have to motivate many more adults to want to improve their skills and education, including the millions of people who left school with few or no qualifications. In order to do this, we will have to clearly show individuals the link between getting economically valuable skills, and getting good jobs and progressing in their chosen career. We will also work to remove any barriers related to a person’s age, race, gender or class, that may be

preventing them from having fair and equal access to more training and education opportunities. (UK6, 2007, p. 10.)

### 4.5.5 *United States: From Stewardship to Leadership*

The policy texts in the United States are defined by a series of divisions. First, there are the obvious task divisions between the federal level and the state level, and between the state authorities and ad hoc representative or partisan committees. These divisions may, however, partially account for the others. There is, firstly, a strict division between education-related and research-related topics, and secondly, the texts tend to focus on one topic, such as access to education, ICTs in education or, alternatively, science funding, and it is not possible to find a broad overarching document that would cover all relevant areas. Typical to the Higher Education and Knowledge Society – nexus, education is framed primarily in economic terms, and even termed an enterprise.

The most prominent feature about the US policy discourse, especially of the Federal Department of Education, is what I call the *stewardship discourse*. The stewardship discourse refers to the evident focus on financial prudence and prudence in terms of achievements and accountability (however, see e.g. Suspitsyna 2010). The documents focus on efficiency, effectiveness and customer satisfaction and improved statistics and aim at justifying the use of tax payer funds. Calls for efficiency and effectiveness are directed primarily at the Department itself, unlike in other countries, where efficiency is an obligation towards others: either institutions (e.g. Finland) or individuals (e.g. UK). (cf. Nokkala 2015). On the other hand, emphasising accountability of the learning outcomes and institutional performance is also part of the stewardship discourse. Some documents also make an explicit case for evidence-based policy, describing how the policy, its implementation and effects have been studied, which legitimises the policy by providing a meta-account of it.

To become a high-performance organization, the Department must become “results and accountability driven.” This will happen when we:

- Identify our customers and meet or surpass their needs
- Set goals and establish or improve our performance measurement systems to track progress
- Determine how best to work with our partners to reach program goals
- Continually seek new ways to provide services more efficiently and with higher quality
- Identify effective practices in education through R&D and evaluation, and get the information out to our customers and partners. (US1, 1998, p. 45)

A notable characteristic of the United States policy is the strong customer discourse, which empowers the individuals. The policy is justified through individuals, their earnings, jobs and opportunities, not through a wider national good.

A good example of the individual focus in the Californian discourse from the 1990s, in which education is framed mainly in terms of an enterprise and customers,

and an individual's right to low cost, high quality education, which is threatened by the economic austerity of the era. This is in marked contrast with the UK discourse, which in similar circumstances emphasises the individual's obligation to invest in education and to acquire skills to fulfil one's role in society; or the Finnish discourse which emphasises the need to cut costs.

The view of the individual in the US discourse, at least until the latter part of the 2000s, is sympathetic. Individuals have rights, they acquire service, and must be relieved of bureaucracy and the institutions are obligated to offer them the best possible education. In the United States discourse families are emphasised as key stakeholders; access and inclusiveness as important goals for education policy, and the partnerships with communities and employers as important modes of action. There also seems to be a link between the stewardship discourse and customer discourse, both addressing the individual in different capacities: as taxpayers and as customers.

Later in the 2000s the discourse seems to shift. The influential Spellings report (2006) obligates not just the state, but also the higher education institutions and individuals, calling for better cost sharing and student performance. Accountability reaches beyond the state's accountability towards tax payers, and to include institutions accountability, operationalised as students' performance. The objects of efficiency shift from the authorities to the institutions, taking the discourse closer to the generic efficiency discourse found in most countries. However, the emphasis on taxpayers' value for money is still present. In the calls more for frugal conduct of higher education institutions, the primary motivation is to contain the compulsory costs of an individual rather than the costs of the state. The view on tuition fees as a strict necessity, even a necessary evil, instead of an individual obligation also remains constant, albeit presenting a more nuanced view.

The Citizens Commission is convinced that the only realistic means for enrolling Tidal Wave II students is a long-term partnership involving the state government, the students, and the institutions of higher education. All three would contribute to, or absorb a portion of, the increased costs associated with higher enrollments. (CA/US3, 1999, p. 31.)

A significant obstacle to better cost controls is the fact that a large share of the cost of higher education is subsidized by public funds (local, state and federal) and by private contributions. These third-party payments tend to insulate what economists would call producers – colleges and universities – from the consequences of their own spending decisions, while consumers – students – also lack incentives to make decisions based on their own limited resources. Just as the U.S. health-care finance system fuels rising costs by shielding consumers from the consequences of their own spending choices, the high level of subsidies to higher education also provides perverse spending incentives at times. (US5, 2006, p. 11.)

One feature that is unique to US discourse at the federal level only, is the emphasis on national security as a goal of education and science. Although it features in several federal level documents, it is most pronounced in the Federal Department of Education Strategy published in 2002, soon after the 9/11 attack, which features a marked shift in the discourse from the previous apolitical stewardship discourse to a very political discourse, in which *bold talk, tough talk* and *metaphors* are used to construct the image of a strong government:



This is not just another strategic plan. Education is not just another policy area. 2002 is not just another year. The nation is at a special point in its history. Under attack from those who wish to destroy democracy and civilization, it has responded with resolve, strength, and compassion. In the midst of some of the greatest challenges it has ever faced, the nation's leaders have kept a focus on what matters most: our children. They worked together in a bipartisan spirit and passed the most fundamental reform of federal education policy in over 35 years: the No Child Left Behind Act. (US3, 2002, p. vi.)

Other features of this bold talk are the numerous direct references made to the President of the United States, the personal pledges of the Education Secretary, and other instances of giving credit to particular individuals. This is a marked difference compared with the highly anonymous earlier discourse, in which the Department, rather than the government or any individual is the actor. In this more 'political' document, the discourse moves from stewardship to leadership, from financial prudence to bold action. One interpretation may be that the 9/11 somehow mitigated the lacking mandate of the federal level, and instead the government was required to show leadership in all fields of policy.

In the same document, the tough talk obligates individuals as well as the government and the Americans as a collective, and constructs notions of ideal citizens (cf. Suspitsyna 2010). Similarly, the text uses the notion of 'American dream' which connotes high legitimacy.

The ultimate objective of any educational enterprise is to improve student achievement so that individuals may contribute to our democracy, economy, and communities and live their own American dreams. Improving student achievement is hard. It requires meaningful change in the way educators do their work. It requires new structures, new tools and new knowledge. But more than anything, to boost student achievement, to leave no child behind, we must change the culture of the education system. (US3, 2002, p. 1.)

The final interesting shift in the United States discourse is related to the recognition of the international context. In the earlier discourse, 1990s and early 2000s, there is little emphasis on international collaboration, which indicates certain self-sufficiency. If mentioned at all, the international elements appear only in terms of international competition, where the United States is presented as a sovereign leader. However, in the 2000s the policy emphasises the need for nation and individuals to compete in the global economy, representing a shift towards the hegemonic competitiveness discourse common in most countries. Whilst the 1990s the American discourse was still largely insular, by 2007 the policy is done with very much the rest of the world in mind.

## 4.6 Conclusions

In a context where most countries are self-proclaimed knowledge societies, it seems both futile and impossible to analytically separate certain elements of the policy discourse in any major policy area, let alone one so uniquely linked to the basic concepts of knowledge society as higher education and research policy discourse.

Therefore this chapter is equally about knowledge society discourse in higher education, and higher education discourse in knowledge society; in short, about the discursive construction of the Higher Education and Knowledge Society -nexus in higher education policy texts.

The global knowledge society is largely constructed by the international actors, such as the European Union or the OECD (Robertson 2005), whose portrayal of it focuses on the role of knowledge in economic production and competitiveness, operationalized variably as skilled labour force or research and knowledge production, but equally of more tangible elements such as number of internet users or national R&D investment as per GDP. At the same time though, our analysis shows how countries take the various elements of knowledge society, and its discourse and translate them to suit their own needs and circumstances. The notion, discourse, of knowledge society is used to legitimate a range of different, even contradictory policy actions. It is this flexibility and pliability of the notion of knowledge society that contribute to its hegemonic position and as the preferred way of the states to refer to themselves. It is for this reason Jessop (2004; see also Nokkala 2007) calls it a meta-narrative or master narrative which ties all different, convergent and conflicting policy discourses under a single, coherent and seemingly logical whole.

Who is to say that a country is not a knowledge society? Who is to evaluate the truthfulness of the claim to be a knowledge society is, after all, a socially constructed phenomenon. This analysis has aimed to show that there at the same time is and isn't a uniform discourse about the Higher Education and Knowledge Society – nexus. Whilst the basic tenets, the certain buzzwords can be found in all the countries analysed in this study, they are framed differently, given different flavour connotation in different countries and at different times.

The notion of change was central to the project *Change in Networks, Higher Education and Knowledge Societies*, of which this book is an outcome. We may look at this from two perspectives: firstly, the notion of change in the discourse, and secondly, the change of the discourse itself. The notion of change is characteristic of the discursive construction of the Higher Education and Knowledge Society -nexus. The idea that the society, labour market, demographics or international interconnectedness have changed is used as a justification for the need to change education and skills structures. Sometimes the source of the change is credited to for example, ICTs or globalisation; often only vague mentions towards “knowledge society” or “new age” are made. Equally, they are used as a legitimating argument for change. This legitimation may call for more effectiveness and efficiency, doing more things, of higher quality, with less money, evoking the notion of continuously striving higher and further as a nation. (cf. Nokkala 2015.)

Similarly, the change of the discourse itself across five countries and two decades is illuminated by this analysis, highlighting some of the emerging themes such as increasing politisation of the discourse, international frame of reference and private-good nature of higher education in the context of knowledge societies.

What may seem curiously absent, however, is much of the operational change, such as stratification, enrolment growth or the balancing of the research role vs. teaching role, and the emergence of the third mission of the higher education

institutions, although individually these themes do make an appearance in some of the countries. What this perhaps tells us is that much of the operational change has not taken place through the instruments of policy discourse, but through various steering mechanisms and governance practices. Whilst the highest level policy discourse constructs a social reality in which particular courses of action seem the logical next steps, the steering practices beneath the surface of policy discourse actually change the material reality within which higher education institutions operate.

The interesting elements of Higher Education and Knowledge Society – nexus may not, perhaps be how education, knowledge production, internationalisation or ICTs are portrayed, but how individuals, citizens of those knowledge society, or their collectives are portrayed, how their relationship with the state and society is defined, and how those definitions have shifted over time. The discourse of the Higher Education and Knowledge Society – nexus seems to, implicitly or explicitly, construct a certain kind of converging notion of ‘ideal citizenship’, obligating and responsabilising individuals to have and acquire skills, to be employable, to be an active and responsible citizen.

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## **Annex: Selection of Data**

### ***Finland***

#### **Development Plans for Education and Research**

The 5-year development plans by the Ministry of Education (OPM, MINEDU) are the most important government policy documents, outlining the development of the entire education sector for the next 5 year period.

- OPM (1987). Korkeakoulutuksen kehittämissuunnitelma vuosille 1987–1992. (FI1)
- OPM (1991). Koulutuksen ja korkeakouluissa harjoitettavan tutkimuksen kehittämissuunnitelma vuosille 1991–1996. (FI2)
- OPM (1993). Koulutuksen ja korkeakouluissa harjoitettavan tutkimuksen kehittämissuunnitelma vuosille 1991–1996. (FI3)
- OPM (1995). Koulutuksen ja korkeakouluissa harjoitettavan tutkimuksen kehittämissuunnitelma vuosille 1995–2000. (FI4)

- MINEDU (1999). Education and Research Development Plan 1999–2004. <http://www.minedu.fi/OPM/Julkaisut/2000/liitteet/KESU2004/eng/engKESUSis.html?lang=en> (FI5)
- MINEDU (2003). Education and Research 2003–2008. Development plan. [http://www.minedu.fi/export/sites/default/OPM/Julkaisut/2004/liitteet/opm\\_190\\_opm08.pdf?lang=en](http://www.minedu.fi/export/sites/default/OPM/Julkaisut/2004/liitteet/opm_190_opm08.pdf?lang=en) (FI6)
- MINEDU (2007). Education and Research 2007–20012. Development plan. <http://www.minedu.fi/export/sites/default/OPM/Julkaisut/2008/liitteet/opm11.pdf> (FI7)

### Ministry of Education and Culture Strategies

The Ministry of Education has published two general strategies pertaining to the vision and activities of the Ministry. These are both included, as the ministry is the most important body in setting the direction of the higher education system in Finland.

- OPM (1995). Koulutuksen ja tutkimuksen tietostrategia 1995–1999. (FI8)
- MINEDU (1999). Education, training and Research in the information Society. A National Strategy for 2000–2004. Information society strategy 2000–2004. <http://www.minedu.fi/OPM/Julkaisut/1999/liitteet/englishU/index.html> (FI9)
- MINEDU (2004). Information Society Programme for Education, Training and Research 2004–2006. [http://www.minedu.fi/export/sites/default/OPM/Julkaisut/2004/liitteet/opm\\_231\\_opm14.pdf?lang=fi](http://www.minedu.fi/export/sites/default/OPM/Julkaisut/2004/liitteet/opm_231_opm14.pdf?lang=fi) (FI10)
- OPM (2002). Opetus-, tiede- ja kulttuurihallinnon tietohallinnon kehittämissuunnitelma 2002–2006 [http://www.minedu.fi/export/sites/default/OPM/Julkaisut/2002/liitteet/opm\\_75\\_kesu0206.pdf?lang=fi](http://www.minedu.fi/export/sites/default/OPM/Julkaisut/2002/liitteet/opm_75_kesu0206.pdf?lang=fi) (FI11)
- OPM (2006). Opetusministeriön hallinnonalan tietohallintostrategia 2006–2015. [http://www.minedu.fi/OPM/Julkaisut/2006/Opetusministerion\\_hallinnonalan\\_tietohallintostrategia.html](http://www.minedu.fi/OPM/Julkaisut/2006/Opetusministerion_hallinnonalan_tietohallintostrategia.html) (FI12)
- MINEDU (2003). Ministry of Education Strategy 2015. [http://www.minedu.fi/export/sites/default/OPM/Julkaisut/2003/liitteet/opm\\_155\\_opm35.pdf?lang=en](http://www.minedu.fi/export/sites/default/OPM/Julkaisut/2003/liitteet/opm_155_opm35.pdf?lang=en) (FI13)
- MINEDU (2010). Ministry of education and Culture strategy 2020. <http://www.minedu.fi/export/sites/default/OPM/Julkaisut/2010/liitteet/EDU06.pdf?lang=en> (FI14)
- MINEDU (2004). Regional strategy for education and research up to 2013. [http://www.minedu.fi/export/sites/default/OPM/Julkaisut/2004/liitteet/opm\\_230\\_opm11.pdf?lang=fi](http://www.minedu.fi/export/sites/default/OPM/Julkaisut/2004/liitteet/opm_230_opm11.pdf?lang=fi) (FI15)

### **Science and Technology Policy Council/Research and Innovation Council**

Science and technology council/Research and Innovation Council (2009 onwards) is a government council advising the government and ministries on all issues related to research, technology and innovation.

- TTN (1987). Tiede- ja teknologiapoliittinen katsaus 1987 (FI16)
- TTN (1990). Katsaus 1990: Tiede- ja teknologiapolitiikan suuntaviivat 1990-luvulla (FI17)
- TTN (1993). Tiedon ja osaamisen Suomi: Kehittämisstrategia (FI18)
- TTN (1996). Suomi: Tiedon ja osaamisen yhteiskunta. (FI19)
- TTN (2000). Katsaus 2000: Tiedon ja osaamisen haasteet [http://www.minedu.fi/export/sites/default/OPM/Tiede/tutkimus-\\_ja\\_innovaationeuvosto/julkaisut/liitteet/katsaus\\_2000.pdf](http://www.minedu.fi/export/sites/default/OPM/Tiede/tutkimus-_ja_innovaationeuvosto/julkaisut/liitteet/katsaus_2000.pdf) (FI20)
- TTN (2003). Osaaminen, innovaatiot ja kansainvälistyminen. [http://www.minedu.fi/export/sites/default/OPM/Tiede/tutkimus-\\_ja\\_innovaationeuvosto/julkaisut/liitteet/linjaus\\_2003.pdf](http://www.minedu.fi/export/sites/default/OPM/Tiede/tutkimus-_ja_innovaationeuvosto/julkaisut/liitteet/linjaus_2003.pdf) (FI21)
- TTN (2006). Tiede, teknologia, innovaatiot [http://www.minedu.fi/export/sites/default/OPM/Tiede/tutkimus-\\_ja\\_innovaationeuvosto/julkaisut/liitteet/Linjaraportti\\_2006.pdf](http://www.minedu.fi/export/sites/default/OPM/Tiede/tutkimus-_ja_innovaationeuvosto/julkaisut/liitteet/Linjaraportti_2006.pdf) (FI22)
- TTN (2008) Linjaus 2008. [http://www.minedu.fi/export/sites/default/OPM/Tiede/tutkimus-\\_ja\\_innovaationeuvosto/julkaisut/liitteet/Linjaus2008.pdf](http://www.minedu.fi/export/sites/default/OPM/Tiede/tutkimus-_ja_innovaationeuvosto/julkaisut/liitteet/Linjaus2008.pdf) (FI23)

### ***Germany***

The German data contains a selection of documents by BMBF, KMK, HRK and EFI. BMBF- Bundesministerium für Bildung und Forschung, the Federal Ministry of Education and Research, provides the universities with financial resources and is responsible for research funding. KMK – Kultusministerkonferenz, The Standing Conference of the Ministers of Education and Cultural Affairs of the Länder in the Federal Republic of Germany, is responsible for nationwide matters. HRK – Hochschulrektorenkonferenz is the national rectors' conference, which represents the rectors both of universities and of the non-university higher education sector. Finally, EFI – Expertenkommission Forschung und Innovation, Commission of Experts in Research and Innovation, provides scientific advice to the German Federal Government.

- BMBF 1996. Report of the federal Government on Research. Abridged Version. (DE1)

- BMBF. 1999. “Information Society Germany – “Innovation and Jobs in the Information Society of the 21st Century”.” [http://epractice.eu/files/media/media\\_421.pdf](http://epractice.eu/files/media/media_421.pdf) (DE2)
- BMBF 2000. Report of the Federal Government on Research 2000. (DE3)
- BMBF. 2001. “Knowledge Creates Markets – Action Scheme of the German Government.” [http://www.bmbf.de/pub/wsm\\_englisch.pdf](http://www.bmbf.de/pub/wsm_englisch.pdf) (DE4)
- BMBF. Forum Bildung. 2001. “Recommendations of the Forum Bildung.” [http://www.bmbf.de/pub/recommendations\\_of\\_the\\_forum\\_bildung.pdf](http://www.bmbf.de/pub/recommendations_of_the_forum_bildung.pdf) (DE5)
- BMBF. 2002. “Innovation Policy – More Dynamic for Competitive Jobs.” <http://www.cnel.gov.pt/document/innovation> (DE6)
- BMBF. 2002. “Information Society Germany – “Innovation and Jobs in the Information Society of the 21st Century” Progress report on the Federal Government’s Action Programme [http://books.google.fi/books/about/Information\\_Society\\_Germany.html?id=G9NktwAACAAJ&redir\\_esc=y](http://books.google.fi/books/about/Information_Society_Germany.html?id=G9NktwAACAAJ&redir_esc=y) (DE7)
- BMBF 2003 “Lifelong Learning in Germany – Financing and Innovation: Skill Development, Education Networks, Support Structures.” [http://www.bmbf.de/pub/lifelong\\_learning\\_oecd\\_2003.pdf](http://www.bmbf.de/pub/lifelong_learning_oecd_2003.pdf) (DE8)
- BMBF. 2003. “Information Society Germany 2006 Action Programme”. A Master Plan for Germany’s Road to the Information Society. [http://www.bmbf.de/pub/aktionsprogramm\\_2006\\_gb.pdf](http://www.bmbf.de/pub/aktionsprogramm_2006_gb.pdf) (DE9)
- BMBF. 2004. “Learning Regions – Providing Support for Networks.” <http://www.bmbf.de/pub/learning> (DE10)
- HRK. 2003. Wegweiser der Wissensgesellschaft: zur Zukunfts- und Wettbewerbsfähigkeit unserer Hochschulen. 2003. Aufl. Berlin: BDA [http://www.schule-wirtschaft-thueringen.de/bwtw/cms\\_de.nsf/\(\\$UNID\)/34DBC298AAD202DAC12576B300545AA7/\\$File/Wegweiser\\_Wissensgesellschaft.pdf](http://www.schule-wirtschaft-thueringen.de/bwtw/cms_de.nsf/($UNID)/34DBC298AAD202DAC12576B300545AA7/$File/Wegweiser_Wissensgesellschaft.pdf) (DE11)
- Ständige Konferenz der Kultusminister der Länder in der BRD Titel: Stärkung der internationalen Wettbewerbsfähigkeit des Studienstandorts Deutschland. Gemeinsamer Bericht des Bundes und der Länder an die Regierungschefs – 21./22. bzw. 25. Oktober 1999 Erscheinungsjahr: 1999 [http://www.kmk.org/fileadmin/veroeffentlichungen\\_beschluesse/1999/1999\\_10\\_22-Staerkung-Wettbewerb-Studienstandort\\_Deutschl.pdf](http://www.kmk.org/fileadmin/veroeffentlichungen_beschluesse/1999/1999_10_22-Staerkung-Wettbewerb-Studienstandort_Deutschl.pdf) (DE12)
- EFI. 2010. Report 2010. Berlin: EFI [http://www.e-fi.de/fileadmin/Gutachten/2010\\_engl.pdf](http://www.e-fi.de/fileadmin/Gutachten/2010_engl.pdf) (DE13)

## ***Portugal***

The Portuguese data was the scarcest of all five countries, as very little government data is available in English. Two website introductions of the Portuguese Knowledge Society Agency (UMIC) were included in the analysis. These were accessed on 28.9.2010.

[http://www.english.unic.pt/index.php?option=com\\_content&task=section&id=32&Itemid=360](http://www.english.unic.pt/index.php?option=com_content&task=section&id=32&Itemid=360) (PT1)

<http://www.innovationeu.org/news/innovation> (PT2)

Finally, one article, co-authored by the at the time minister responsible for science, technology and higher education, Manuel Heitor was included.

- Connecting Portugal. A programme of action in the Portuguese Government technological plan: Mobilising the Information and Knowledge Society. (2005) [http://www.english.unic.pt/images/stories/publicacoes2/conn\\_pt.pdf](http://www.english.unic.pt/images/stories/publicacoes2/conn_pt.pdf) (PT3)
- Technological Plan. A growth strategy based on Knowledge, Technology and Innovation. Presentation Document. (2006). [http://www.planotecnologico.pt/document/technological\\_plan\\_presentation\\_document.pdf](http://www.planotecnologico.pt/document/technological_plan_presentation_document.pdf) (PT4)
- Heitor, Manuel and Bravo, Marco (2010). Portugal at the crossroads of change, facing the shock of the new: People, knowledge and ideas fostering the social fabric to facilitate the concentration of knowledge integrated communities. *Technological Forecasting and Social Change* 77: 2018–247. (PT5)
- Decree-Law No. 64/2006, of 21 March 2006 Access to tertiary education by students over 23 years of age. [http://www.mctes.pt/legislation/Decree\\_law64-2006.pdf](http://www.mctes.pt/legislation/Decree_law64-2006.pdf) (PT6)
- Decree-Law No. 74/2006, of 24 March 2006 Legal system of tertiary education degrees and diplomas. [http://www.mctes.pt/legislation/Decree\\_law74-2006.pdf](http://www.mctes.pt/legislation/Decree_law74-2006.pdf) (PT7)
- Decree-Law No. 88/2006, of 23 May 2006 Regulation of technological specialisation courses (CETs). [http://www.mctes.pt/legislation/Decree\\_law88-2006.pdf](http://www.mctes.pt/legislation/Decree_law88-2006.pdf) (PT8)
- Decree Law No. 40/2007, of 20 February 2007 Regulations for special entrance tests for admission to Medicine degree programs. [http://www.mctes.pt/legislation/Decree\\_law40-2007.pdf](http://www.mctes.pt/legislation/Decree_law40-2007.pdf) (PT9)
- Ministerial Order No. 401/2007, of 5 April 2007 Regulation for program change, transfer and re-entry into Tertiary Education [http://www.mctes.pt/legislation/Ministerial\\_Order401-2007.pdf](http://www.mctes.pt/legislation/Ministerial_Order401-2007.pdf) (PT10)
- Decree Law No. 239/2007, of 19 June 2007 Academic title of professor with aggregation [http://www.mctes.pt/legislation/Decree\\_law239-2007.pdf](http://www.mctes.pt/legislation/Decree_law239-2007.pdf) (PT11)
- Decree-Law No. 341/2007, of 12 October 2007 Legal arrangements for the recognition of foreign tertiary degrees [http://www.mctes.pt/legislation/Decree\\_law341-2007.pdf](http://www.mctes.pt/legislation/Decree_law341-2007.pdf) (PT12)
- Decree-Law No. 369/2007, of 5 November 2007 Tertiary Education Evaluation and Accreditation Agency [http://www.mctes.pt/legislation/Decree\\_law369-2007.pdf](http://www.mctes.pt/legislation/Decree_law369-2007.pdf) (PT13)
- Decree-Law No. 107/2008, of 25 June 2008 New mechanisms for monitoring the Bologna process and simplification of procedures and flexibility in the access to tertiary education [http://www.mctes.pt/legislation/Decree\\_law107-2008.pdf](http://www.mctes.pt/legislation/Decree_law107-2008.pdf) (PT14)

The final document included in the analysis was the Main Issues and Challenges – section of the report Tertiary education in Portugal: Background report. This

report was prepared by the Portuguese ministry for education for OECD in preparation of the OECD review of Portuguese tertiary education.

- Tertiary Education in Portugal: Background Report. Ministry of Science, Technology and Higher Education. Lisbon 2006. <http://www.oecd.org/education> (PT15)

## *United Kingdom*

The UK data includes a complete list of UK government white papers on higher education for the 1990s and 2000s. In the white papers the government is setting out its agenda for HE policies, reflecting contemporary discussions about HE and its future directions.

- Higher Education – a new framework (1991) (UK1)
- The learning age. A renaissance for a new Britain. Green paper. (1998) <http://www.lifelonglearning.co.uk/greenpaper/index.htm> (UK2)
- The future of Higher Education. White paper. (2003) [http://www.bis.gov.uk/assets/biscore/corporate/migratedd/publications/f/future\\_of\\_he.pdf](http://www.bis.gov.uk/assets/biscore/corporate/migratedd/publications/f/future_of_he.pdf) (UK3)
- 21st Century Skills. Realising our potential. White Paper.(2003) [http://www.apprenticeships.org.uk/~media/AAN/Documents/Research\\_1\\_100.ashx](http://www.apprenticeships.org.uk/~media/AAN/Documents/Research_1_100.ashx) (UK4)
- Skills: getting on in business, getting on at work. White paper. (2005) <https://www.education.gov.uk/publications/standard/publicationDetail/Page1/CM%206483#downloadableparts> (UK5)
- World Class Skills: implementing the Leitch Review of Skills in England (2007) <https://www.education.gov.uk/publications/eOrderingDownload/World-Class-Skills.pdf> (UK6)
- Innovation Nation. White paper. (2008) [http://www.bis.gov.uk/assets/biscore/corporate/migratedD/ec\\_group/18-08-C\\_b](http://www.bis.gov.uk/assets/biscore/corporate/migratedD/ec_group/18-08-C_b) (UK7)
- Higher Ambitions. The future of universities in a knowledge economy. (2009) <http://www.bis.gov.uk/assets/biscore/corporate/docs/h/09-1447-higher-ambitions.pdf> (UK8)

Additionally, the most recent reports by the British Academy and the Royal Society are included in the selection.

- British Academy: The fruits of curiosity: Science, innovation and future sources of wealth (2009) (UK9)
- Royal Society: The Scientific Century – securing our future prosperity (2010) (UK10)



## *United States*

### **Federal Level**

#### The Department of Education

The Department of Education has prepared multi-annual strategic plans, which have been included here as the main policy documents at the federal level. These are, nevertheless only available online since 1998. Additionally the influential report by a commission appointed by Secretary of Education Margaret Spellings to plan the future of higher education in United States is included in the analysis.

- United States Department for Education. 1997. Strategic Plan 1998–2002 (US1)
- United States Department for Education. 2001. Strategic Plan 2001–2005 (US2)
- United States Department for Education. 2002. Strategic Plan 2002–2007 (US3)
- United States Department for Education. 2007. Strategic Plan 2007–2012 (US4)
- A Test of Leadership. Charting the Future of U.S. Higher Education. A Report of the Commission Appointed by Secretary of Education Margaret Spellings. (2006). <http://www2.ed.gov/about/bdscomm/list/hiedfuture/reports/final-report.pdf> (US5)

#### The National Science Foundation

The National Science Foundation is one of the main federal funding bodies for basic research in United States. The data included from the NSF comprise the both available NSF strategy documents.

- The National Science Foundation. 2003. Strategic plan 2003–2008 (US6)
- The National Science Foundation. 2006. Investing in America's future. Strategic plan 2006–2011 (US7)

### **California**

The most important policy document relating to higher education in California is the Master Plan for Education 1960. The following four documents, related either to the entire plan or more specifically to higher education, were selected for this analysis.

- The Master Plan Renewed. Unity, equity, quality and efficiency in California postsecondary education. Commission for the Review of the Master Plan for Higher Education. 1987. <http://content.cdlib.org/ark:/13030/hb538nb32g/> (CA/US1)
- Master Plan in Focus, Draft Report. Assembly Committee on Higher Education. 1993. <http://content.cdlib.org/ark:/13030/hb2p3004mx/> (CA/US2)

- Toward A State of Learning, California Higher Education for the Twenty-First Century. California Citizens Commission on Higher Education. 1999. <http://www.ucop.edu/acadinit/mastplan/ccche/ccchefinalreport.pdf> (CA/US3)
- The Joint Committee to Develop a Master Plan for Education final report, The California Master Plan for Education, on September 9, 2002. [http://www.ucop.edu/acadinit/mastplan/master\\_plan2002.pdf](http://www.ucop.edu/acadinit/mastplan/master_plan2002.pdf) (CA/US4)

Additionally, the Commission of Postsecondary Education (responsible for developing the post-secondary education strategy for California) lists on its website <http://www.cpec.ca.gov/SecondPages/Reports.asp> a full chronological listing of the publications since 1962. Of these, few documents relevant to the topic of the study have been selected.

- *CCPE (1989)*. Technology and the Future of Education: Directions for Progress. A Report of the California Postsecondary Education Commission's Policy Task Force on Educational Technology. Report 89–27. 9/1989. <http://www.cpec.ca.gov/CompleteReports/1989Reports/89-27.pdf> (CA/US5)
- *CCPE (1995)*. The Challenge of the Century: Planning for Record Student Enrollment and Improved Outcomes in California Postsecondary Education Report 95–3. 4/1995. <http://www.cpec.ca.gov/CompleteReports/1995Reports/95-03.pdf> (CA/US6)
- *CCPE (1996)*. Moving Forward: A Preliminary Discussion of Technology and Transformation in California Higher Education. Report 96–6. 6/1996 <http://www.cpec.ca.gov/CompleteReports/1996Reports/96-06.pdf> (CA/US7)
- *CCPE (2000)*. Moving California Ahead: An Executive Summary. Report 00–5. 6/2000. <http://www.cpec.ca.gov/CompleteReports/2000Reports/00-05.pdf> (CA/US8)
- *CCPE (2006)*. On the Path to Higher Education Accountability: Recommendations from the Accountability Advisory Committee. Report 06–7. 6/2006. <http://www.cpec.ca.gov/completereports/2006reports/06-07.pdf> (CA/US9)
- *CCPE (2007)*. The Nexus Between Postsecondary Education and Workforce Development – Conclusions and Policy Options. Report 07–22. 12/2007. <http://www.cpec.ca.gov/completereports/2007reports/07-22.pdf> (CA/US10)
- *CCPE (2008)*. Implementing Policy Options to Strengthen the Nexus between Postsecondary Education and Workforce Development. Report 08–07. 3/2008 <http://www.cpec.ca.gov/completereports/2008reports/08-07.pdf> (CA/US11 accountability)
- [\\_policy\\_more\\_dynamic\\_for\\_compet\\_jobs.pdf\\_regions\\_providing\\_supports\\_for\\_networks.pdf-eu-vol1-1/0018-knowledge-society-agency---portugal.html/highereducationandadultlearning/39710472.pdf](#)

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**Part II**  
**Within and Between Higher Education**  
**Institutions**

# Chapter 5

## Diversity of Higher Education Institutions in Networked Knowledge Societies: A Comparative Examination

John Brennan, Vassiliki Papatsiba, Sofia Branco Sousa,  
and David M. Hoffman

### 5.1 Introduction

This chapter examines the increasing differentiation and diversity of universities within expanded ‘mass’ systems of higher education and whether different kinds of universities differ quantitatively and qualitatively in the ways in which they engage in networks and other interconnections. Diversity of universities is here conceived in its horizontal dimensions, which emphasise functional differences rather than reputation and status. Central to the study was a questioning about the ways in which the different types of network configurations alter boundaries and become platforms for certain kinds of knowledge trajectories to develop, with implications for the nature and shape of universities’ functions and missions. Drawing on the profiles of 28 higher education institutions in the five countries initially participating in the CINHEKS study, during 2009–2011 – Finland, Germany, Portugal, the

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UK and the USA, the chapter examines the different ways in which knowledge is organised, produced, transmitted and transferred with regard to networks, partnerships and collaborations through which higher education institutions engage with and impact upon society – nationally, locally and globally. Our analysis considers the balance between vertical and horizontal lines of authority and the extent and the nature of institutional similarities and differences. This includes an examination of the role played by both traditional and emergent boundaries in the organisation/production/transmission/transfer of knowledge and how easily these can – or cannot – be crossed in different institutional settings. Further, the chapter elaborates the way in which we came to focus on institutional profiles created from publicly available information. We conclude by laying the foundation for comparative problematisation of the basis for the diversity of contemporary higher education institutions, their networks and the tensions between established and emergent ways of considering the nature of knowledge production, transmission, transfer and organisation within and between twenty-first century networked knowledge societies.

### ***5.1.1 Analytical Propositions***

This chapter is methodologically and empirically focused on the main characteristics of networked knowledge societies and their implications for knowledge organisation, production, transmission and transfer in higher education institutions. In empirically approaching the ideas advanced by CINHEKS, in general, it was necessary to analytically problematise our emerging thinking of *networked knowledge societies* (see Chap. 2), in order to gauge the extent to which these ideas in fact conceptually illuminate empirical phenomena or, on the other hand, whether they need further development and novel conceptual framing. Problematising and making more explicit facets of scholarly debate on the knowledge society and networks (below) necessarily precedes our analysis.

**Networks and Spaces of Openness and Closure** The networks discourse, as discussed in Chap. 2, far from being a new analytical orientation, gave us an opportunity to probe the extent to which continuities and discontinuities are empirically visible, not only within countries and regions, but across them. As elaborated in Chap. 2, many assert that the scale and nature of collaboration between people has dramatically changed in recent decades. In the case of universities we can look at, for instance, the role of digital networks such as Researchgate, academia.edu, LinkedIn, etc, to understand how those networks are changing the way information is being organised, transmitted and transformed with potential impact on the knowledge that is being produced and transferred. The realm of specialist knowledge is no longer limited to the physical spaces of the university, the department, the office, the classroom, the laboratory, the library or, even, the international conferences/seminars which academics attend. Knowledge is being created every

day in digital space within networks, by academics doing research and teaching on-line classes. At the same time, institutional boundaries are becoming more porous while new lines of inclusion (and exclusion) are also drawn, as a result of the growth of multi-institutional alliances, collaborative professional arrangements and scholarly networks (Papatsiba 2013).

Within a wider socio-economic context in which falling costs, growing ease of communication and travel, and the rise of alliances in the world of corporate businesses, the impetus for higher education institutions to seek, maintain and expand their relationships to other organisations within and beyond the HE sector has become increasingly multifaceted. It has epistemic, policy, strategic and finally social roots and offshoots while the hoped for outcomes are to span the research, social and economic spheres. Speaking of the 'networked university', Barnett (2010) claims that it is a university that takes its networks seriously. In its idealised form, it is interconnected and engages in collaboration in order to open up new epistemic complexes and to form new relationships with its wider environment. The epistemic imperative stems from the widespread appreciation that most objectives related to research and education cannot be achieved by any single researcher, scientific discipline or university alone, as challenges are increasingly too big and/or complex for any single organisation to solve on its own (Gibbons et al. 1994). From the point of view of scientific developments, increasing specialisation across disciplines and fields, the desire to tackle complex research problems, the rising costs of technological apparatus and finally the development of new information and communication technologies, have led to the intensification of networks and collaborative activity (Cummings and Kiesler 2005).

The policy imperative needs also to be acknowledged, as research-funders and policymakers have been championing approaches of network formations and collaborative ventures to today's social, environmental and political challenges. They consider networks and collaboration as a scientific good (Duque et al. 2005). In science policy circles, networks are seen as vectors of innovation and a carrier of impact (Katz and Martin 1997). They facilitate pooling of resources, transferring of knowledge and technology, stimulation of efficiency and quality, and finally greater internationalisation.

However, one has to bring into the equation strategic organisational issues as well. With increasing competition, individual higher education institutions could seek to increase their strategic networking as a way of increasing their ability to gain further advantage through acquisition of additional resources and access to information (Burt and Minor 1983; Burris 2004). Highly connected actors (individual or organisational) are popular, since within networks, a mechanism of 'preferential attachment' often operates, in the sense that actors will seek to connect to the more connected member(s) and thus gain access to complementary capabilities, resources, visibility or reputation. Dense relationships, preferably to important institutions, can also facilitate the running of other university businesses such as evaluation commissions, appointment committees, access to editorial board memberships and so on (Röbken 2008).



In the changing landscape of higher education, emphasis is often placed on an organisation's ability to adopt a collaborative outlook in order to optimally draw on its internal capabilities, as well as on the potential arising from networks with external partners. Following Powel (1990), network structures are considered to offer the best potential for adaptability and innovation, since access to those capabilities is said to be facilitated when networks grow and, within them, develop reciprocity, trust and long-term commitments. The latter may be particularly important qualities as the growing competitiveness, between both individuals and institutions, within the academic world is making relationships of co-operation and collaboration increasingly difficult to achieve.

Finally, ideals of social and participatory agendas underpin novel social expectations encapsulated in discourse and in activities related to networks. As presented in Chap. 2, the caveat, though, is that network approaches as relational approaches tend to investigate the properties of relations between 'units' – rather than within the units themselves- and this in a way that often assumes flows of horizontal forms of authority and influence. This can lead to anticipation of traditional hierarchies giving way to a more egalitarian social field. However, Papatsiba (2014) alerts us to the risk of selective networking closing down spaces of collaboration. Especially in the context of "policy incentives and diffusion of standards 'from above', but also the mutual adjustment and isomorphic behaviours of HEIs 'from below'" (ibid, 56), 'like-minded' higher education institutions and resourceful external partners could come together bringing about more stratification than flatness of hierarchies. A reference to Bourdieu's concept of 'field' is useful (Bourdieu and Wacquant 1992). Higher education approached from a 'field' perspective is seen to have 'its own logic, economy of exchange and system of rewards and penalties (Papatsiba 2014, 58)'. Within this field, individual institutions are located in 'hierarchies that entail struggle for relative position' (ibid) and within them, individual academics must also compete with their peers for positional advantage within the institutional structure and beyond. The degree of change with regard to those points that networks can bring has to be empirically investigated.

This growing emphasis on networks should not disguise the potential differences within and between nations, supra-national and intra-national regions, types of institutions, disciplines and fields of study. Nor should it refrain from identifying the goals and ethics of networks as these can potentially become vehicles of both community and commodity. We are coming back to this point at the end of the chapter where we propose that network formations be considered in relation to missions of public and private goods. The tension between distinct views of *possible* relationships between networks and higher education institutions within networked knowledge societies – and the implications of these tensions – was the central challenge of this study. Some of the more prominent discussions with which we went into the field are summarised below.

**Models of 'the Networked University'** Linkages of the networked university with the entrepreneurial university contrast with aspirations in the opposite direction, toward open access in which knowledge, co-production and co-design of

educational programmes and of research, the sharing, use, re-use and modification of resources while enhancing the ethics of participation and collaboration (Peters 2010), are all served through the networked university. Barnett (2011) sees in the networked university the potential for the emergence of the ‘ecological university’ when the ends that are pursued through the networks are to bring about a better world. This point aptly indicates that networks and their goals are not to be considered *a priori* as inherently open and ethically oriented formations. Taking a closer look at the actual activity in which they engage, as well as their plural and contextually grounded values and interests, is of critical importance.

**Networks, Differentiation and ‘Networked’ Massification** According to the perspectives adopted, universities become either more or less central within networked knowledge societies (Brennan 2011). Of course, universities have never had a monopoly over the creation and transmission of knowledge and the role they have played has evolved considerably over the centuries. Trow (1974) distinguished between ‘elite’, ‘mass’ and ‘universal’ systems of higher education but importantly noted that the universal systems would need to possess sub-systems of the elite and mass forms. Other commentators (e.g. Clark 1983; Teichler 2007) have referred to the differentiation of higher education systems as being either ‘vertical’ or ‘horizontal’ with the former distinguishing institutions in terms of their reputation and status and the latter emphasising more functional differences. ‘World class’ would be a commonly used term from the vertical vocabulary with ‘entrepreneurial’ reflecting more horizontal differences. While, to some extent, all higher education systems possess some elements of both vertical and horizontal differentiation, the emphasis differs considerably between countries, reflecting the kinds of social differentiation to be found in the larger societies of which they are a part (Brennan 2013).

Therefore, the extent to which institutions creating networks can alter the balance between vertical and horizontal forms of differentiation varies in different contexts, depending on a range of parameters which point to institutional characteristics, systems of higher education and types of society. Increasingly, for some institutions, a global reputational positioning is the most important consideration. In stratified sectors, strategic alliances can become a mechanism for accessing, consolidating or confirming visibility and reputation. As massification is often responded to with strategies of distinction, one has to come with an open mind to questioning whether networks strengthen, mitigate or alleviate traditional positioning of institutions nationally and globally. However, for the individual academic, network membership can be a means by which he or she can transcend the prestige and standing of the institutions in which she/he is employed.

**Societal Need** These types of discussions underline the question as to what kinds of higher education institutions have emerged within networked knowledge societies. This question implies a more fundamental one: have networked knowledge societies shaped higher education institutions, been shaped by them in some functionalist fashion, or is there a more interesting way in which to consider

these dynamics and the ways in which many see higher education institutions to be repositioning and reinventing themselves as institutions? The issue of knowledge, its nature and epistemic, social and economic legitimacy, is positioned at the heart of questions concerning societal need. The debate about higher education in networked knowledge societies brings to the fore considerations of actors within, across and beyond higher education, how they are linked and interacting together, and ultimately how these network configurations become platforms for certain kinds of knowledge trajectories to develop. The debate brings with it antagonisms, polarisation as well as reductive and single-sided views, such as dichotomies between ‘useful’ and ‘useless’ knowledge, the former often being associated with the ‘real’ needs of knowledge societies, while the latter is said to belong to an old era of self-centred and indulgent professional organisations. Needless to say, we do not subscribe to ‘either’-‘or’ argumentation, as the whole idea of CINHEKS has been to gain a refined understanding of the complexities in the higher education field.

## 5.2 Methodological Challenges to Comparison

### 5.2.1 *Higher Education Institutions*

Before attempting to address these questions, we note the many differences in the *forms* of higher education institution and these have existed for many decades. First, comparatively speaking, we point out the obvious: ‘universities’ are not the only forms of higher education. Many European and other higher education systems are structured in explicitly ‘binary’ forms with universities existing alongside other forms of institution such as *fachhochulen*, polytechnics and research institutes. Historic traditions are also important with the Humboldtian, Napoleonic and Anglo-Saxon traditions being typically identified across Europe and North America. History is also important when it comes to the individual institution. While a long history is frequently associated with high status, the origins of an institution are frequently also used as a guide to more functional forms of differentiation. For example, the continued use in the UK of the terms ‘pre-92’ and ‘post-92’ as the key differentiating factor<sup>1</sup> to distinguish between universities serves to disguise a multitude of other more nuanced and arguably more important differences between institutions. Along with history, geography can also be used as a guide to the characteristics and reputation of an institution. ‘Capital city’ institutions are frequently identified but there are also features of an institution which are inherited from its location – remote, prosperous, rural/urban, industrial etc.

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<sup>1</sup> Based on a distinction between ‘universities’ and ‘polytechnics’ which had been based on the binary system of higher education which was removed in 1992 when all the polytechnics became (‘post 92’) universities.

While differentiation of higher education institutions can be identified concerning many different dimensions, there is also an argument that the institution is not always the correct unit of analysis for understanding higher education processes and activities. Alternatives include the ‘basic units’ of departments, faculties and research centres, the individual scholars at the more micro levels and the national higher education system at the more macro (Becher and Kogan 1992; Clark 1983).

In practice, the differentiation of higher education systems and institutions is the result of interplay amongst all of the features mentioned above. In considering the changes that are currently occurring in higher education, it is possible to detect both degrees of convergence but also new forms of differentiation. Particular differentiating factors may be strong or weak in different focal contexts. Additionally, differentiation may be viewed in global, national, supra or sub-regional terms. There may be strong or weak boundaries between different institutions and units within them and these may have potential implications for the ‘identities’ of those who work or study within them. Equally, differences in the degree to which change is induced by responsive processes or by autonomous and independent processes are to be observed and these can only add to the complexity.

Comparatively speaking, the large differences found within and between different systems and institutions of higher education illuminate the question as to the extent to which the priorities and values of networked knowledge societies favour particular institutional forms over others and, indeed, whether they may be driving the creation of new forms of differentiation and the adaptation of existing ones.

### ***5.2.2 The Tension Between Novelty and Limitations***

Methodologically-speaking, the differences outlined above raised significant methodological challenges for the CINHEKS team across the scope of our analysis. This was firstly because team members began the study with very different ideas as to what constituted an ideal approach to a case study of an HEI in general and comparative case studies in particular (see Chaps. 3 and 10). We opted eventually for an *observational protocol, at a descriptive level of analysis*, which would, in turn, establish the basis for a common approach to the institutional case studies. At the same time, this *HEI profile template* (here and after ‘profile’, see Appendix A) would allow CINHEKS teams to begin gathering data that could guide our collective efforts in a refined purposeful selection of case studies, linked to our emerging thinking about networked knowledge societies. These data would have been gathered, in any case, for case studies while, at the same time, it was hoped that the profile data would be instrumental in illuminating key similarities, differences and focal points. As the profile focused attention on data that could be gleaned from publically available sources, like annual reports, web pages and marketing material,

our idea was that several HEIs in each country could be profiled in a short time. The immediate advantages to this route were clear in so far that profile data could be gathered on many more HEIs than we had the resources to do full case studies on, while at the same time, forming the basis for an evolving rigorous purposeful selection of cases *better* than any single initial approach proposed by an individual team.

**Limitations** While the novelty of the profiles was fully appreciated, all methods have limitations. First, producing the profiles added a third ‘stage’ in our sequential studies, in terms of level of abstraction, as outlined in Chap. 3. Specifically, we were beginning with a *descriptive* level of analysis – the profiles; followed by an *interpretive* level of analysis – the case studies; followed by *explanation-building* – in the survey. While this strengthened the overall design, we had not initially factored the additional time an extra step would necessitate into our plans. Second, being an untested method, the profiles gave little leverage for resolving the differences as to operationalising a common approach to case studies. (For a more complete analysis of these types of issues see Chaps. 3, 10 and 12). Finally, the above challenges, which will surprise no one experienced in international comparative studies, were intensified by the unexpected setback of the research centre,<sup>2</sup> in which the case study team was located, being eliminated by the Open University at precisely the time we should have been fully addressing and resolving the above limitations.

## 5.3 Institutional Differences Compared

### 5.3.1 Analysis of HEI Profiles

Based on our ‘*HEI profile template*’ (see Appendix A), each country team produced four to six detailed HEI profiles. These amounted to a total of 28 profiles, describing higher education institutions in Finland, Germany, Portugal, the United Kingdom and the United States. The information in the profiles consists largely of public information available on institutional websites, though supplemented in some cases by interviews with senior staff, texts and documents gathered during site visits. Variation in the amount and content of freely available (or volunteered by the institutions) information meant that the profiles were somewhat uneven, with dimensions extensively detailed in some profiles, less detailed in others.

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<sup>2</sup>The Centre for Higher Education Research and Information (CHERI) was closed down by the UK Open University midway through the CINHEKS project.

### 5.3.2 *Analysis Procedure: Profiles and Grid Analysis*

The analysis of the profiles aimed to build a bridge between a qualitative case-study orientation to be used by a team, spread over several countries, aiming at laying the basis for a survey and ultimately an empirically-grounded, sequential foundation for comparative findings. This was challenged by the vast amount of rich and vivid data, as is typical with qualitative research, but also by the scale of a multi-site and cross-national study, and ultimately by strong disciplinary, field of study, specialist and nationally based traditions. The latter underpinned and shaped understandings of ‘what constitutes a case study’ (see Stake 1995; Creswell 1998; Tight 2012) and how the institutional cases can be meaningfully construed as ‘cases of’, that is how to consider them in relation to research problems, but also from the perspective of theoretical conceptualization (Yin 2003). It was felt that commencing with the analysis of summarised and descriptive material would provide the CINHEKS team with opportunities for comparative dialogue.

The institutional profile documents were first summarised according to a standard template, developed by our team specifically for this purpose (see Appendix A). Second, we devised a profile grid which was used for a mapping exercise of the 28 institutions. The profile grid was composed of a series of five grids, namely Context/Mission; Knowledge Organisation; Knowledge Transmission; Knowledge Production; and finally Knowledge Transfer, which all attempted to capture elements of contexts and functions that were relevant to the overarching aims of CINHEKS. Consequently, we located the 28 institutions on those five grids according to how we perceived a certain institution was approaching aspects such as the local/global, teaching/research, disciplinary/interdisciplinary work, highly or little networked activity, intra-sector/cross-sector orientation, collaborative/individual approaches, intellectual/entrepreneurial rationale, business/community facing, and so on. Each of these pairs were at the two ends of a continuum which included five points and individual institutions were positioned along these continua for each of the institutional features described in the profiles.

Effectively, this exercise resulted in a cell design template that gave a visual representation of institutions placed within the various cells of each of the five grids. The advantage of this technique, arguably resting on processes of synthesis and information reduction, was to facilitate the detection of potential patterns on each grid, as well as to allow for possible relationships among specific aspects of the grids to emerge. Finally, we omitted on particular grids those institutions for which information was ambiguous or missing. This resulted in some dimensions being nearly completely mapped for all the institutions, while others were populated by as little as nearly a third of our sample of 28 institutions.

Despite these limitations, we erred on the side of optimism and decided to pilot the method recognising its exploratory potential. Generating knowledge while being reflective was felt to be a precondition for conceptual and methodological advances to potentially emerge, and not only the outcome of those advances. Several calls for innovative methodological approaches in higher education

research have recently been made (Kosmützky and Nokkala 2014). In the field of comparative higher education research, this becomes even more pressing but also perhaps more challenging too. For several decades, comparative research in higher education has been debated (see, Kosmützky and Nokkala 2014; Tight 2012) and most analysts, in spite of their differences, share the assessment of a field in need of development and sophistication.

### ***5.3.3 The Knowledge Grid as a Qualitative Tool in Cross-National Higher Education Research***

Forms of comparative grid analysis have not routinely been employed in qualitative research. Yet, cross-case searching techniques improve the probability that the researchers will capture the novel findings which may exist in the data. As pointed out earlier, increasingly, higher education researchers have been challenged to consider innovative conceptual frameworks as well as to develop new methodological tools as the local/global characteristics of higher education change and the potential and value of comparative research are being more fully recognised. In our case, the comparative grid analysis became a tool for searching for cross-case patterns. Faced with the challenges inherent to a research study spanning several countries and to those associated with the national and multi-disciplinary diversity of researchers, we ‘sifted through’ the data and proceeded by successive stages of synthesising and aggregating (Hammersley 2013). We still stayed within the realm of qualitative research and did not attribute numerical values to cases placed within the cells of the grids. Nor did we produce graphs or other number-based representations, as we were focused on data reduction (e.g. selecting, focusing, simplifying, abstracting, and transforming), that characterises the analysis process throughout the life-span of a qualitative research project (Miles and Huberman 1994).

A similar profile analysis was proposed by Bourgeois and Eisenhardt (1988) in their study of strategic decision making in companies. Eisenhardt (1989, 540) explains that their approach rested on selecting categories or dimensions “including founder-run vs. professional management, high vs. low performance, first vs. second generation product, and large vs. small size.” Categories can be selected either by the research problem, or by existing literature, or finally, they can be simply based on the researcher’s choice. Once the categories or dimensions have been selected and the cases are located and organised in relation to them, one can then start looking for “within-group similarities coupled with intergroup differences.” (ibid, 540). The technique can be extended, Eisenhardt (1989) suggests, through the use of a matrix (i.e. a  $2 \times 2$  or other cell design) ‘to compare several categories at once, or to move to a continuous measurement scale which permits graphing.’ (ibid, 540).

The use of grids offered a systematic and time efficient way to generate an empirical representation of diversities and similarities of HEIs. Drawing on and

working comparatively with the profiles elaborated by the national teams, our aim was to take account of the breadth and complexity of institutions and their activities as they related to other higher education institutions and also to other organisations within and across networked knowledge societies. We hoped that the qualitative grid analysis would indicate patterns and relationships between various dimensions to be explored in more detail in the analysis of individual case studies. As such it set the basis for a comparative analysis which could extend beyond the grid analysis itself.

The overall aim was to produce an empirically based differentiation of higher education which spotlighted the multiple dimensions of the individual institutions and their activities in a way that might illuminate overarching patterns, systematic differences or unique features.

Below we present selected profile data in relation to *patterns of similarity and difference* within the 28 higher education institutions. Because CINHEKS's overall focus was on networks and the nature of boundaries both within and between individual institutions and societies, we summarise the data by comparing institutions, across the data set, where efforts were focused inside, outside and across domains. We also tried to capture whether there would be a strong '*cross-sector*' focus as compared to a *predominantly 'intra-sector' focus*. In other words, we identified higher education institutions which were focused much more on *application*, by *end users*, primarily *outside and across* institutional and occupational sector boundaries and contrasted them with those institutions which were mainly orientated to knowledge organisation, production, transmission and transfer *within* the higher education sector, amongst similar institutions. This type of analysis has an inherent limitation in the sense that the data (mainly based on official institutional statements and documents) tend to reflect the *hopes* of institutions, or how they *wish to be perceived*, as opposed to the actualities and *outcomes* that determine how they are *actually perceived* by any given audience.

In that sense, the term 'profile' is apt, as this is a concept used in organisational communication that references an organisation's *deliberate* efforts at managing perceptions, in contrast with the concept of *image* or actual perceptions. While this might appear to be a stark limitation, we would underline the fact that this is *naturally occurring data* in the public domain, often unscrutinised or subject to critical analysis. Bearing these important limitations and potential in mind – along with the interesting route that led us to collect this form of data in the first place – we advance a qualified analysis of the way in which networks and knowledge are portrayed, when viewed through the organisational prism of higher education institutions. As mentioned earlier, because of missing information we were not able to locate all 28 institutions on all the grids at all times. The following five sections summarise some of the main and most interesting similarities and differences which emerged from the grid analysis of institutional profiles.

**Context and Mission** Our sample comprised a majority (22) of large universities with above 14,000 students. Four were of medium size (student numbers below 10,000) and a couple were institutions with less than 6000 which were classified as small. Inevitably, there was a tendency for the specialist institutions to be small to



medium. The majority of universities emphasised regional connections and there was the expected regional/teaching and global/research relationships. There were some interesting cases of new contenders of internationalisation which were small or medium sized institutions with a regional focus and a majority of professional/vocational orientation in their study offer. As far as the teaching and research functions were concerned, overall, there was a pretty even division between teaching and research emphases among institutions.

**Knowledge Organisation** First, looking at the profiled institutions in terms of knowledge organisation, we distinguished between institutions with simple organisational structures and institutions with complex organisational structures, between institutions which combined the organisation of research and teaching and institutions which kept them organisationally separate, between institutions with mainly disciplinary structures and those with more interdisciplinary structures, between institutions with partnerships and those without and, finally, between institutions where cross-sectoral partnerships (i.e. with partners outside the higher education sector) were emphasised and institutions where it was mainly intra-sectoral partnerships (i.e. within the higher education sector) that were emphasised. Table 5.1 summarises the distribution of the profiled institutions in terms of these five dimensions of knowledge organisation. Organisationally there was clearly considerable diversity among the profiled institutions. Though interestingly, it was on the subject of networks that there was most commonality with 17 out of 20 identified as having ‘strong networks’. Most institutions reported a mix of intra-sectoral and cross-sectoral partners although there were six for whom the non-academic partners appeared to be the more significant.

In considering the nature of the networks the institutions were involved in, we drew a distinction between institutions where the knowledge production function appeared to have had a *user focus* which was cross-sectoral and institutions where the focus appeared to be mainly intra-sectoral. This showed that four of the six institutions with ‘simple’ organisational structures had a predominantly cross-sectoral focus in research. The others had a fairly even mix between cross-sectoral and intra-sectoral focus.

In terms of the organisation of teaching and research, a cross-sectoral research focus tended to imply a weaker link between research and teaching although the relationship was not a very strong one. Of the seven institutions where teaching and research were organisationally separated, four had a predominantly cross-sectoral

**Table 5.1** Knowledge organisation in 28 profiled higher education institutions

<i>Structures</i>	6 simple	8 ‘mixtures’	5 complex
<i>Teaching/research</i>	6 combined	12 ‘mixtures’	7 separated
<i>Role of disciplines</i>	6 disciplinary	9 ‘mixtures’	9 interdisciplinary
<i>Networks/partners</i>	17 strong networks	1 some networks	2 few or no networks
<i>Partner types</i>	6 cross-sector	16 ‘mixed’	3 intra-sector

There are institutions missing from individual cells of the grid where information was not available from the institutional websites

orientation to research, suggesting perhaps that the cross-sectoral orientation in the latter was weakening the link with teaching.

**Knowledge Production** As can be seen from Table 5.2, most institutions appeared to have either a strong cross-sectoral focus or a mixed intra/cross-sectoral focus when it came to their research or knowledge production activities. Ten institutions appeared to be evenly balanced between the two, 11 had mainly a cross-sector focus, and only six institutions were grouped as having mainly an intra-sector focus. External collaboration was strongly stressed and there was a particularly strong emphasis on partnerships when it came to research and knowledge production activities. Most knowledge production activity was interdisciplinary or a mix of strong discipline-based traditions and interdisciplinary work with only three institutions appearing to emphasise strong discipline-based traditions. Strong or moderate institutional strategies on knowledge production were clearly present in 12 institutions.

If we consider the relationship between the intra-sector and cross-sector foci to the other characteristics of knowledge production in the 28 institutions, we can note that interdisciplinarity appears to be dominant across most institutions and this is broadly irrespective of whether there is an intra-sector or a cross-sector focus. Where there were strong institutional strategies, there was also likely to be a strong cross-sector focus. However, institutions with weak or moderate strategies on knowledge production did not present any clear pattern with regards to intra-sector or cross-sector focus.

Perhaps unsurprisingly, there was a relationship between entrepreneurial rationales and a cross-sector focus of research. All six institutions (two Finnish, three British and one US) that heavily emphasised an ‘entrepreneurial’ rationale had a strong cross-sector focus. Similarly, the small number of institutions (two German and one Portuguese) that emphasised strong intellectual rationales for their knowledge production activities had a strong intra-sector focus for their work. But as far as collaboration, through networks, was concerned, this appeared to be all-pervasive, irrespective of intra or cross-sectoral focus.

Of those institutions for which the research and knowledge production function appeared to be particularly central, either an intra-sectoral focus or a mixed intra/cross-sectoral focus tended to prevail. However, where the knowledge production

**Table 5.2** Knowledge Production in 28 profiled higher education institutions

<i>Research focus</i>	6 intra-sector	10 balanced	11 cross-sector
<i>Disciplinarity</i>	3 disciplinary	14 mixed	9 interdisciplinary
<i>Strategy stressed</i>	1 weak	3 moderate	9 strong
<i>Rationale</i>	3 intellectual	2 mixed	6 entrepreneurial
<i>Collaboration</i>	12 strong	3 moderate	0 weak
<i>Research centrality</i>	9 strong	4 moderate	6 weak
<i>Research partnerships</i>	21 strong emphasis	1 moderate emphasis	2 weak emphasis

function appeared not to be central, it seemed to be accompanied by a cross-sectoral focus. Thus, while a cross-sectoral focus is referred to in most institutions, it tends to be reasonably evenly balanced with an intra-sectoral focus in institutions for which knowledge production appears to be central.

As we have noted above, most of the institutions appeared to place considerable emphasis on collaboration in their research and knowledge production activities. This seemed to be independent of whether there was an intra-sectoral or a cross-sectoral focus stressed, although the nature of the collaborators would presumably differ accordingly.

**Knowledge Transmission** Turning to the knowledge transmission or teaching function of the institutions (Table 5.3), most exhibited a balance between undergraduate and postgraduate work with a bias towards undergraduate in most places and with the undergraduate clearly emphasised in five institutions against four which emphasised the postgraduate. Again, there was a lot of emphasis on collaboration and this was broadly balanced with six institutions emphasising collaboration with other educational institutions, five emphasising collaboration with business or other non-educational organisations, but with 10 emphasising collaboration with both business and other educational organisations.

Institutions differed in their students in terms of the balance between younger graduates from upper secondary school and more mature, often working, students, in terms of the emphasis on academic disciplines or upon flexibility in the way courses were organised, and in terms of the emphasis on regional, national or international recruitment of students. And while graduate employability was emphasised or regarded as important in most institutions, there was often a mix between the academic and the vocational in the aims and content of curricula.

Turning to the relationship with intra/cross-sectoral focus in relation to research, there was some indication of a tendency for the more intra-sectoral focused institutions to have a fairly balanced undergraduate and postgraduate student intake with the cross-sectoral focused institutions more evenly spread along the whole continuum of different course levels. Their presence at both ends of the continuum could be a function of the narrower concentration of teaching on certain fields and levels of study.

**Table 5.3** Knowledge transmission in 28 profiled higher education institutions

<i>Academic level</i>	5 undergraduate	12 mixed	4 postgraduate
<i>Collaborative</i>	14 'strong'	1 'limited'	2 'very limited'
<i>Collaboration partners</i>	6 mainly education	4 both	5 mainly business
<i>Student types</i>	4 mature/working	5 mixed	5 school leavers
<i>Course organisation</i>	7 flexible/modular	3 mixed	7 disciplinary/trad.
<i>Recruitment emphasis</i>	10 regional	6 national	6 international
<i>Curriculum</i>	7 vocational	10 mixed	4 academic
<i>Employability</i>	11 emphasised	9 important	4 not important

We noted above the preponderance of collaboration across all institutions but it is also the case that while institutions with a cross-sectoral focus were all strongly collaborative, the more intra-sector-focused institutions varied rather more, with respect to collaboration. This difference may reflect a greater breadth of curriculum in more cross-sector-focused institutions and therefore a greater likelihood of requiring inputs and collaborative relationships with organisations outside higher education.

There did appear to be an association between a strong cross-sector orientation and a more regional recruitment of students. Institutions focused across sectors were generally more likely to structure their courses in terms of a professional or vocational logic, although such logic was not entirely absent from the intra-sector oriented institutions. Similarly, with the focus on employability, this was something which was not exclusive to cross-sector-focused institutions although it did generally receive a stronger emphasis within them.

**Knowledge Transfer** In examining how activities of knowledge transfer were displayed on the institutional webpages, we sought to categorise the institutional profiles in relation to the apparent centrality of knowledge transfer. We included links with businesses and collaboration with the wider community as the two poles of a continuum comprising a range of sectors, including other research organisations as well as the associative and public sectors. We also considered knowledge transfer stemming from both research and teaching and we looked at whether specific support structures were developed for facilitating the exchange of knowledge between the knowledge source and the potential users of that knowledge. Table 5.4 summarises how the profiled institutions are positioned in relation to the above-mentioned aspects.

Some interesting observations can be made from the categorisation. Most profiled institutions exhibited a wealth of knowledge transfer activities indicating the diffusion of this activity stream across the countries involved in the study. However, Portuguese institutions appeared to focus only moderately on knowledge transfer activities. Looking at whether the cross-sector (11) or intra-sector (six)

**Table 5.4** Knowledge transfer in 28 profiled higher education institutions

<i>Knowledge transfer centrality</i>		3 moderate	24 strong
<i>Business or community facing</i>	11 predominately business facing	9 mixed	5 predominately community facing
<i>Integrated in main structure or support developmental units</i>	3 integrated in main structure	7 dedicated staff within various structures	14 separate support units
<i>Research or teaching based partnerships</i>	4 mainly research based	16 'mixture' of teaching and research	6 mainly teaching based
<i>Academic or non-academic partners</i>		7 academic and non academic partners	13 mainly non academic partners

orientation of institutions in their knowledge production related activities would indicate differences of emphasis in their knowledge transfer activities revealed that, generally, knowledge transfer is profiled as an important activity regardless of institutional type. The only difference that we observed was that whereas all of the cross-sector oriented institutions were concentrated on the strong knowledge transfer centrality end of the continuum, two of the more intra-sector oriented institutions were classified as having only a moderate focus in this respect. However, given that both of these institutions were Portuguese, this could also be indicative of a system- level influence.

Turning to business or community partnerships involved in knowledge transfer activities of 24 higher education institutions, we noted that, in general, the emphasis is towards the business-facing end. There seemed to be a tendency for cross-sector oriented institutions to favour business-facing with six out of ten cross-sectoral oriented institutions lying at the business-facing extreme. Conversely, two out of the five intra-sector institutions were located at the community-facing end. Beyond those eight institutions, all other institutions were spread throughout, indicating a mix of market and civic approaches within knowledge transfer activities.

Whether knowledge transfer was supported by specific organisational units or was integrated in the main organisational structure of the institution revealed that the majority of the institutions had opted for the former. In fact, from the 24 classified institutions, 18 had set up separate units for knowledge transfer activities and this was independent of their cross or intra-sectoral orientation.

Although knowledge transfer activities rest traditionally on research, this issue was elaborated in the case studies which indicated that knowledge transfer was also happening through teaching and especially through the activities of students and their internships, projects and dissertations. The study of the profiled institutions confirmed the role of teaching as a vehicle of knowledge transfer with 16 exhibiting a clear mix of research and teaching based knowledge transfer activities. When we looked at how the cross-sector (11) or intra-sector (six) orientation of institutions in their knowledge production would indicate differences of knowledge transfer stemming from either research or teaching, an interesting finding emerged. Although 10 institutions (four intra-sector and six cross-sector focused) presented a balanced approach to knowledge transfer, drawing on both research and teaching, five out of the 11 cross-sector focused institutions were developing knowledge transfer activities solely based on teaching. From the five intra-sector-oriented institutions, four had a mixed portfolio consisting of both research and teaching based knowledge transfer, while one had mainly a research focus characterising its knowledge transfer. This finding points to the role of cross-sector-oriented institutions, in particular, in attempting human capital development through entrepreneurial attitudes and skills of their graduates for the development of the workforce. However, to gauge the extent to which this was indeed an outcome, more refined analysis is needed in order to ascertain whether this occurs within contexts of an 'open' social endeavour, whether it follows market procedures of commodity transactions, whether either or none are occurring or whether something altogether unanticipated may be occurring.

Regarding the nature of partnerships and whether these involve intra or cross-sector partners, 20 higher education institutions were classified. The emphasis on partnerships came out strongly again with 13 institutions at the extreme end. Almost by definition, no institution does knowledge transfer with exclusively other academic partners, so none was located at the extreme academic end of partnerships. Conversely, 13 appeared to involve mainly partners outside higher education institutions, whereas seven institutions presented a mix of partners outside higher education institutions and those working inside. Furthermore, eight of the 11 cross-sector oriented and two of the four intra-sector oriented institutions mainly had partners outside *academe*, showing that cross-sectoral partnerships tended to be more favoured by cross-sectorally oriented institutions. However this might also be a reflection of geography and regional dynamics with regional institutions operating in regions without other higher education providers and thus solely connecting to regional businesses and other local partners.

**Intra-sector and Cross Sector Networks** With all websites featuring the importance of networks within and beyond higher education in the shaping of the image that these institutions attempted to convey to the outside world, the profiles revealed most institutions to be explicitly active in partnerships and networks. Most were active in *both* intra-sector and cross-sector partnerships, but with a minority more exclusively focused on *either* intra-sector academic *or* cross-sector networks/partnerships. There was one set of higher education institutions which appeared to have a strong ‘cross-sector’ focus and another set of institutions whose focus was predominantly ‘intra-sector’. In other words, at the level of institution, some were focused much more on *application*, by *end users*, or those whom ultimately benefited from knowledge organisation, production, transmission and transfer that occurred primarily *outside and across* institutional and occupational sector boundaries. Other higher education institutions were mainly orientated to knowledge organisation, production, transmission and transfer *within* the higher education sector, amongst similar institutions. It is on these two sets of more focused institutions that we concentrate below.

Six institutions were operating mainly at the cross-sectoral end of the spectrum and three institutions at the mainly intra-sectoral end. However a note of caution is necessary here. Intra-sector networks, comprised mainly of personnel working in higher education institutions, come into focus most vividly at the level of individuals (see Chap. 7 and country studies) and consequently it may well be that institutional documents and websites, which provided the basis for the CINHEKS profiles, actually obscure the nature of these networks, rather than provide viable empirical proxies for their illumination.

Looking at the knowledge production side of the institutions’ activities, four of the six institutions emphasising cross-sectoral networks had been classified as having mainly an ‘entrepreneurial’ rationale for their research and knowledge production activities. None of those institutions profiling their intra-sector networks had been so classified. Similarly, five of the six institutions emphasising cross-sector networks appeared to have a very clear focus on end users regarding

knowledge production activities. None of the institutions with intra-sector academic networks had this emphasis. And again, five of the six institutions that emphasised cross-sector networks had been classified as ‘business facing’ whereas none of the institutions focusing on their intra-sectoral networks profiled this position.

Stepping back to consider the overall position of knowledge production in the institutional profiles, research and knowledge production had been classified as being central to two of the three institutions mainly engaging in intra-sectoral academic networks whereas it had been so classified in only one of the six institutions mostly active in cross-sectoral networks. One other distinctive (and perhaps inevitable) feature of the institutions emphasising cross-sectoral networks was that all six of them had been classified as being ‘strong’ on knowledge transfer. Looking at some of the institutional contextual features, the institutions emphasising cross-sectoral networks were evenly split between specialist and comprehensive types of higher education institutions which in their majority (five of the six) had a predominantly regional focus. All three of the institutions emphasising intra-sector networks had been classed as globally focused. Again, half of the institutions profiling cross-sector networks exhibited a mainly teaching focus although one of them had its main focus on research. (The three institutions with intra-sectoral networks appeared to be evenly focused on both research and teaching.)

Turning to knowledge organisation, while the institutions exhibiting intra-sectoral academic networks all appeared to have quite complex organisational structures, institutions with cross-sectoral non-academic networks were evenly divided in this respect. As far as interdisciplinarity was concerned, half of the institutions with cross-sectoral networks profiled this as a characteristic of their organisational structures while none of the institutions emphasising intra-sectoral networks profiled this as a major feature. With respect to our earlier qualifications about basing our profiles on descriptive-level data produced by higher education institutions, we advance an interpretive-level assertion which we feel warrants further development and elaboration in case studies and other types of comparative work on higher education institutions. Specifically, we want to argue that there are at least two distinct types of networked universities. The first type is the outcome resulting from relationships between higher education institutions networked primarily with other higher education institutions, i.e. *within the domain of higher education*. The second type is the result of higher education institutions whose networks are characterised by relationships with actors *outside the domain of higher education*. While this broad-brush distinction introduces more questions than it might answer, it is nevertheless a viable methodological outcome of a qualitative, exploratory-level analysis of naturally occurring data. Further, empirical grounding at a descriptive level of abstraction allows us to move forward, contrasting different approaches to interpretive levels of analysis, in cross-case analysis with respect to the case studies, whose purposeful selection can be undertaken with greater confidence (Table 5.5).

**Table 5.5** Two types of ‘networked universities’

Profile Data on:	HEIs with focus on Intra-sector networks	HEIs with focus on Cross-sector networks
<i>Context/mission</i>	Key characteristic is a global focus	Evenly divided between specialist and comprehensive
		Mainly a regional focus
		Half with teaching emphasis
<i>Knowledge organisation</i>	All had complex structures	Evenly divided between complex and simple structures
	Just one of the three had separate structures for research	Research organisation separated in just a couple of cases
		Interdisciplinarity a feature of half of the institutions
<i>Knowledge production</i>	Research institutionally ‘central’ in all cases	4 of the 6 exhibited an ‘entrepreneurial’ rationale for research
	The focus was ‘academic’ and not ‘user’ in all cases	In only 1 case was research classified as ‘central’ to the institution
		5 out of the 6 emphasised a ‘user’ emphasis for research
<i>Knowledge transfer</i>	2 of the 3 appeared to emphasise knowledge transfer	Knowledge transfer classified as ‘strong’ in all cases
	2 of the 3 emphasised non-academic partners	5 out of the 6 were classified as ‘business facing’
	None exhibited the ‘business-facing’ emphasis	5 out of the 6 gave emphasis to non-academic partners Only 2 emphasised importance of specialist support units

### 5.3.4 Discussion of Profile Data: The Shapes and Shades of ‘the Networked University’

That twenty-first century higher education institutions have become highly interconnected, independently of what many might regard as fundamental characteristics and features such as mission statement, size, geographical location and finally research or teaching orientation, appears to be irrevocable reality. At least, this is the profile that the 28 higher education institutions selected for our analysis are asserting in their publically available information. The profile data – taken as a whole – appear to convey the strong impression that the mode of conducting academic businesses has become a networked activity that often includes participation across sectors of society, for purposes actively shaped by end user-centred concerns, in other domains. In self-description, the networked university is – in many cases – a higher education institution that explicitly aims to break with the image of the self-referential ‘ivory tower’ or has otherwise simply moved on from more ‘inward-looking’ modes of operation. Its connections are not only presented as a matter of fact but they are value-laden. Further, the connections are often



represented to be beneficial for all involved, the implication being that the *connected* higher education institution is a *better* higher education institution.

As such, the publically available information illuminates the diffusion of an emerging model, of sorts, specifically, the ‘networked, cross-sector, entrepreneurial university’ which, at least for communicative and image purposes, is on the rise. Though not necessarily a dominant model, it reflects an increasing importance attached by many universities to developing cross-sector linkages within the networked knowledge societies. Although an exploratory finding, we remind the reader that the majority of our profile data is naturally-occurring, thus the empirical grounding of our analysis warrants further investigation and elaboration at a higher level of abstraction. This is because our analysis spotlights a *de facto* ‘compliance’, of sorts, even if on the surface only, reflecting imperatives and values that have been associated with and disseminated within the knowledge economy discourse (see Chaps. 4 and 8). Further, we assert this type of convergence, if born out, might very well be ‘invisible’ to the HEI personnel within any one higher education institution, region (supra or intra national) or nation. This echoes scholars who have argued that universities are changing from within too and are actively embracing academic capitalism (Slaughter and Leslie 1997; Slaughter and Cantwell 2011; Kauppinen 2012). Barnett (2011, p. 444) charges the entrepreneurial university with being ‘complicit in its own emergence’, even though he accepts that this type of university has to be active in the world and to develop forms of engagement, though in the service of its own ends. Interestingly, this seems to affect, to a larger extent, smaller, regional and teaching oriented institutions. Larger, global and research oriented institutions seem able to accommodate entrepreneurial and cross-sectoral rationales without displacing the intra-sectoral focus. This may suggest issues of vertical differentiation, with those occupying the less prestigious places of the hierarchy being shaped by external expectations and emerging rules of the game.

However, the ‘networked university as entrepreneurial university’ might not be the whole story and indeed the story might be layered, with some layers brought to light while others willingly or inadvertently remain in the shade. Although the legitimacy of a singularly academic rationale seems no longer to be strongly presented or defended in the vast majority of the our data, as public representations of universities, the networked university can still allow for multiple models to exist in parallel. If *prima facie* publically available information is asserting that the age of the ‘networked university’ has arrived, the reality of what this means in practice is not straightforward. Questions are raised about the types of knowledge that circulate through the various types of networks; how networks change the configuration of actors bringing in new interests and conceptions of knowledge; what is valued, how it is valued and who is valuing; and finally what the consequences of these representations and actions are for higher education institutions and their differentiation. This is the case, as our analysis indicates, within the higher education sector but also between the higher education sector and other sectors. Whether higher education institutions perceive a choice of becoming networked universities or not is no longer a question. Rather, the issue is what *kind* of higher education

institution they are, in fact, becoming as a result of networks and the control they can exert over the consequences, if any.

While we can be confident that displaying and emphasising linkages have been taken on board in universities in the countries involved in the study (though this is less the case in Portugal), the extent to which this profiled information has become central to higher education's business and ethos is less certain. However, providing markers of network capital seems to matter and, after all, publically available information consists of strategically-crafted framing of communication seeking to convince an audience. It thus aims to convey types of 'branding' and results in a clear 'image' with regard to important audiences. A closer examination is needed in order to avoid the danger of normative conclusions based on surface-level phenomena from leading to uncritical self-fulfilling prophecy and which misses more powerful and fundamental phenomena. In addition, more careful investigation, using methodological approaches that overcome the limitations inherent in our first descriptive and exploratory attempt, are needed in order to examine whether and to what extent universities are evolving in response to changes in the context in which they operate, driving these changes themselves or whether there are other characterizations that can better begin to allow us to escape oversimplifications of either/or thinking.

#### **5.4 Cross-Case Analysis of CINHEKS Fieldwork**

The immediate challenge of empirically-grounded comparative analysis, following the analysis of the profiles (above) in CINHEKS, was to further exploit, explore and develop that analysis in the direction originally intended when designing the study as a whole. Specifically, case studies – of any type – have the methodological advantage of allowing analysis at a higher level of abstraction than mere description. Since it is clear that even descriptive-level analysis of naturally occurring data in the 28 profiles illuminated patterns, this indicates that an approach to comparative analysis, aiming at an interpretive level of analysis – and beyond – becomes viable.

This chapter concludes by first illuminating the most significant dimensions of the grid analysis of the profiles (above). Second, we outline the ways in which the field work of the CINHEKS teams, as they moved into – and beyond – the case study phase enabled the integration of both established and novel methodological and conceptual approaches. These allow us to advance an emergent conceptualisation which would be neither obvious nor even possible within a single disciplinary mode of inquiry, methodological approach, the approach by any one single country team, or via a focus on a single higher education institution.

Because of the asynchronous nature of our fieldwork, the comparative complementarity of our case study fieldwork emerged unevenly and was not immediately obvious. Rather, the potential of an empirically grounded comparative analysis became fully apparent only well after each respective CINHEKS research group

incorporated and adapted the institutional case study interview protocol *within the specialist traditions used by each CINHEKS team in their fieldwork*. In other words, the interview protocol developed by the case study team was integrated within each team's efforts aimed at both the broader objectives of CINHEKS and their distinct system level (national) reality, *within a distinct orientation to international comparative higher education studies*. It is in this respect – when read together – that an empirically grounded conceptual problematisation of changes in networks, higher education and knowledge societies comes into view.

### 5.4.1 *Conceptual Problematisation of the Profile Analysis*

The approaches of the CINHEKS country teams, as each incorporated and challenged the emerging data from the profiles within and between distinct societies, are the backbone of the remainder of Part II of this text. These studies, together, illuminate how bringing into focus *policy analysis* (Portugal and Russia); case studies focused on *values* (the UK), *competitive horizons* (Germany and Finland) and *social network analysis* (the USA), allows us to lay the basis for more conceptually nuanced, empirically grounded ways in which to think about and reconsider comparative studies of higher education institutions in twenty-first century networked knowledge societies.

The thread running through each of the chapters in Part II, methodologically speaking, is their empirical grounding in the 28 profiles of higher education institutions and the highly iterative, challenging and emergent basis for the follow-on complementary case studies these made possible. While exploratory, the descriptive level grid analysis presented above illuminates two distinct dimensions, which the profiles initially bring into view and which are elaborated in the follow-on studies carried out by each of the CINHEKS teams. These dimensions, while deceptively obvious, form an integral basis and the initial step toward our final analysis in Part III.

The first is *Domain*: intra-sector and cross-sector. In an oversimplification, intra-sector networks are made up of higher education institutions whose networks mainly involve other higher education institutions, *within* the domain of education. Higher education institutions whose networks mainly involve actors in other domains, *outside* education, have cross-sector networks. And, as the grid analysis highlights, a higher education institution can – and often does – have *both*.

The second key dimension comes into view when considering *Mission*: which can be orientated to – or by – knowledge construed as public good or as private good. Any of the three key missions of higher education institutions, research (production of knowledge), teaching (transmission of knowledge) or societal interaction (knowledge transfer) can be oriented to – or by – the logic of knowledge as a public or private good (Pusser et al. 2012). The choices or assumptions linked to these logics shape, to a large extent, the networks of the higher education institutions within the scope of our analysis. This was profiled by the higher education

institutions themselves (above, in the analysis of the profiles) and documented in the work of academics, in the context of their basic units and higher education institutions (below, in the case studies carried out by each CINHEKS team). Further, it is much more common to hear assertions that higher education institutions are being ‘forced’ or ‘complying’ with pressures to become more entrepreneurial and ‘businesslike’ in their operations than see convincing, empirically-grounded comparative analysis, although there are exceptions (see Pusser et al. 2012; Slaughter and Cantwell 2011). That said, the descriptive-level evidence in the profiles provides an interesting empirical basis to elaborate these types of concerns, which is what is addressed in our following chapters.

The dimensions we assert here of *domain* and *mission* – by themselves – cannot capture all possibilities with regard to knowledge organisation, production, transmission and transfer. That said, these two fundamental dimensions, conceptually, spatially and empirically, allow us to problematise the knowledge organisation, production, transmission and transfer occurring within, between and because of twenty-first century higher education institutions and their networks. Symmetrically speaking, this initial conceptualisation focuses our attention on higher education institutions while at the same time underlining the reality that much knowledge-related work is located *outside* institutions within the domain of higher education, in higher education institutions which profile their *central mission(s)* as knowledge production, transmission or transfer. And therein lies our point. *The two dimensions of domain and mission allow us to focus attention on a highly unique setting; organisationally, institutionally, professionally and politically: The twenty-first century higher education institution.* These highly situated conceptual focal points can be – and have been – referenced by several measures of ‘size’, geographical location, function or what otherwise in the past may have been thought of as *fundamentally defining characteristics*. However, as cross-case grid analysis indicates, normative framing may not be quite as interesting as emergent conceptual problematisation. However, in order to fully elaborate and problematise contemporary higher education institutions, the distinctive social dynamics and relationships inextricably implicated in our initial analytical efforts, a third dimension is needed: that of *power*.

The way in which power structures contemporary higher education institutions depends on what we choose to look at, or if we choose to look at all. As the CINHEKS teams moved into the field, their efforts illuminated the power inherent in *policy* (Chaps. 6 and 7); *values* (Chap. 8); *within the global division of academic labor at different competitive horizons* (Chaps. 9 and 10) and *networks themselves* (Chaps. 11 and 12) It is to these studies we now turn in Chaps. 6, 7, 8, 9, 10, 11 and 12, which together empirically ground our final analysis, culminating in Chap. 13.

As it stands, the efficacy of this initial analysis turned out to be a crucial contribution to the CINHEKS study as a whole. It was a necessary piece of the puzzle, but not one that allowed a total picture to emerge. That said, without the highly iterative work that ultimately led us down this methodological road, our team would not have been exposed to the power of the methodological nationalism (Shahjahan and Kezar 2013) each team brought to the project, nor the assumptions

we needed to overcome, in order to go beyond the considerable challenges outlined in Chap. 3, in order to arrive at a comparative analysis.

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# Chapter 6

## Why Public Policies Fostering Knowledge Networks in Academia Matter? Insights from the Portuguese Higher Education System until 2010

Hugo Horta and Brigida Blasi

### 6.1 Introduction

In this chapter, we analyze the evolution of public policies of the Portuguese scientific and academic system, explaining how these became drivers to create and sustain knowledge networks in the Portuguese academia. The Portuguese case is of particular interest to perform such analysis for three main reasons. The first is that its scientific and academic community only started to be engaged internationally in significant numbers in the 1980s, after spending 60 years of closure under the clout of a dictatorial regime (Heitor and Horta 2011). The second is that the scientific system could be considered only to become integrated and systemically articulated at a later stage in time when compared with other European states (Heitor and Horta 2004; Ruivo 1995), but growing recently at an accelerated pace. Third, the scientific system only recently has assumed a state of greater maturity and stability, where the role of public policies for science and qualification of human resources in academia are become more diverse and meeting new challenges (Heitor and Bravo 2010). Still, the scientific system has not reached yet a stage where it can be considered as a mature system.

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The analysis of the evolution of the scientific and academic system lead us to argue that public policies for science have a timing for implementation that is related to the prevailing conditions in the system, but that a “reinforcement effect” exists, where public policies leverage the creation of new policies, by creating the necessary conditions for them to be designed and implemented. The awareness of these conditions, policy needs, and the aims of the policies to be implemented are thus key issues. Then, we argue that only when the scientific and academic system attains a certain level of maturity, supported by an ongoing and sustained investment in science, are policymakers able to enforce a greater “policy diversity”. It is expected that this growth of “policy diversity” enables a greater range of policies focused on both the supply and the demand side (in terms of scientific development and employment for instance) to have a greater impact (Conceição et al. 2004; Rosenberg 1996). We underline that the role of “policy diversity” at this more mature state is of utmost importance to meet the needs and conditions of the system, but also to build-up a policy framework for greater knowledge building and integration, that enables a greater role of researchers and academics to internationalize their activities aiming to contribute to global, national and local development. In this framework, “policy continuity” is also crucial and the “structuring” policies – the ones that created the foundations of the scientific and academic system – should be maintained active until their policy strategic goals are attained.

We start this discussion by presenting the academic and professional path of a full professor currently based at a Portuguese university. As a student, he got his bachelor degree from the Engineering School, and a master from the Economics and Management School of the Technical University of Lisbon (UTL). After completing these degrees in the mid-1990s, one of his mentors at the UTL (with strong international linkages) advised him to apply to the Massachusetts Institute of Technology (MIT) where he got accepted in a PhD program. There, supported by a direct PhD fellowship from the Portuguese Science and Technology Foundation (*Fundação para a Ciência e Tecnologia*; FCT), he completed his PhD in the field of Engineering and Technology Management in the early 2000s. After a brief post-doctoral period involving research in both UTL and MIT, and supported by a post-doc fellowship from the FCT, he got an assistant professor position at a known research university in the United States, becoming tenured associated professor at that university in the late 2000s. Recently, he returned to Portugal under the scope of a Sponsored Chair program to become a full professor at a Portuguese university, where he is currently based.

Besides the obvious effort, talent and determination of this scholar, there is a key issue that comes to the fore. Quite a lot of the activities that this scholar undertook were supported by publicly funded, science policy instruments implemented in Portugal in the last decades and aimed towards the advanced qualification of human resources that emphasized international collaboration and integration into global research networks. The scholar was able to perform his PhD at MIT because he earned a direct PhD fellowship from FCT, then he was able to link faculty from MIT and UTL, while he was funded by a FCT postdoctoral fellowship, and more recently, the university where he currently works was able to attract him back to



Portugal, with his agreement, through a recent program to attract, relatively young, but experienced scholars to Portuguese universities. In this regard, his career track was to a large extent dependent on these public policy programs, but the effects of this public funding were not only beneficial to the scholar.

Throughout his academic career in the United States at least five Portuguese doctoral students were able to perform long-term research spells or be enrolled in a PhD program at the research university where he was based. He contributed to establish a PhD dual program between a US research university and two other Portuguese universities, which were a component of a recent and larger international partnership program between the Portuguese and world-class US universities, funded by public funds. Through his work in the United States, senior and promising academics based in US research universities came to Portugal to present in seminars, organize conferences and projects, spend research and teaching spells, and co-author articles with Portuguese peers based at various Portuguese universities. Without him, these activities, events, and collaborations would probably have never happened, and without the support from science focused public policies his career would have not been what it became. Importantly, his career would probably not have the same impact in fostering mobility of other academics, collaborations and integration in networks.

The individual story of this academic retraces the evolution path of a series of public policies that were established in the Portuguese S&T system to promote the advanced qualification of human resources as well as their internationalization. These policies, sturdily focused on the qualification of human resources went through various steps and specific aims, building on one another to foster the development of a qualified, networked and internationalized research and academic staff. Such like the academic development of this scholar, the system had also to go through a specific development, based on previous conditions and knowledge build-up. Also, like the learning evolution of the scholar, the learning and activities of the research and academic community became broader and encompassing knowledge integrated communities. At system level, the advanced training policies were supported and linked to complementary institutional development policies (see Heitor and Horta 2011). The development of the latter was to a very large extent based on the results of policies aimed at the qualification of human resources, while contributing to them at the same time. As the system grew in maturity, and the knowledge base enlarged, more policies could be devised, sustaining the more complex needs of a growing and maturing scientific and academic system.

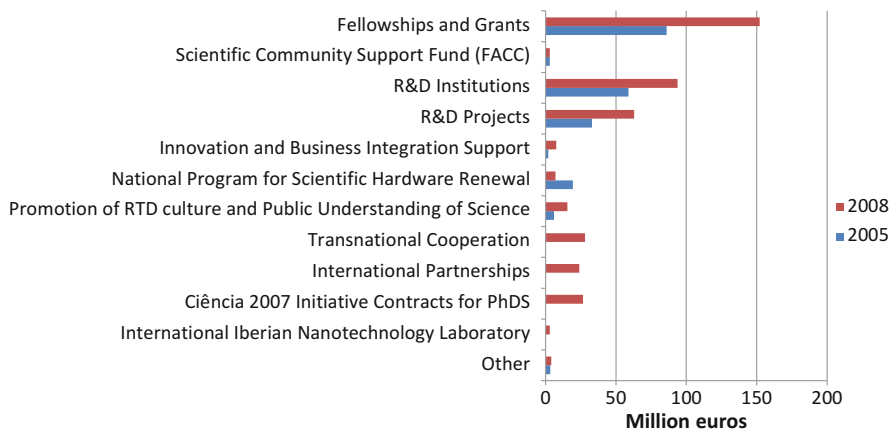
The discussion of these arguments are based on an historical quantitative analysis of official data on the evolution of the S&T system in Portugal, complemented by information gathered from more than 60 interviews performed to national policymakers, university policymakers and managers, R&D unit coordinators, faculty members, post-docs and doctoral students. In the next section, a global evolution of the system is described to highlight the role of “policy diversity” and the “reinforcement effect” that basilar policies have on the emergence and consolidation of newer policies. Then, in Sect 6.3, we analyze in a separate but linked way, the role of policies of advanced training of human resources and how

they fostered and are promoting the internationalization and the integration of researchers, scientific institutions and academic research into international networks. Then, we resume our main findings and policy implications in the final section.

## 6.2 A Brief Global View of a Research and Development System and Its Evolution

In 2010, the Portuguese Science and Technology (S&T) system features several public funding instruments to sustain the research and development effort in Portugal. In our analysis, we focus on those provided by the Portuguese Science and Technology Foundation (FCT), the main R&D public funding agency in Portugal. FCT public funding on R&D is done through key investments in the advanced qualification of human resources, the development of scientific institutions, and efforts to foster research activities and furthering the internationalization of Portuguese scientific institutions (based in universities or not). We depart from those programs, observed in Fig. 6.1, to argue that programmatic diversity in terms of science policies is critical for a R&D system that has becoming increasingly more mature, but still catching-up in relation to other developed and industrialized countries.

Our rationale is that these diverse funding instruments provide, above all, researchers and institutions with strategic options for their research agendas and activities. They allow individuals and organizations in the R&D system, the ability to choose those funding instruments that are most relevant to the learning activities, in which they are engaged, but also to combine them and potentially withdraw from



**Fig. 6.1** Global funding structure of the Portuguese Science and Technology Foundation, 2005 and 2008 (Source: FCT)

them synergetic benefits (Schmoch and Schubert 2009). The ability to choose and combine incentives and funding sources is vital to foster a dynamic scientific system (Jacob and Lefgren 2011). However, we do not disregard the notion that in order for individuals and institutions to be able to choose the most appropriate instruments for the strategic research agendas that they intent to follow, other (previously implemented) policies were needed to be pursued for a large temporal period to create the foundations of the system, on which this diverse set of programs could emerge and be established upon (see Baskaran 2005).

We start our argument by highlighting three aspects of Fig. 6.1. The first is that most of the funding is of a competitive nature (e.g., fellowships and grants; R&D projects). This in itself is indicative of a stage of greater maturity of the scientific system; in the most advanced S&T systems in the world the most considerable component of their scientific systems is competitive and performance-based (Auranen and Nieminen 2010). The competitive funding of the system through FCT based on R&D projects and direct fellowships alone account for more than 50 % of all the funding invested by FCT into the national scientific system in recent years. The base funding, a more structural funding and of a non-competitive nature, aimed at supporting the functioning of research institutions and their activities became relatively less prominent when compared with competitive funding. This does not mean that Portuguese research institutions do not need base funding from public sources to sustain their activities, they still do. Base funding is particularly critical in providing research institutions with the ability to have administrative support of their own, to acquire equipment needed to maintain ongoing research activities, to help the development of new or more interdisciplinary research focuses, and as a “safety cushion” in times of financial constraints.

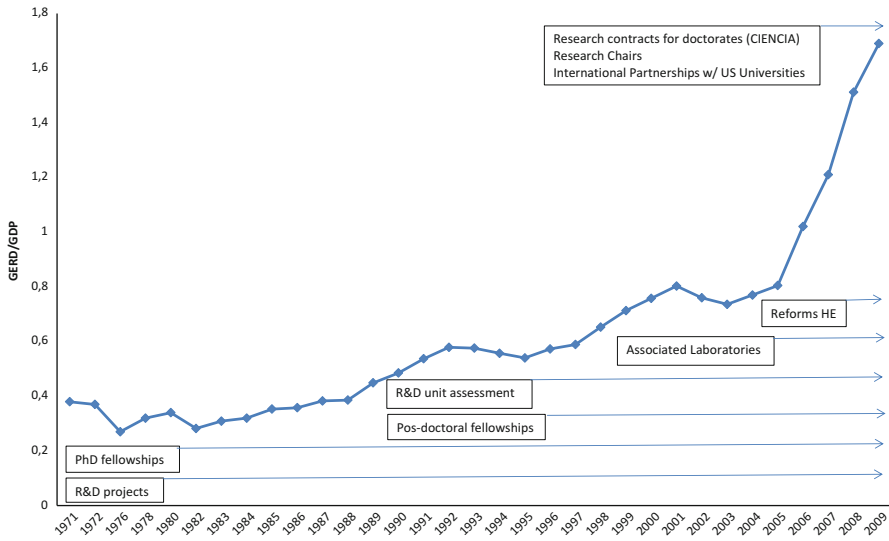
However, these institutions are becoming increasingly structured, organized, and better prepared to compete and collaborate with national and international peers. The results of the R&D unit assessment exercises, a critical science policy instrument to modernize, organize and structure the Portuguese academic research system, which started in the mid-1990s, clearly demonstrates this increasing capability of research units to compete, collaborate and integrate international scientific and academics networks (Horta 2010). This can be measured by the average number of researchers with a doctoral degree based at R&D units which increased from 14 in 1996 to 27 in 2007, a value that almost doubled, in a system where the R&D units evaluated for funding by the R&D unit assessment increased from 269 in 1996 to 423 in 2007 (Sunkel 2009). As Horta and Lacy (2011) concluded in their analysis of concentration of human resources in Portuguese R&D units that those units with the greatest concentration of qualified researchers would be the ones publishing more internationally and with greater knowledge information exchange intensity with other Portuguese and internationally based institutions.

The second aspect to be highlighted is that from 2005 to 2008, FCT had a greater diversification of objectives and four new programs to support the evolution of the scientific system emerged, amongst which the international partnership between Portuguese and US research universities in strategic and thematic S&T fields, and the recruitment of researchers with a PhD and at least 5 years of post-doctoral

experience. These programs continued have a strong focus on the advanced training of human resources, but tended to be broader in scope. For example, the hiring of researchers with at least 5 years of post-doctoral experience aimed at attracting highly qualified researchers to Portuguese universities that could actively contribute to boost the academic research of these universities, foster the internationalization of the research core and scholarly activities, but also to participate in education, and potentially contribute to the renewal of an ageing academic staff (FCT 2009). The same broader scope of these programs can be identified in the international partnership programs which include aspects of institutional development and knowledge build-up of Portuguese universities, associated to greater levels of collaboration and cooperation between Portuguese universities and universities abroad, improving of doctoral education and pedagogical approaches, and a closer industry-university linkages (Patrício 2010). The greater number of these programs and their broader scope is revealing of a more mature system, but also of a system that needs further options to grow and develop, something that can only be attained with programmatic diversity at science policy levels.

Third, the global funding structure of the investment of FCT in the Portuguese R&D system continues to be focused on core structural programs that have been active in the past, such as the funding of R&D units and Associate Laboratories, Doctoral and Postdoctoral fellowships associated with advanced training of human resources, and R&D projects. Even if the relative weight of these programs decreased in relation to total funding, from 84 % to 72 %, the quantitative investment on these programs rose by 74 % from 2005 to 2008. This indicates that even when a scientific system starts to become more mature, structural fragilities still endure, underlining the role of structural programs, and that these should not be disregarded or discontinued until those fragilities are tackled.

Some figures about the Portuguese scientific system provide a good picture of the importance of these programs. The total number of researchers, a critical indicator of the knowledge creation and transfer of any scientific system, has increased about ninefold since the early 1980s, from 0.9 per thousand workforce in 1982 to 3.5 in 2002 and 8.2 in 2009. In 2010, this indicator is above the EU-25 and OECD average and is similar to (and in some cases even higher than) the levels of Austria, France, and the US. However, only recently Portugal reached this stage while these figures were attained by other developed countries for a long time ago. This stresses the need for catching-up countries that recently attained a state of greater maturity to go “beyond averages” to make for the years where these countries lacked behind other mature systems (see Heitor and Horta 2011). In order to go “beyond averages” the need to both continuing to qualify more researchers and to create scientific employment opportunities associated to institutional development policies to sustain the growth of the knowledge base is paramount. Therefore, the analysis suggests that the foundations chosen for the build-up of the system – in the Portuguese case, those were focused on the advanced training of human resources as a strategic option- are essential to be maintained. The rationale for their existence continue to be critical for the furthering the build-up of the system, the establishment of new policies, and for the impact that these



**Fig. 6.2** Gross expenditure in R&D as a percentage of GDP and public policies fostering advanced qualification of human resources and networking (Source: Ruivo (1995): 1971–1980; OECD and GPEARI: 1982–2009)

programs continues to deliver, including in the internationalization of academic research and tertiary education.

The analysis of the current diversity of programs and the role of the structural programs in the research system has to be understood in a longitudinal logic of investment in science. As Fig. 6.2 shows, the number of programs in R&D not only emerges due to the growing maturity and consolidation of the system in terms of growing knowledge capability of institutions and individuals in that system, but it is also dependent on how much investment there is to support this growth. The knowledge capability of the system as a whole is only able to emerge and grow based on the accumulated investment and knowledge supported in previous years and decades. The analysis of Fig. 6.2 shows that when the investment in science is low, only a few science policy programs can be supported since the amount of resources is so constrained that the existing funding needs to be substantially concentrated on a few programs alone. In these conditions, if the existing funding would be used in a greater number of programs, a dispersion of R&D funding would be observed, and the ending result would be most likely a lack of sufficient resources to meet any of the program's goals.

In the Portuguese case, this is evident. From the 1970s until the late 1980s, few science programs were implemented because the level of investment in science was very low, particularly when compared internationally (Ruivo 1995). Therefore, a major program during those decades referred to the *direct PhD fellowships*, which became from the start a core program of a public science policy focusing on the advanced training of human resources. This program can be considered as funding

structural program for the development of the R&D system in Portugal. The other funding structural program referred to *R&D projects* which contributed to develop research activities but also to qualify human resources. In the context of R&D projects, indirect fellowships were given at master, PhD and postdoctoral levels to support the formal education and experience of researchers involved in those projects. The fellowships given under R&D projects can be best understood as indirect fellowships since they would be awarded not directly by the FCT but rather by the R&D project Principal Investigators, even if funded through public funding channeled by FCT or other public sources to R&D projects. Both of these programs continue to be essential components of the funding contribution of FCT to the national S&T system.

Only in the 1990s other public science policies and programs emerged associated to an increased funding for science. The *post-doctoral direct fellowships* were implemented to allow recent PhDs to be able to pursue a research period after the PhD was completed, to publish results, and to spend research spells in other national universities or abroad. In this regard, the postdoctoral fellowships also aimed at further increase mobility and internationalization, not only in the sense to support Portuguese PhDs to go abroad, but to attract foreign PhDs to come to perform research at Portuguese scientific institutions. In the 1990s, this was of the utmost importance since the integration of Portuguese research internationally was still negligible and only visible in some S&T fields. Then in the mid-1990s, the *R&D units assessment exercises* were implemented, aimed at strengthening and restructuring the network of R&D units (mostly university based or with close linkages to universities) throughout the country. The independent assessments of R&D units, performed by international peers, on a systemic basis, with direct impact on the funding levels of the R&D units, evaluated them concerning organizational, management and structural terms as well as the research work developed by these units (indirectly, the involvement of researchers in teaching and administrative duties at the university were also mentioned). The independent assessment of the international peers – usually worldwide and recognized senior academics in the main scientific fields of the R&D units – would include recommendations for future research strategies which were often taken by the leaders of the research units to reinforce their activities. Often, these recommendations would ask for greater critical mass, a more qualified core of researchers, internationalization and integration within the international scientific community, and participation in international collaborative activities. The quotes below from the assessment exercise are demonstrative of some of these recommendations:

...have an important training activity for many Master and PhD students. They are seriously implicated in important international projects, where they play an active role and they are members of international networks. Although their presence is already much higher than that of the majority of the units evaluated, they could aspire to being even more present in international journals... it would suggest that some effort would be worthwhile to construct an even more coherent research agenda. Quote from an assessment of a R&D unit, Sociology, Anthropology, Demography and Geography panel; FCT website.

Since the preliminary report, the number of PhDs in this unit increased from 4 to 7. The additional PhDs are all former PhD students from the unit. . .this group is growing rapidly and we believe that it shows great potential. Quote from an assessment of a R&D unit, mechanical engineering panel; FCT website.

A few years after the R&D unit assessment exercises started, the *Associate Laboratories* were created, following a policy of institutional development, interlinked and ancillary to science policies focusing on the advanced training of human resources. The Associate Laboratories represent a confederacy of research units to form a large research institution, and are oriented towards strategic lines of thrust and thematic networks, on the basis of an international evaluation. One of the purposes of the Associate Laboratories is to support scientific employment, by receiving additional funds to award doctoral and postdoctoral fellowships, and to hire researchers with a doctorate and research experience. Three Associate Laboratories were launched in 2000/2001 with a budget of 25 million Euros, 10 years later, there are 25 Associate Laboratories with an overall level of institutional funding of 85 million Euros, encompassing 2,659 researchers with a PhD. Overall, the policy goals of the R&D assessment exercises and the creation of the Associate Laboratories was to foster critical masses, aggregate and concentrate R&D units, and attract new talent under the direct support of the FCT. This occurred for R&D units as we observed in this chapter, and it was equally successful regarding the Associate Laboratories, which had 58 researchers with PhDs on average in 2007 (Sunkel 2009), a number larger than the average number of highly qualified researchers per R&D unit.

However, it is from 2005 onwards that several public policies were realized to foster the growth, broaden the scope and activities, and to meet the needs of an increasingly mature S&T system. Some of these policies are more related to institutional development, such as the *new Legal Regime of Higher Education Institutions* (RJIES; Law no. 62/2007), which recognizes R&D units as part of the university management framework, or the *international partnership programs*, set out to foster new dynamics in the Portuguese S&T landscape by establishing selected partnerships with leading US research universities as relatively large consortia aggregating Portuguese universities, R&D units and industry. This last institutional development initiative has a strong transatlantic internationalization and network build-up purpose. The implementation of this partnership program was made possible to a large extent due to longstanding public policies for science that promoted brain circulation – mainly of Portuguese PhD students to the US universities, and academic mobility – and the international background and contact networks of the policymakers – before academics – that were involved in conceptualizing and implementing the partnership program (Horta and Patrício 2016).

However, other institutional development policy initiatives focusing on internationalization and networking started. In November 2005, the governments of Portugal and Spain agreed to establish in the north of Portugal, the *International Iberian Nanotechnology Laboratory*, which is to hire researchers from all over the world, and opening future membership to any other country that express the will to

integrate it. Other policies also started in this period focused more on scientific employment, brain circulation, and renewal of the research and academic staff at higher education institutions. Those are discussed in detail in the following section of the chapter.

In terms of interest for the analysis, the emergence of these policies was supported by an investment in R&D that was growing at an accelerated rate. In Fig. 6.2, the investment in R&D refers to the gross expenditure in research and development (GERD) as a percentage of the gross domestic product (GDP). The Portuguese GERD has grown at one of the fastest rates observed in the OECD up to 2010, influenced by the accumulation of public investment in science and technology (S&T) over the past decades – even if fluctuating and sluggish at times, and the result of a recent national strategy aimed at the development of the national knowledge base to foster the transformation of the Portuguese society into a knowledge based society, integrated in a globalized economy. In this regard, the budget appropriations or outlays for research and development (GBAORD), which refer to the investment of the whole government in R&D activities, increased by 63 % since 2005, to reach 1765 million Euros in 2010. In 1995, when FCT's direct PhD fellowships were a main public science policy instrument in Portugal, the GBAORD was 181 million Euros, which corresponds to 10 % of the value of the GBAORD in 2010.<sup>1</sup>

This suggests that diversity of science policies requires time, knowledge accumulation and the need for a much larger investment in science for new programs to be devised and implemented. The greater investment of public funding on R&D resulted in a recognized development of science in Portugal by the public opinion, policymakers and industry managers, acting as a leverage to foster private investment in R&D that came to surpass the total public investment in R&D in 2007. This facilitated the access of Portuguese industry and services to markets worldwide (MCTES 2010), and promoted scientific employment also in the private sector, which employed 10,363 full-time researchers in 2010 when in 2005 employed 4,014 full time researchers (and only 1,994 in 1999).

### **6.3 Human Resources for the R&D System: Increasing Qualifications, Fostering Mobility, Developing Institutions, and Promoting Internationalization**

Although several public policies were introduced in the Portuguese R&D system since the 1980s, it can be argued that among the most structuring are those associated with the advanced training of human resources and scientific

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<sup>1</sup> It is important to note that the main contributions to the GBAORD are associated with: (1) salaries of academic staff in tertiary education institutions; (2) investment in R&D through the FCT, involving both national and European structural funds; (3) operation of State Laboratories; and (4) in more recent years, European structural funds allocated to support R&D activities in industry.



employment. The development of the Portuguese R&D system until 2010 is characterized by its capacity to attract and train human resources, to reinforce critical masses, particularly in academic institutions, and fostering the concentration of researchers across disciplines. These policies also contributed to build knowledge integrated communities with an increasingly relevant international context. This evolution is thus, interlinked with human resources focused policies which we will detail in greater depth in this section. We start by analyzing the role of the FCT direct-fellowships, which supported the advanced qualification of human resources, strongly benefiting the R&D system and in particular higher education institutions. Then we will analyze the role of the FCT direct postdoctoral fellowships, as enablers of further brain circulation, attraction of talent, international collaborations and scientific productivity for early stage researchers. We finalize the analysis, by looking at the program to hire PhDs with at least 5 years of research experience and Sponsored research chairs that aimed at attracting more experienced researchers from all over the world to Portuguese universities and scientific institutions.

### ***6.3.1 Fostering Networking and the Advanced Qualification of Human Resources: FCT Direct PhD Fellowships***

Even 11 years after Portugal joined the European Union, the delay that the country had in terms of qualified human resources was evident as only 8 % of the population aged between 25 and 64 years old had attained tertiary level education while the OECD average was 21 % (OECD 2011). This was the result of an autocratic regime that for the utmost of the twentieth century ignored and even dismissed policies towards improving the level of qualifications of the population (Torgal 1999). According to estimates by De La Fuente and Domenéch (2015), Portugal had the smallest percentage of the population with tertiary education at least since 1960 amongst all OECD countries. In that year, only 1.5 % of the population had attained higher education, representing only half of the percentage that the next less qualified country had (Spain with 3.07 % of the population). At the time Portugal joined the European Union, about 5.5 % of the population had attained tertiary education, a level that was equivalent to what countries such as Belgium, Finland or Denmark had in 1960. This deficit of formal qualifications was not only evident in the labor force, but also in the quantity and qualification of knowledge workers performing activities in research institutions and universities.

In 1987, the number of researcher full time equivalent per thousand labor force in Portugal was 1.3 and very far from the average of the OECD of 5.4 for that year. This was also linked at that time to a very low intensive gross investment in research and development (GERD) which in Portugal was 0.37 % of the GDP in comparison with 2.21 % of the OECD average. The Portuguese GERD as a percentage of the GDP was the lowest of the OECD countries in the late 1980s

and 1990s. This at a time of turbulence in terms of the rising number of students in tertiary education that evolved from mere 60,000 in the 1960s to 400,000 in the 1990s (Conceição and Heitor 2005). At the same time, ossified universities and research institutions with low levels of autonomy, lack of evaluation assessments, high levels of dependence from the government funding, rampant academic inbreeding, poor internationalization and qualifications, led to the need to foster a policy aimed at an advanced qualification of human resources (Horta 2008).

In 1987, the *Junta Nacional de Investigação Científica*, JNICT, the precursor of FCT, launched a fellowship program which awarded in that year alone about 700 fellowships with the following strategic orientation: the candidates could not be linked to the institutions (unlike previous fellowship programs), and thus promoting mobility, while the internationalization of education and science was sought as well as the substantial increase of the number of scientists (Ruivo 1995). According to Ruivo (1995) this fellowship program was critical in the sense that it allowed for people to engage in research activities at an earlier stage in their careers but also because it represented the introduction of postdoctoral fellowships in the Portuguese scientific system. Already at this stage the relevance for advanced training abroad was already being highlighted as a way to engage the national science with the international community more frequently (Veiga et al. 2006). Mariano Gago, a two times minister of science and technology, wrote in his manifest of 1990 that “it is not inappropriate to emphasize the decisive importance for the Portuguese scientific development of the scientific training abroad, not only to break the isolation and for the opportunities of development to which it contributes, but also for the better and faster rhythm of training that it permits when comparing with the one that the national offers” (Gago 1990: 29–30).

According to Gago (1990) the brain circulation of early stage researchers and the maintenance of a constant flux of these students to obtain the PhD abroad are vital, and under no circumstance should it be reduced under the pretext that the doctoral training in Portugal should be privileged. However, as Gago himself acknowledges, the outgoing mobility of PhD students to perform their doctorates was not a problematic question for the 1990s because the Portuguese universities did not possess the qualified academic staff to provide doctoral education with the necessary quality. These arguments are easily understood in a country with a reduced knowledge base, and where the participation of Portuguese scientific teams in European framework projects was still minimal. It is important to take into account that only around the joining of Portugal to the European Union the country had adhered to international scientific organizations, including CERN, and where the internationalization of academia was still very much concentrated on a very limited number of scientific fields (see Horta 2010; Patrício 2010). In this regard, entering the European Union represented a golden opportunity for the internationalization of Portuguese science and academia, but also provided an impulse for a greater consolidation of the scientific system. In this, as Horta (2010) argues, the State was the main driver not only in promoting the growth and development of the knowledge base but in parallel contributing decisively for its internationalization. In the early and mid-1990s, the need for a greater participation with the

international scientific community and integration in scientific and educational networks was imperative (Caraça 1993; Gago 1990).

This led to new science policies, related to the advanced qualification of human resources, guided by a more complex model of technological change and an intensification of international collaboration. Among the several policies that were implemented, an important mark was the establishment of a ministry of science and technology in the mid-1990s, the first time science and technology was deemed important enough to have such relevance in a governmental structure. As the ministry was created, a new structuring of the science policymaking in Portugal emerged. The role performed by JNICT was to a large extent replaced by the creation of the Fundação para a Ciência e Tecnologia (FCT). Its mandate to further develop science by funding and evaluate research institutions, networks, infrastructures, scientific equipment's, programs, projects and human resources in all scientific fields as well as the development of scientific and technological international cooperation. The focus on improving the advanced qualification of human resources, through doctoral fellowships in particular was acknowledged as critical as the first 5 year report of FCT activities states:

The advanced training and qualification of human resources are priorities of the national scientific and technological policy which aims to promote the convergence of scientific qualifications of human resources to the levels observed in the generality of European Union countries, in particular on what refers the postgraduate education (FCT 2002: 25–26).

The FCT allows those who are pursuing third cycle studies which lead to a doctoral degree to apply for a PhD direct fellowships to study in Portugal or abroad, notwithstanding if they are Portuguese nationals or foreigners. Recently, requirement for permanent residence were asked of third country nationals. The fellowships are, in principle, 1 year in length, renewable for up to a total of 4 years, and cannot be awarded for periods of less than three consecutive months. When awarded the fellowships, the fellows are entitled to the annual co-payment of registration, tuition and bench fees with maximum values stipulated for Portugal and abroad. The full or partial co-payment of the tuition fee is an important incentive to foster Portuguese nationals to go abroad to perform the PhD, especially to research universities in developed scientific and higher education systems contributing thus to the internationalization of Portuguese science and academia.

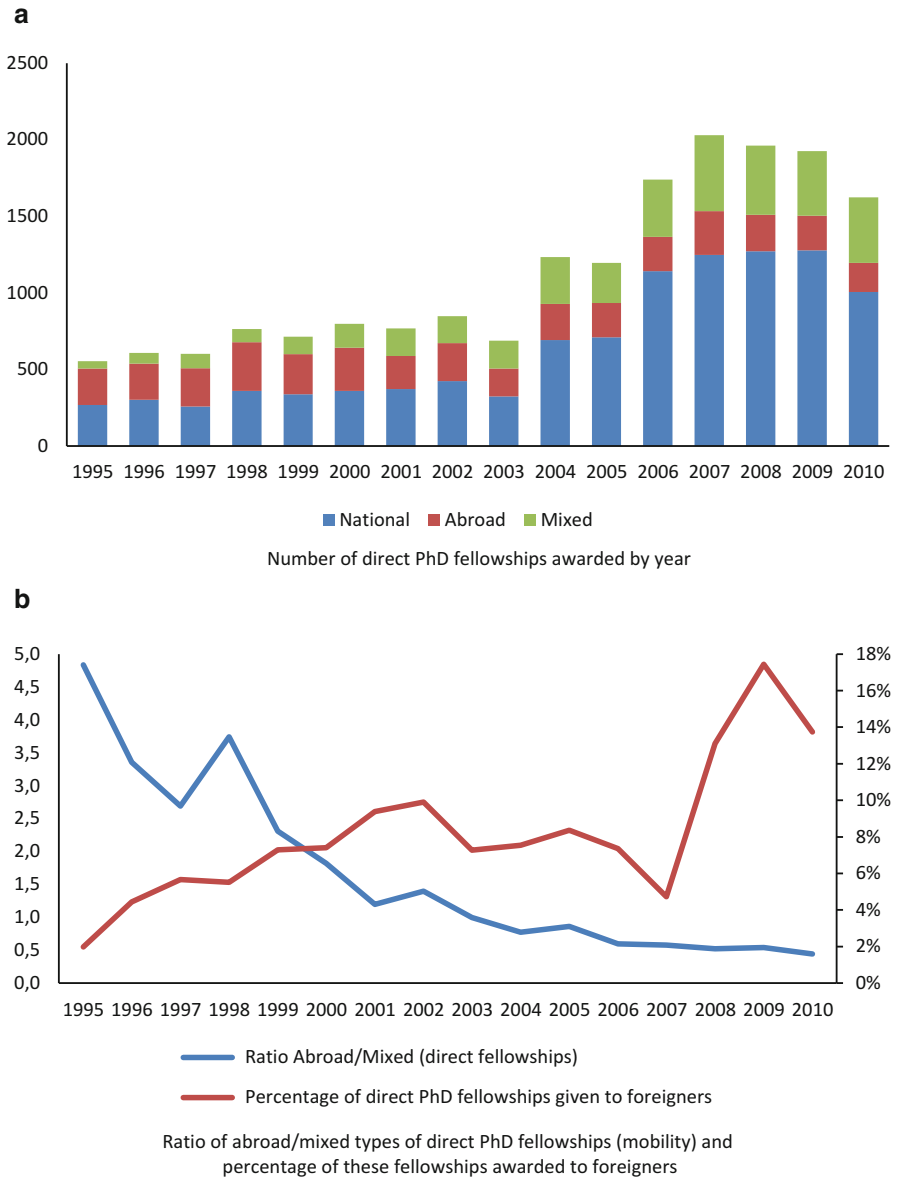
At the time of the submission of the fellowship proposal, the fellow has to decide the type of doctoral fellowship that is adequate to the research purposes in accordance with the research project of the doctoral research. The PhD direct fellowships can be spent in Portugal (designed as national fellowships), in Portugal and abroad (designed as mixed fellowships), or abroad (designed as abroad fellowships). The monthly maintenance stipend of the fellowship varies according to where the awardee is spending the fellowship, with the stipend value abroad being considerable higher than the stipend value in Portugal. This allows taking into account the usually higher life costs that the fellows have when performing the PhD abroad,

when compared with the life costs in Portugal. This represents another incentive for fellows to spend some period of their research outside Portugal.

Importantly, even the national PhD direct fellowships that were to be spent in Portugal, entailed a 3 month period that the fellow could use to be abroad if in the context of the research work. Thus, all the doctoral direct fellowships provided by FCT predicted the possibility for the fellow to experience a research period abroad. However, associated to all types of fellowships there were subsidies that were made available for fellows to travel abroad, attend conferences and present their research results, but also for foreign fellows to install themselves in Portugal and for Portuguese nationals to install themselves abroad. These incentives were also clearly pointed towards promoting greater levels of mobility during doctoral education.

The analysis of Fig. 6.3a indicates that the number of FCT direct PhD fellowships has been increasing steadily since the mid-1990s, and got a particularly important raise in the mid-2000s, showing that this structuring policy of the Portuguese scientific system was not only meaningful during the turn of the century, but needed to be reinforced. In the last 5 years, from 2006 to 2010, more PhD direct fellowships were awarded than during the 10 year period from 1995 to 2005. During the 16 year period, the FCT direct PhD fellowships that are more prone to favor international mobility have also been increasing, and in 2010, the number of mixed and abroad fellowships awarded was more than the double of the same number awarded in 1995. However, as Fig. 6.3b shows, there has been a change in the type of mobility chosen by the fellows. If up to year 2000, there were on average 3 abroad fellowships per 1 mixed fellowship awarded, from 2001 to 2005, a parity situation was observed, and from 2006 onwards there was a shift in the trend where on average almost 2 mixed fellowships were awarded per one abroad fellowship. This shifting trend in the last 15 years reveals a changing paradigm in international mobility at doctoral level, and an increased capacity of Portuguese universities to offer doctoral courses.

As predicted by Gago (1990) in the 1990s and early 2000s, the internationalization of the doctoral education of Portuguese PhDs was strong because there was not enough research intensity or qualified academic staff in the Portuguese universities to be able to offer doctoral programs with the required quality standards. There was a need for doctoral students to go abroad to perform their PhDs, and they went in particular to universities in the United States and United Kingdom. Then as the capacity to offer doctoral degrees at Portuguese universities with more quality and internationalized started to emerge, to a large extent due to the growth of a qualified critical mass of academic staff – including those doctorates that went abroad with PhD fellowships – the “need” to perform the doctoral studies abroad was not as necessary. The growing capacity of Portuguese universities to provide doctoral education can be best perceived by the rise in number of new PhDs awarded between 2000 and 2009 – in all 11,932. Over the past 9 years, Portuguese universities awarded or recognized more new PhDs than over the three previous decades when new PhDs totaled 8,047–769 from 1970 to 1979; 2,065 from 1980 to 1989; and 5,213 from 1990 to 1999.



**Fig. 6.3** PhD direct fellowships awarded by the Portuguese Science and Technology Foundation, 1995–2010 (Source: FCT)

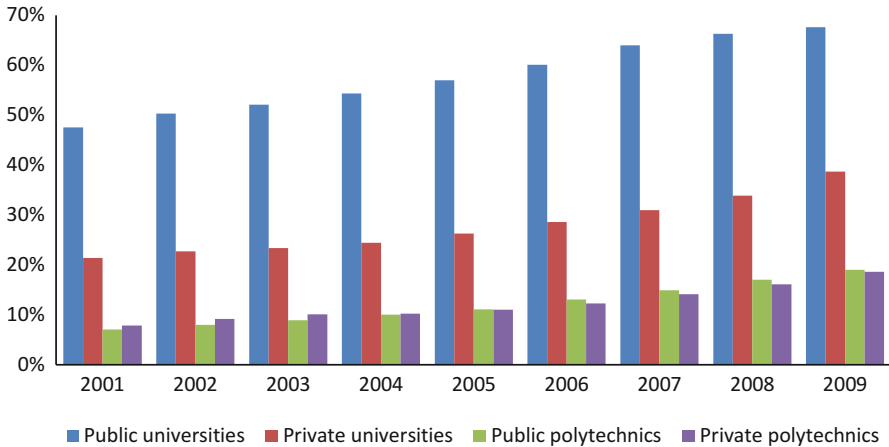
This trend made the mixed PhD fellowships to assume a greater role as the preferred type of mobility abroad, since the doctoral students could be based at a Portuguese university, while having still a strong international focus. Naturally, this evolution has also been related to the greater investment in the Portuguese scientific

system that has made Portuguese universities and research institutions more appealing to perform research both nationally and internationally. In this regard, the last 3 years have seen a substantial growth in the number of PhD fellowships attributed to foreign nationals. This suggests that the Portuguese academia and science are becoming more internationally visible and able to attract foreign students at this level, something that was not the rule in previous decades. From 1995 to 2005, only 7 % of the FCT direct PhD fellowships were awarded to non-Portuguese nationals while from 2006 to 2010, this percentage was 11 %. The growing internationalization of the Portuguese science and universities associated to a culture of greater transparency and rigor in evaluating fellowship proposals based on merit and scientific quality of the research centers and universities hosting the fellows which was fomented since the 1990s, started to bear fruits in terms of attracting international PhD students and fostering brain circulation. This is not only being felt by Portuguese academic staff, but also by foreigners based at Portuguese universities as this interview excerpt highlights:

I think science in Portugal is evolving in a tremendous way . . . the internationalization is quite strong, every day there are 3–4 seminars, and 2 of them have foreign speakers, they are interesting. And this is not only in the area of the social sciences, for what I am aware, the same holds true in engineering, renewable energies . . . this advance training fellowship programs are being very good and within a few years we will see a lot of results, some of them we are already seeing . . . about the FCT fellowship programs, something that I would like to emphasize: the openness and transparency of the process, in my country this is not so clear, you always think you need to know someone and such, here the process is really transparent, and this is really good. Italian, female, social sciences, former PhD FCT fellow

Portuguese academia is increasingly trying to gather people from European countries through projects . . . My mentors here, they had been foreign visitors themselves in Genova University. This experience gave them the interest for mobility of scholars and students. Italian, male, engineering, FCT PhD fellow

The contribution of the advanced training program of FCT through the PhD fellowship program to the Portuguese scientific system is closely related to the rising number of researchers, quite a lot of them PhD students, and their increasing qualification. The number of researchers per thousand labor force in Portugal surpassed the European Union average in recent years, but never had the Portuguese science and technology system had so many researchers holding a PhD degree as well. The number of researchers with a doctoral degree in the national scientific and technological system almost doubled between 2003 and 2008, when they reached 23,125 researchers, with almost 19,000 of them performing research in the higher education sector. As Fig. 6.4 shows, the percentage of academic staff with a PhD increased particularly in public universities, which are also the most research oriented and internationally networked institutions in the Portuguese higher education system. In 2009, 68 % of the academic staff had a doctoral degree when in 2001 this value was lesser than 50 % (only 48 %). Also, in Polytechnics, traditionally focused on professionally-oriented and vocational training, research activities are getting a foothold, as suggested by the growing percentage of faculty with a PhD. This envisages a greater engagement of these institutions in the national academic research effort raising at the same time concerns about the institutional diversity of



**Fig. 6.4** Percentage of faculty with a PhD at Portuguese higher education institutions, 2001–2009 (Source: GPEARI)

the higher education system if the research focus of these institutions do not differ from the one undertaken by universities.

Although there are a lot of variance concerning the academic staff holding a doctorate in terms of universities, faculties, departments, and even by scientific areas, and the fact that the qualification staff is still low when compared internationally, the advanced training program of the FCT PhD fellowships helped to raise qualifications and also converge the Portuguese universities closer to the standards of their European peers. In this sense, it is not unexpected that the results from the survey careers of doctoral holders (CDH09) coordinated by the OECD report that 85 % of the doctorates in Portugal are working in the higher education sector, a percentage only surpassed by Poland with 92 %. This suggests that the FCT PhD fellowships have been contributing decisively and will continue to primarily contribute in the coming years to support the increasing qualification of the staff at Portuguese universities. This in itself is important because only higher education institutions with a highly qualified academic staff can provide a good quality in education and research (Tetty 2010).

However, the FCT PhD fellowships also contributed to foster a more open and modern organizational culture in the Portuguese universities in several ways. One of them was to underline the critical relevance of attaining a doctoral degree to enter the academic career, something that was not regarded as relevant before as it is now, as this interview excerpt indicates:

These days, in order to work as a professor you are supposed to have a PhD and that was not like that all the time. . . I am not sure if they are required to, but at least they are encouraged to do a PhD, so I guess the qualification of the professors has increased. I think that there has been a lot of investment from the government in funding for research, it has been increasing in the last decade, so I think that there is a lot more research going on. Portuguese, female, FCT direct PhD fellow, interdisciplinary field.

The immersion of PhD fellows in more intense and dynamic research processes to which they were exposed to during the course of their doctorates abroad was also critical to this change of mentality and to create seeds of change towards creating a more modern university. As an academic from Economics put it: “FCT allowed more people to go abroad and do the PhD in the US or elsewhere in Europe, so at least they have been away from their mother institution for a few years, and that is very important in terms of perspective”, meaning that by having a greater contact with different organizational environments, ideas, concepts, working routines and cultures, the doctorate holders upon their return were able to bring with them not only new knowledge, but also new ways to do things, and a different mentality, one that was much more open towards internationalized research, teaching and other scholarly activities. In this context, it is not surprising that such a relatively fast change occurred in terms of teaching at graduate level at Portuguese universities and that foreign students, particularly PhDs, were able to be attracted to Portuguese universities. One of the changes that occurred relatively fast was the adoption of English as a key teaching language in class if a foreign student was present, which was greatly valued by foreign students, as this excerpt demonstrates (see also Kerklaan et al. 2008):

You have established the base for foreigners to come to Portugal. I cannot imagine a lesson in a Greek university being taught in English, except for the masters programs because they invite professors who speak in English. But here if the student is foreigner and asks for the lesson to be taken in English, the professor is obliged to do it in English. Greek, female, FCT PhD fellow, engineering.

As the growing capacity of the Portuguese universities to provide doctoral degrees increase, the need to maintain brain circulation and a high level of internationalization of research activities and the global focus of the PhD programs is essential. In this sense, guaranteeing the quality and international scope of doctoral programs is a challenge, and in this the mobility of PhD students may act as critical link in maintaining and reinforcing the participation of academics in international networks for doctoral study and research, thus strengthening the international outreach of the Portuguese universities themselves. In this the fostering of mobility through the FCT PhD fellowships as a structuring mechanism for mobility at the PhD educational level is of absolute relevance. But in this context, its long-term cumulative effects associated to a mounting investment in science are already contributing to achieve this. Two cases exemplify this. The growing internationalization of higher education institutions in terms of the numbers of foreign academic staff increased by 38 % between 2001 and 2009, even if only 4 % of the total academics in the higher education are foreigners. Finally, the perceptions and awareness of university leaders and managers regarding the relevance of participating in international scholarly networks to promote the visibility of the research performed at their institutions, attracting foreign students and funding, and keeping an international scope to their activities was constantly evidenced in the interviews performed, as it is was the idea that a strong knowledge base linked to



internationalization was also the most effective way to benefit the institution and the country, as the excerpts below exemplify:

Portugal is too small, but it is not isolated anymore, so if we do not become a reasonable international player we will never become a good national player. So we do not forget the country, because for the first levels of education we are mainly national players, but at a masters and PhD level we try to be at a European and international level, that is why we work so close in these international networks in Europe and beyond. Portuguese, university manager, male, science and engineering focused university.

We feel we should be connected to people in our area at the international level. Now, we have a lot of people from abroad at our universities and where the networks of higher education in PhDs and research teams allow young people to do part of their studies here and part abroad and people are doing this more and more intensively. The situation is one that we are trying to be as internationalized as possible. As far as policy and internationalization are concerned, the strategy is to reinforce our cooperation and connections with different institutions and programs with advanced countries such as Canada and the US. Portuguese, university manager, male, social sciences focused university.

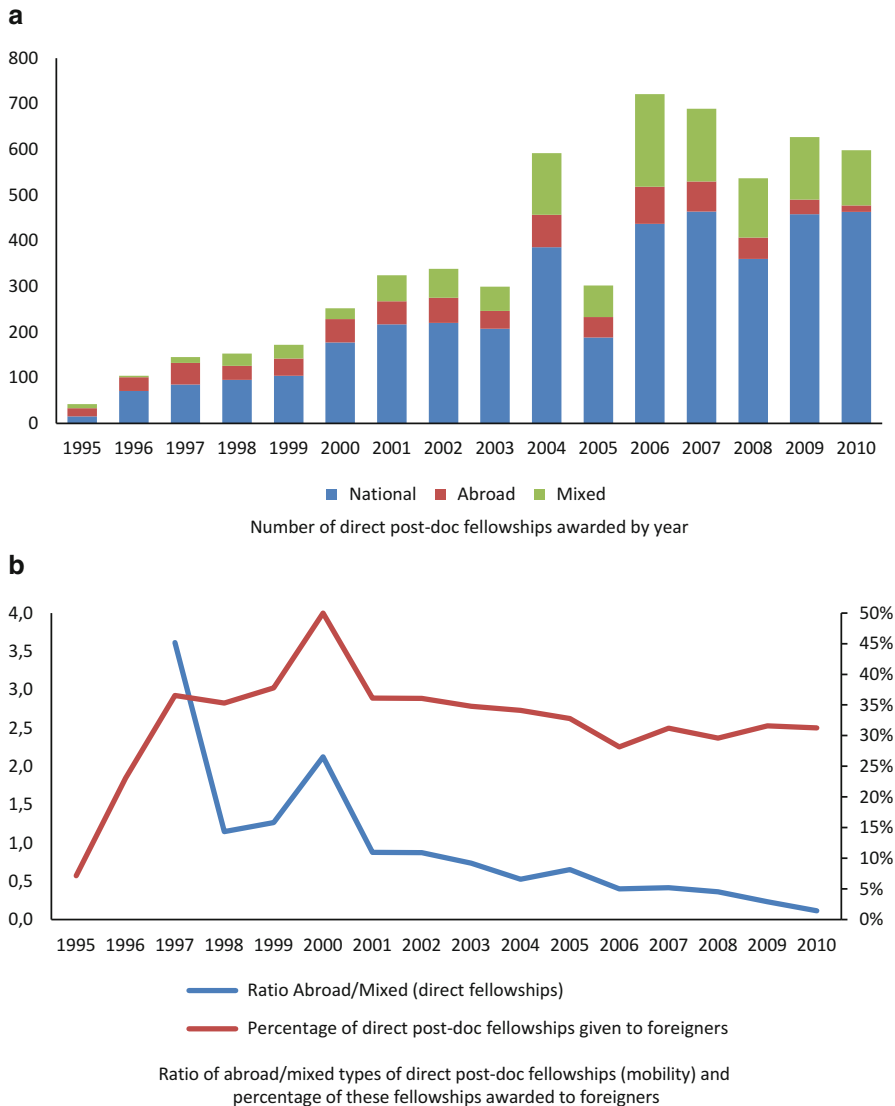
If we want to reach PhD students from abroad we must have a good research level and to be well known abroad and so the involvement with other European universities is very important. . . if we stay national we will not be relevant at an international level. International connections are very important, both in terms of money and in terms of recruitment, not only at European level but also with the rest of the world. Portuguese, University manager, male, science and engineering focused university.

### **6.3.2 Supporting Early Stage Careers: FCT Direct Postdoctoral Fellowships**

The number of postdoctoral fellowships was relatively low in the 1990s and only in the first decade of the twenty-first century the number started to rise to a number around 300 FCT direct postdoctoral fellowships awarded per year, and then as the scientific system further matured, to more than 500 awarded per year. As Fig. 6.5 shows, the postdoctoral spells funded by the FCT directly also went through a similar pattern found for the FCT direct PhD fellowships. That is, as the scientific system evolved, and critical masses started to be attained, the location for performing research after the doctorate that the postdoctoral positions granted started to be much more focused on national institutions. This trend suggests that the role of the postdoctoral position is increasingly leading to a different type of international mobility, an international mobility with a lesser time spent abroad. The growth of mixed FCT direct postdoctoral fellowships *vis a vis* the FCT direct postdoctoral fellowships abroad may be associated to the perceived need to maintain some link to national higher education institutions, even if some time is to be spent performing research abroad.<sup>2</sup> This follows other trends identified

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<sup>2</sup> Some family related reasons may also be associated to this trend.



**Fig. 6.5** Post-doc direct fellowships awarded by the Portuguese Science and Technology Foundation, 1995–2010 (Source: FCT)

internationally, and is related to academic labor markets where less stable openings are available, where competition increases, and where the role of the postdoc became one of a “waiting position” (Stephan and Ma 2005).

Nonetheless, for the evolution of the scientific and higher education systems the FCT postdoctoral fellowships assumed a great importance because they allowed for

research units to increase their critical mass with highly qualified human resources that became involved not only in the training of doctorates and master students, but also contributed to the research activities of academic staff. It can be argued that to a large extent the postdoctoral fellows working in research units associated or based at universities became the backbone of research activities and internationalization efforts pursued either at organizational and individual levels. The relevance of postdoctoral fellows in Portuguese research units was evidenced by Horta and Lacy (2011) in terms of their contribution to foster other researcher's scientific productivity and international networking, but that is also assumed by the assessment exercise of the R&D units in Portuguese universities, as the interview excerpt below exemplifies:

It seems to me that these 3 people are by far the most active in the group. In particular a Dutch post-doc, has implemented large parts of the Portal da Lingua Portuguesa and at the same time published a number of articles in prestigious international journals and conferences. Quote from an assessment of a R&D unit, linguistics; FCT website.

The FCT direct postdoctoral fellowships allowed attracting several foreigner doctorates to Portuguese universities, and this was a policy goal from the start of the fellowship program (FCT 2002). The purpose was not only to bring to Portugal foreign recent doctorates which could further develop their research agendas, and also be integrated in the ongoing research projects in the research centers, but also to increase the internationalization of those research centers and the universities themselves. In this context, Fig. 6.5 shows that on average, and except for the initial 2 years, around 30 % of FCT direct postdoctoral fellowships were awarded to foreign nationals.

More recently, the compromise with science program issued by the Portuguese government, and based on the growth and evolution of the Portuguese system sustained by previous policies, two new programs focused on highly qualified human resources were implemented. The design and implementation of brain circulation and attractiveness programs more focused on mid and senior research career staff to Portuguese universities, could only be done by a system that was starting to gain critical mass, to develop less fragile institutions, to better value and integrate research institutions as part of the university governance, and to have established and transparent evaluation procedures based on scientific merit and rigor.

The attraction of promising mid-career scholars and researchers was pursued through the CIENCIA program. This program started in 2007, consisting in an international call for applications for 1000 PhD research positions to be contracted under the individual employment contract regime. The international call was opened for all scientific areas, and the doctorates to be hired, Portuguese or foreign nationals, needed to have at least 3 years of relevant post-doctoral experience and scientific production. The contracts to be established had a maximum duration of 5 years. The applications were evaluated by national and international experts and scientists, while the composition of the evaluators and their curricula would be published in a measure that intended to ensure the full transparency of the

application, evaluation, and award processes. From 2007 to 2009, more than 1,100 researchers were hired, above the original policy goal of hiring 1,000. Of the ones that were hired, 41 % are foreign nationals, 18 % nationals from other European Union countries, 4 % from the Community of Portuguese Language Countries, and the other 19 % for other countries in the world. The international characterization of the foreign nationals that came to Portugal under this program is interesting in the sense that the native language was not a main reason for foreign nationals to come. Based on several interviews, it was apparent that besides the challenge of coming to a scientific system that had not reached a maturity stage but that was developing really fast, and the ability to develop a scientific agenda for a relatively stable period of time, the transparency and rigor with which marked the program was critical, as this excerpt from a Portuguese scientist that returned to Portugal shows:

I though the whole recruitment process in the scope of the CIENCIA program was done – in association with the Portuguese institution where I am working now – with the utmost transparency, clarity and exceptional scientific rigor. This impressed me strongly since we like to talk about institutions of excellence around the world, and I got offers from some of those institutions which offer better salary and working conditions, but with recruitment processes that are far less clear and transparent. Portuguese, male, health sciences, researcher with a PhD hired under the CIENCIA program

The policy aim of the program was also one of renewing the research staff at Portuguese universities which like in most of the universities around the world has been having the average age of the academic staff increasing. Therefore, it is no surprise that 66 % of the hired researchers through the program CIENCIA are aged between 30 and 40 years old and that 20 % have their ages comprehended between 41 and 45 years old. The contribution of this program thus was one of renewing the academic and research staff and further internationalize the university, which several universities and research institutions took as an opportunity for change, as mentioned by this academic from a social sciences university:

There is the Ciência program that hired a range of postdocs. They were hired through the research center and there were a number of Belgians, Russians, an Irish guy, Argentineans, Germans. Yes it was a strategy to internationalize. They followed it through. I think it was very important, to give an international flavor and some of them are working at the department. Portuguese, female, social sciences, professor at a Social Sciences focused university

However, the extent to which the Portuguese universities will be able to keep and further build their knowledge base, networking and internationalization is still to be seen, particularly at a time when public reduction policies and an austerity regime is constraining the recruitment of academics in Portugal. This is an issue that the researchers recruited under the CIENCIA program seem to be aware of, as the interview excerpt below shows:

Beyond the possibility to return to Portugal there was the difficult issue that is the professional situation. I swapped the opportunity for a stable position in a top research university, a tenured track regime, and a much higher salary for an ambiguous position. Five years from now, independently of my academic track and excellent scientific production, there is no guarantees that there will be funding to sustain my salary . . . but I took the

chance and here I am. Portuguese, male, health sciences, researcher with a PhD hired under the CIENCIA program

The invited research chairs program was aimed at attracting more senior and internationally recognized academics and researchers from all scientific fields to Portuguese universities and research institutions to foster these institution's efforts to augment their international projection and networks. FCT would fund 25 % of eligible expenses (could be up to 50 % in exceptional cases) within the scope of a contract agreed between research institutions or universities and the researcher. The FCT financial support would be granted for a period up to 6 years and never less than 3 years, with the possibility to be renewed once, and with a middle range interim evaluation. The creation of the invited research chairs also counted with the sponsoring of several firms, and for the moment 13 chairs have a location already defined. The role of these chairs, even if in reduced numbers, constituted an attempt to further develop the Portuguese scientific and academic systems based on the cumulative effects of previous policies. The application of these policies in the 1990s would be doomed to failure because the system did not have the structure to host these programs nor had the policy the necessary funding to support such programs without addressing first more critical structural problems.

#### **6.4 Conclusion: A More Networked and Qualified Portuguese Academic and Scientific Community**

In this chapter, we argued and provided evidence based on the Portuguese case that science policies have an appropriate moment (and momentum) in the evolution of scientific and higher education systems to be implemented and that they are built on the beneficial effects of former policies. The example of the human resource based science policies and their goals are well demonstrative of that.

First policies to reinforce the qualifications of the human resources were implemented to create the minimum critical masses at system level to permit for the implementation of further policies. These policies, which can be assumed as structuring and foundational policies were important at the beginning of the development of a more consolidated and integrated scientific system, and as the historical data shows, continue to play a key role in leveraging the further development of the system. The growing number of fellowships that continued to be awarded per year until 2010 evidence the relevance of the foundational policies, even after the minimal critical masses have been achieved.

In alignment with the policy of qualification of human resources in science through the increase of doctorates in the academic staff of higher education and research institutions, the postdoctoral fellowship program supported the knowledge production, acquisition and dissemination, and the internationalization of the scientific system from a dual approach: it enabled Portuguese doctorate holders to

continue to perform research and publish their doctoral findings during this period, often abroad, permitting them a further international exposure, while at the same time started to act as a policy mechanism to attract recent foreign doctorate holders to the Portuguese scientific and higher education systems at a time when the internationalization of Portuguese universities and networking was still limited. The postdoctoral fellowships were implemented with very slow numbers at first because they needed to be aligned with the growing number of doctorates that was expected to result from the FCT PhD fellowships, either awarded directly or through research projects. Naturally, as the system evolved, several people also funded their doctorates with their own resources or with the resources from higher education institutions themselves, since the PhD was increasingly perceived as critical for further progress in the academic career in Portugal.

It is important to realize that these programs took a long time lag to have a substantial cumulative effect system wide, and that time together with consistent funding was essential for their success. Therefore, it is not surprising that two other human resource related programs only emerged fairly recently, and in a perspective of an even greater investment in science. These most recent programs needed to be sustained by the cumulative effects of the previous programs on the scientific system, but the rationale of these programs needed also to make sense in the context of evolution of the scientific system itself. The CIENCIA and the invited chair programs share similar rationales in terms of brain circulation and networking with the previous human resource programs, but they are more focused on the attraction of foreign nationals and Portuguese returnees with more senior careers and years of experience to the scientific system, something that was only possible with the evolution of the scientific and the higher education systems. As was perceived by the interviews, these programs are furthering the impact on the activities of Portuguese universities, either in terms of their internationalization, networking and knowledge producing capabilities.

Importantly, it is the combination of these policies that are contributing to and at the same time reflect the greater maturity of the system. Mature systems are the ones that because of their stage of development require a diversity of policies that together contribute at various levels for their further progression. Naturally, it is expected that the foundational policies lose some relevance in the most mature scientific systems when compared with some others, but for catching-up and intermediate systems such as the Portuguese, all these programs work with great dynamism and interrelation. In a sense, science policy has a similar effect that higher education diversity has; it meets the needs of several stakeholders to the development of the scientific and academic system as a whole. But this policy diversity, concerning human resources should take into account other policies, namely the ones focused on institutional development. Although not the focus of this book chapter, they had an extremely supporting role in the evolution of the system in close relation with the human resource science policies.

They are part of the policy diversity that increases following the evolution and greater needs and complexities of the scientific system. In the Portuguese scientific system, particular important to the creation of critical masses – in association with

the human resource policies – and the greater participation of academics in international networks was the establishment of the R&D unit assessment in the 1990s. This policy can be considered the most critical foundational science policy in terms of the institutional development of Portuguese science and academic research (Heitor and Horta 2011). It brought to the scientific institutions an evaluation culture that was not typical in the scientific system until then, now strongly rooted, and perceived as a necessity to ensure the performance of the system. It also rewarded merit, and fostered the creation of critical masses, internationalization and networking of scientists and academic research groups, and provided stable funding for universities and research institutions to devise scientific agendas and strategies. Importantly, it increased competition, interdisciplinarity, the need to collaborate (including with non-academic actors) and also a change in attitude regarding publishing in international journals. The excerpts below are representative of this change that the R&D unit assessment brought to the system:

Concerning research units, I think there is some competition with other units, specifically because of the FCT evaluation. . . It is competition when it comes to funding. It is competition when it comes to hiring postdoctoral and doctoral fellows, when you are applying for projects. But even then you have competition with your colleague next door, because there are only a certain number of projects. So it is not just competition with other units. Portuguese, female, Academic staff, Social sciences oriented university.

To publish in a foreign journal, may they be Italian, French or Spanish, the paper must be written in English. This completely changed our lives. . . Since we are a poor country, before we entered the EU we did not have much money for research. The most important change from those days to nowadays, at least in my experience, is that we do research in order to publish. We are individually evaluated by that, but our research unit is also being evaluated in accordance with that fact. Portuguese, female, academic staff, social sciences oriented university.

Even if the effects that specific policies brought to the scientific and higher education system cannot be directly measured, there is ample evidence of the overall effects and contributions that they had as an integrated set of policies to these systems. Probably the easiest form to perceive the contribution of these policies to a scientific system, in terms of the knowledge production, internationalization and networking of the system can be perceived by the number of international publications. In 2010, 43 % of all the Portuguese international publications was performed in collaboration with a co-author based abroad, when this percentage was only 38 % in 2000, and with a much more reduced number of publications. The total number of publications grew by a factor of 13 times while the number of publications with a co-author based abroad grew by a factor of 15 times.<sup>3</sup> During this period, and based on data from Scopus,<sup>4</sup> the percentage of international publications by researchers based in Portuguese institutions rose from 0.23 % to 0.63 % in relation to the world publications, from 1996 to 2010.

<sup>3</sup> Based on data from GPEARI; see: <http://www.gpeari.mctes.pt/>

<sup>4</sup> See: <http://www.scimagojr.com/countrysearch.php?country=PT>

These figures show a substantial evolution, and a country that is increasingly capable to contribute more to the world's pool of knowledge and a scientific and higher education system that is more networked and internationalized. This was a result of a crescendo of policies that made the system evolve and complexity, demanding for a diversity of policies to face the future stages of systemic and institutional growth. However, it also shows a policy complexity that is aligned with a growing investment in science. Without the support of that investment, the diversity of policies supporting the system, and the capability of the system to further evolve whither and dies. As such, we would finalize this article with a quote from the ex-Chairman of the US Federal Reserve, Ben Bernanke reflecting on the need to support science and diverse scientific policies in times of financial duress:

...economists have identified some persuasive justifications for government policies to promote R&D activities, especially those related to basic research. In practice, we know less than we would like about which policies work best. A reasonable strategy for now may be to continue to use a mix of policies to support R&D while taking pains to encourage diverse and even competing approaches by the scientists and engineers receiving support.<sup>5</sup>

**Acknowledgement** This book chapter is dedicated to Professor José Mariano Gago (1948-2015) for his contribution as academic and policymaker to the development of science, technology and higher education in Portugal during the past 50 years.

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<sup>5</sup> See: <http://www.federalreserve.gov/newsevents/speech/bernanke20110516a.pdf>



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# Chapter 7

## Transformation in the Knowledge Transmission Mission of Russian Universities: Social Versus Economic Instrumentalism

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### 7.1 Introduction

Knowledge, research, innovations and technologies are increasingly being identified as key factors of social and economic development, drivers of innovative development and linked to social modernization. This is the case in Russia like in many other countries (Strategiya innovatsionnogo razvitiya... 2011; European Commission 2010).

Although historically Russian higher education was mainly focused on teaching (Smolentseva 2003), it is expected that in the near future Russian higher educational institutions (HEIs) will transform in order to become important actors with respect to economic and social innovations, and leaders of regional development and playing a more explicitly visible important public role. However, in a scholarly literature there is a lack of research on the nature of the connections between higher education systems and societies and between social transformations and changes in universities (Välilmaa and Hoffman 2008). Those links can be explored in both directions: by questioning the impact of social transformation on higher education, and also vice versa, questioning the way higher education affects societal changes (Välilmaa et al. 2016, Chap. 2).

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The broader social context has an enormous impact on the development of higher education. It can be seen very clearly in the case of Russia, which has experienced a number of radical reforms and transformations in recent decades, during fundamental shifts in the social, political and economic order. However, in the case of Russia, whether education itself is able to generate social change is still an open question.

In order to analyse transformations in the knowledge transmission mission (the teaching or educational mission) of HEIs in Russia, it is important to consider the relationship between the educational mission of higher education and the broader social context, understood in terms of society, the economy, regional communities, the national government or the national policy framework.

In contemporary higher education, fulfilling the knowledge transmission mission has often been framed in terms of national policies which frame national systems of higher education and specified the goals and means of this particular social institution. Policy documents contain specific information about the purposes of higher education and the ways they can be achieved. However, the complexity of a society and the increasing participation of the population in the higher education sector, as well as limitations of political statements, ensure that the purposes of higher education in a society go far beyond the purposes declared in governmental guidelines. This in turn poses the following questions. What are the sources of understanding of the purposes of higher education in a society? Who shapes, generates, conveys, communicates, perceives, interiorizes and implements those purposes? Are the social purposes of higher education determined and can be identified *a priori*, or on the contrary, are they formulated deliberately in the course of education, or only *a posteriori*? How does this work at individual, institutional, regional, national and global levels?

However, the most important issue to consider is the direct question about the purposes of higher education. What knowledge (as well as skills, values, attributes, and so on) do higher education institutions in fact transmit and should transmit? In other words: is there a difference between what policy documents specify *should* happen and what *actually* happens? The applicability of the knowledge and skills gained in postsecondary education has been a long standing issue in higher education in many countries. In the German model, this issue goes to the division between *Bildung* (broad education) and *Ausbildung* (vocational education and training). In the Napoleonic model it is resolved by the priority given to public need. In the US model the issue is addressed in the pragmatic tradition of Dewey with land-grant universities and the ideas of liberal education; in the UK it is resolved by the liberal education tradition. In the Russian model, the idea of the applicability of knowledge, useful knowledge, was fundamental to the very establishment of higher education by the imperial state, in order to accomplish state goals. In this sense, the Russian model was probably closest to the French model.

Russia has never enjoyed anything even a slightly resembling liberal education. It has never had autonomous institutions of higher learning, and thus has had a relatively weak tradition of critical thinking, academic freedom and the value of objective knowledge. As was mentioned in one of the interviews at a regional

university: while European universities were rising in the Middle Ages, “what did we have 800 years ago? What was our country at that time? Battle of Kulikovo [with Golden Horde, 1380]. Did we keep anything from that time?”

In many countries the question of the applicability of knowledge has also been addressed institutionally in the non-university sector of higher education, focused on vocational (e.g. technical) post-secondary education. This form of education has grown in importance over time (Teichler 2008). This was also the case in Russia. But in Russia vocational schools did not start in the 1960s, as they did in Europe. Vocational schools began to develop in the imperial era, in the nineteenth century and became institutionalised in the early Soviet time, as specialised HEIs (poly-technic, pedagogical, agricultural, medical, transportation and others).

Post-Soviet developments, which include not only neoliberal reforms, but also globalisation, technological innovation and excellence programs, have made the nature and purposes of higher education in Russia more complex and multifaceted than before. In the last two decades the number of agents and factors involved in the formation of higher education practices has increased. Currently it is not only the state that shapes higher education, as was mostly the case in the USSR, but also the families of students, which are driving up national participation rates, and the employers, who recently began to manifest greater interest in higher education.

As of 2013, the national higher education system in the Russian Federation is comprised of 578 public and 391 non-state institutions enrolling 4.8 million and 0.9 million students respectively (Federal State Statistics Service 2014). The majority of Russian students pay tuition: 16 % of students are enrolled in non-state institutions and pay tuition, 46.2 % study and pay tuition in public HEIs and 37.8 % of students are exempt from paying tuition. The major trends which have significantly affected the development of higher education and society in Russia have been *massification* of higher education and *demographic decline* of the age cohorts entering HEIs. Both of these trends have had a major impact on the realization of the knowledge transmission mission of HEIs. The absolute number of students and Gross Enrolment Rate (GER) both grew until 2008. Since that time GER has grown but the absolute number of students has been dramatically declining. Due to the low birth rates in the transitional period of the early 1990s, just after the end of the Soviet Union, the size of the relevant youth cohort has declined dramatically (e.g., in 15–19 age cohort at 45 % from 2003 to 2013, calculated by author using data from Rossiiskiy statisticheskii ezhegodnik 2010, 2013). This decline was anticipated, but still came as a serious shock to enrollments in the non-state sector of higher education, characterized by HEIs of lower quality and with less prestige. It also affected public sector enrollments. The government has gradually been cutting the number of subsidized places (e.g. from 3 million in 2005 to about 2.5 million in 2011 (Indikator obrazovaniya 2013), which means a cut of about 17 %), in response to the demographic situation, which has been thought of as over-production of a highly educated manpower. A similar trend, specifically the shrinkage in a previously expanded higher education system, can be observed in other Post-Socialist countries for example in Poland (see Kwiek 2014). This chapter will show that these transformations not only have a quantitative and financial effect on HEIs, but

also a qualitative effect, eventually influencing teaching practices and educational purposes.

Although the financial constraints on Russian HEIs have been obvious, especially during the 1990s and early 2000s, the long-term consequences of those financial constraints, for all dimensions of higher education, still remain far from clear. When university finances collapsed in early 1990s, the government was unable to provide the minimal necessary support for maintaining facilities, faculty salaries at the Soviet level. HEIs had to survive on their own, without state support. The most common way to raise money was to offer “educational services” for a fee, which became possible after the new education law in 1992. As can now be seen, this not only stimulated the massification of higher education (see Smolentseva 2012), and undermined the academic profession, but also shifted the educational missions of HEIs. This chapter will show that the collapse of the national economy, lack of public funding and neoliberal orientation towards “market demand” have distorted traditional notions of higher education and its purposes. The social forces outside higher education eroded some traditional notions of what HEIs are for, the nature of disciplinary differentiation and the differences between comprehensive universities (even in the Soviet interpretation) and HEIs focused on applied sciences, like polytechnics.

Ideally the study of the transformation of the mission of higher education should be approached in dynamic terms, comparing the initial and current positions. Such an approach study is rarely feasible. However, analysis of successive policy documents provides an opportunity to trace changes in the purposes of higher education, at least as they are declared in political discourse. The purposes of higher education can also be analysed by studying the practices of HEIs and the perceptions of faculty and administrators through institutional case studies. Both approaches are used in this chapter to analyse Russian higher education. A third approach is to compare and contrast federal policy discourse with institutional level realities and consider the extent to which they are related with each other. These approaches, together allow the analysis of the continuities and Soviet legacies in contemporary discourse of and practices in higher education in Russia. Finally, the combination of discourse analysis and institutional case studies sheds light on the nature of relationships between higher education and society.

## 7.2 Objectives and Methodology

This chapter analyses the transformation of the educational mission of Russian higher education over last six decades. It focuses on both the federal policy level and the institutional level and illuminates congruence and discrepancies between political documents and institutional practices. The study includes analysis of political discourse of key governmental/state documents and two institutional case studies (entailing interviews with administrators and faculty members).

The objective of the *discourse analysis* is to analyze what has been written in official policy documents regarding the role of higher education and HEIs with respect to the development of society, in general and the economic and political development of the nation, in particular in educational, science and innovation policy. The time period includes the Soviet decades (1956–1991) and the Post-Soviet years up to 2013. In the framework of the larger CINHEKS project, discourse analysis serves a tool to identify the distinctive characteristics of the national context of higher education and of the political context of higher education.

The discourse analysis focused on the search and analysis of categories that define the purposes and tasks of higher education, including the role of higher education in the larger societal context, that of society, the economy, etc. This analysis traces changes in discourse constructions and attempts to identify the higher education-society nexus, as it is constructed in discourse.

The document base for this study involved over 30 titles released between 1956 and 2013: the laws on education (1992, 2012), law on higher education (1996), federal programs of educational development (2000, 2005, 2011), Presidents' decrees (1990, 1991, 2012), governmental concepts and programs concerning the development of Russia (2008), education (2000, 2002, 2012), science and innovations (2000, 2012), informatisation of higher education (1993), information society (2008), and other decrees and programs on higher education of Soviet and Post-Soviet period.

The research approach used here is premised on the notion that discourse is constructed socially. However, society and social relations are not entirely constructed in discourse (Jorgensen and Phillips 2008; Titscher et al. 2009). Discourse analysis is treated here as one of the tools that can be used to study social relationships.

The *case study* involved interviews in two Russian HEIs. The sample involved 47 interviews with top and middle level administrators, faculty members, and researchers in selected departments. The departments were chosen so that to present a variety of fields (sciences, engineering, humanities, social sciences). This research design enables the discussion on the extent to which the real social practices of HEIs correspond to the discourse of political documents.

Careful consideration was given to the purposeful selection of the two HEIs for case study focus. The criteria guiding selection included the level of social, economic, educational, and research development in their respective region; the research intensity of the HEIs; whether the HEIs were globally or regionally oriented; and because they were the most typical formal types of HEIs (classical/comprehensive university, and a polytechnic university). Additionally, our cases are exemplary of mass HEIs and non-leading HEIs, which very rarely become a focus of attention in empirical studies, although these institutions comprise the majority of HEIs. As the mass segment is less protected from market forces (Marginson 1997), those HEIs are experiencing more social and economic pressures. Massification and demographic decline have had the most notable impact on mass HEIs, rather than on elite HEIs which receive the cream of the cream of the student body in any social situation. In Russia, the region was one of the most

important characteristics that affected the selection of the case studies as was the case with the US case, the other big federal system in the CINHEKS study. In Russia the regional institutions feel the full effects of the declining size of the student age cohorts. They lack the well-prepared students who tend to leave for Moscow, St. Petersburg and other major educational centers. Compared to leading HEIs, these HEIs also have less financial opportunities.

Taking into account these considerations, and also after having considered statistical data about the socio-economic situation across all regions, two regions and two HEIs were selected. The first HEI is a leading polytechnic university (LPU) in a major, affluent, educational and research region. The second selected region has a GDP per capita lower than the Russian average and it is a rather typical region in some respects. There was relative development of selected industries in the Soviet time, followed by a rapid decline of those industries in the Post-Soviet era. This region does not have natural raw resources, there is a notable agricultural sector, and there is decreasing population and number of students. This region does not have any leading HEIs (national research universities, or federal universities, which gained additional funding in recent years), nor any highly selective HEIs (those with an average higher education admission score of 70 out of 100 per subject in the national unified test used at graduation from secondary school). In addition, the region is not very close to Moscow, but is located in a developed large federal district which also has several more advanced regions, and competitive HEIs, which might also draw youth out of the selected region. In this region a classical/comprehensive university, regionally oriented university (ROU) was chosen. Classical in the Russian context means a traditional comprehensive university aimed at provision of a broad range of fields of studies, including first of all, sciences, humanities, social sciences (unlike technical universities and other specialized universities). The average test score in ROU was 66 for places subsidized by government (the national average is 67.2), and for tuition paying places 59.7 (national average of 61.9). For contrast, the average test score for tuition free places at selective HEI in the capital city is 76.9, and for tuition paying places 67.1.

The field work for the project was conducted in November-December 2013 by the author and the above mentioned group of graduate students of the National Research University – Higher School of Economics.

### **7.3 The Transformation of Political Discourse Between the Soviet and Post-Soviet Era: From Social to Economic Instrumentalism**

#### ***7.3.1 The Soviet Period***

In the USSR education was considered as a key factor in the building of socialist society. Education had an important function as an instrument of economic and

technological modernization of the country. At the same time education had an extensive ideological and socializing role. It was within the educational system that a new man was being formed. Hence, in the discourse of Soviet documents, the socializing (*vospitatel'naya*) mission of higher education was emphasized:

... communist transformation of the society is intrinsically linked with the formation of a new man in which there is a harmonious combination of spiritual wealth, moral purity, and physical perfection (*Ob ukreplenii*. . . 1958).

The purpose of education was defined as meeting the demands of the Soviet people and needs of socialist society, in relation to education and communist upbringing (*Osnovy zakonodatel'stva*. . . 1973). Education was not only defined in ideological terms (the preparation of active builders of communism), the purpose was seen holistically, as formation of “a harmoniously developed personality.” Only the final listed task was that of providing the national economy with cadre. The same approach can be found in the statements about education from the perspective of individual choice of profession. In that case, the vocation and ability of the person should be considered first. Only after that was it necessary to take account of social needs (*Osnovy*. . . 1973).

At the same time the Soviet era documents emphasized the need for close links between higher education and production, within the national economy of the Soviet Union:

The tasks of communist building require closing the gap between the higher school and life, production, improving the theoretical level of training in accordance with the latest achievements of science and technology (*Ob ukreplenii*. . . 1958).

In late 1950s, the purposes of higher education included training of “highly qualified specialists” with practical and theoretical skills (also inculcated in Marx-Lenin doctrine), including research; research training the production of a teaching cadre, further education [*povyshenie kvalifikatsii*] of professionals, dissemination of scientific and political knowledge for the wider population (*Ibid*). Over time, the lists expanded.

After a decade, socializing tasks were added to the list:

... “Brought up in the spirit of high communist consciousness, Soviet patriotism, friendship among peoples and proletarian internationalism, with the skills of organization of mass political and social [*vospitat'noi*] work”, “instilling in students a sense of duty and commitment to the defense of the socialist homeland”, “physical fitness and exercise activities to improve the health of students” (*Ob utverzhdenii*. . . 1969).

A few years later, policy-makers expected even more from the graduates of Soviet HEIs: to demonstrate modern economic thinking, proactive participation in the acceleration of social, economic, technological development and playing a proactive social role (*Osnovnye*. . . 1973). This trend continued. Along with the responsibility for preparation of the builders of communism, possessing well-developed moral and civil characteristics, higher education institutions were also meant to form:



a responsible, creative attitude towards study and work, discipline, organization, high culture, respect for the socialist property, environmental education, legal education and “the formation of high aesthetic tastes” (Ibid).

One of the continuous themes in this discourse was the importance of not only the practical, but also the theoretical component, of higher education. Despite the emphasis on the utilitarian role of higher education, it was assumed that education must necessarily combine practical and theoretical training. It was expected that practical skills should be a characteristic of university education. Students were required to obtain practical skills in their specialty, and specialists in the humanities (economists, philosophers, lawyers) were expected to graduate with the “experience of socially useful work” (Ob ukreplenii... 1958).

The discourse of the Soviet years constantly emphasized the need to intensify cooperation between higher education and the production sector, not only in order to implement applied research, but also to improve and refine the educational mission of the universities.

Another topic of discourse, recurring over several decades was “a better use of specialists”. In general educational policy documents and some documents that deal specifically with this issue, there were references to insufficient use of the potential of specialists with higher education, who did not work (“there is an urgent need for these professionals’ work”), or cases where there was no need of professionals with the particular qualification, or cases where specialists were working outside their education field of expertise (O srokakh... 1964; O sovershenstvovanii 1978; O merakh po... 1987) – in other words, matching efforts within education to the needs of the economy.

As documents declared, following the important educational mission of higher education, research was seen as an integral to Soviet higher education. Basic and applied research was not only to contribute to the national economy, but also to be fully incorporated within the teaching mission of higher education, thus helping to provide better quality in education. One document noted that despite the high research potential of universities, including their staffing, the universities had failed to fully utilize the opportunity to address socio-economic issues and economic development. The government released a number of decrees which aimed to strengthen research in higher educational institutions (O merakh po... 1956; Obe ukreplenii svyazi... 1958; O povyshenii effektivnosti 1978; O povyshenii roli... 1987).

*The social transformation in the USSR started in the mid-1980s.* Perestroika of the higher education system was identified as one of the most important tasks in the acceleration of the social and economic development of the country, and of modern workforce policy.

Policy documents of the period emphasized the importance of education, in general and higher education, in particular, in the development of socialist society and the transformation of the economy. Higher education cadre, their qualifications and competence were seen to “determine the scope and pace of technological

progress, the intensification of the national economy” (Osnovnye napravlenia... 1987).

The documents of this period stated that higher education should enhance its impact on the accelerated progress of socialist society, economic development, the improvement of social relations and the transformation of all aspects of life. Policy emphasizes the special role of higher schooling in the “development of spiritual [dukhovnoi] culture” and the “activation of the human factor”. This ideal role of the higher education system, which was seen in the discourse as inherent in higher schooling, stressed the need for a radical improvement in the quality of training within HEIs.

Links between higher education, the state, and society as a whole, were seen as obvious. That was why “the restructuring of higher and secondary vocational schools should become a major event on a national scale” (Osnovnye napravlenia... 1987).

The new quality of higher education was expected to combine both the instrumental function of education (“better use of specialists,” strengthening the connection with the “social practice”), and to improve the ideological and humanitarian content of higher education (“high culture”, “civic engagement”, “ideological conviction”, “modern economic thinking”, “commitment to continuous updating of knowledge and enrichment”). Personal qualities remained important, such as responsibility (“responsibly to solve problems of technical, scientific, social and cultural progress”). The socializing mission of the higher education included the formation of civic duty, professional pride, and increasing the responsibility of professionals for their work. Policy continued to recognize the role of higher education as part of the scientific and technological complex of the country. In addition, HEIs were expected to achieve “skyrocketing national economic returns” in research (Osnovnye napravlenia... 1987).

The documents of the perestroika period were the first to formulate an anticipatory role of higher education “in relation to the technical reconstruction of the national economy” (Osnovnye napravlenia... 1987). Earlier, higher education had been expected only to correspond to the needs of the national economy. Now, working towards economic transformation, while rejecting the idea of education that lagged behind the economy, became important.

At the same time the image of the ideal graduate became more complicated. The significance of the combination of theoretical training (“deep fundamental knowledge”), and practical training with a focus on a particular industry, did not change. The documents retained “modern economic thinking.” But now, as a result of higher education, it became stressed that the specialist must not only obtain professional and ideological training, but also master the skills of organizational and socializing/educational work, the use of computer technology, knowledge of a foreign language and demonstrate a high level of culture. Graduates were expected to learn how to analyze complex social phenomena, and higher education was expected to strengthen the humanitarian component – to enable students to learn the theory and history of Russian and world culture. Thus, higher education received a new set of tasks.

As before, the activity of higher education was evaluated in terms of utility with regard to the external environment. Soviet discourse continued to preserve the category of “ties” between higher education and life, practice. This can be understood as connection with production and science. At the same time, the Soviet state tried to build a relationship between all the actors of the Soviet economy and society – universities, enterprises, organizations, institutions, culture, collective and state farms, declaring the responsibility of each, in order to generate interest and co-responsibility of all the parties in the implementation of the socially important task of training, the optimal distribution of the cadre, and the formation of a new type of man (Ibid).

In 1987, for the first time, the term “consumer” was used in relation to the education system. That document considered the production sector as a consumer of education. Education was expected to become more closely integrated with the production sector. It was expected that the interaction of higher education and production would result in the evaluation of the quality of education being made from the standpoint of the consumer.

The explicit changes in education also included a transition to individualized education. These changes gave new prominence to the development of creative abilities based on independent work, and new, active learning methods (seminars, workshops, discussions, and practical modeling of production settings).

A few years later, in 1990, in the decrees of the President of the USSR, higher education documents dropped much of the discourse centered on economic utility and became described as a key element “in the renewal and intellectualization of society”. In the discourse of those years, the very nature of social change was seen to be in flux. This entailed not only changes associated with socio-economic, scientific and technological progress, but also the “moral and spiritual progress of society.” This aspect of social life was seen as largely dependent on culture and the constant creative development of individuals. The success of social progress was seen to depend on the system of education in general and higher education in particular (O gosydarstvennoi. . . 1990; O statute. . . 1990).

In 1991 the purposes of HEIs were reformulated: documents were no longer focused on the training of highly qualified specialists and ideological formation, but on the meeting the needs of the human personality and of society (O vremennykh. . . 1991).

### ***7.3.2 The Post-Soviet Period***

By the early post-Soviet period, the political discourse about the role of education and higher education had changed, but not as fundamentally as some might claim. The Education Law of 1992 asserted the humanistic nature of education and the free development of the person. The ideological discourse of the Soviet period about the preparation of communists, and knowledge of Marxism-Leninism, was removed from the documents. However, the goals of higher schooling did not change

dramatically. The main task remained training. A new task was added – to “meet the needs of the person in deepening and extending education”.

One document issued in 1993 – *Kontsepsiia informatizatsii vysshshogo obrazovaniia RF* (Concept of Higher Education Informatization of the Russian Federation) – provided a fairly detailed analysis of the situation in higher education. In this document, a special section was devoted to links between the transformation of higher education and the revival of the country, which highlighted the inextricable ties between the social institution of higher education, the state and society. This document introduced new important categories.

First, it made a direct comparison with the experiences of “advanced” and “developed” countries. The comparison was primarily concerned with the degree of economic development (“economically advanced countries”), and scientific and technological development. Among specific countries it referred to the United States and indicators of US performance. This document noted that Russia was lagging behind the most developed countries, including the US, in the level of informatization. It was asserted that it was informatization, ICT development and growth in the role of knowledge that largely determined the accelerated development of economy, science and culture.

Second, this key document, in 1993 introduced the discourse about “*knowledge*” and its role as a source of economic growth, as well as the concept of post-industrial society. Despite the fact that the document was devoted to informatization in higher education, this discourse was not yet firmly established in the educational documents. Both the role of knowledge in social development, and the category of postindustrial society, were mentioned infrequently and in different parts of the document.

Third, the document outlined the features of the new society, using new quantitative and qualitative indicators. The new society was seen as a post-industrial society, characterized by “intellectual power with primary development of intangible intellectual and material intensive industries” (*Kontsepsiia*... 1993). In this ideal model, 40–60 % of the adult population would have higher education, and the number of scientists would be 2–5 % of the total population, or 10.5 % of the labour force. It was the “determination” of the people and the government to propel reforms in this direction which would, in turn, determine the country’s place in the future. Postindustrial society required specialists with a new type of thinking that would meet the needs of such a society. Also, in postindustrial society, the role of ICT was seen as becoming more significant.

The essential point in the document was the argument that, despite the collapse of the Soviet Union, the difficult economic situation, and the lack of scientific and technical resources, education, the higher education system must cease to be the object of salvation and assume the active role, becoming an *agent* of positive change in the economy and with regard to social development. In this sense, the main task of higher schooling became the anticipatory training of specialists with higher education; training should be future-orientated, in order to overcome the inertia that characterized the institution of education.

Thus, higher education informatization was now seen as a complex, multidimensional process that was humanistic in nature. It was asserted that education should stress the value of knowledge, its availability, the value of intellectual and creative abilities of the individual, and thus personal development. Higher education was expected to promote the professional mobility of citizens throughout life as a result of continuous opportunities and advanced education. Higher education was to be built on the principles of differentiation by levels, higher education networks, regionalization, depoliticization and individualisation.

A similar discourse materialized in law 1996 “On Higher and Postgraduate Professional Education” (Zakon. . .1996). In the formulation of higher education purposes, there was domination by the categories of general culture and values. The first task of the HEIs was “to meet the needs of the individual in intellectual, cultural and moral development”. The policy also articulated the tasks of “the development of arts and sciences through research and creative activity,” as well as traditionally Soviet ideas about spreading knowledge among the population. Even more surprising was the fact that this document contained no references to the needs of society, the government, the economy, or any other supra-individual agent as a target for the tasks of the HEIs.

In general, the documents of the 1990s more clearly articulated an orientation of higher education towards the development of one’s personality (“shift in priorities from the acquiring of knowledge and information to the development of personality”), and the importance of human and moral values. It was expected that in its content education should become more basic, providing a basis for continuing professional growth, i.e. a transition from “education for life” to “education through life”. The document also mentioned integration into the international educational system as one of the objectives of public policy. The documents of the early 1990s years also introduced for the first time the concepts of the market of educational services, and non-state education.

During the 2000–2010 period there were many documents related to educational policy, along with science and innovation policy, in addition to strategic documents on the development of Russia that mentioned education.

What kind of society was being constructed in the early 2000s? The task of building a post-industrial society, based on knowledge was becoming more clearly articulated. It was a society that was part of a global trend. It was also a developing society, and it needed

modern educated, moral, entrepreneurial people who can make their own responsible decisions in the choice situation, able to predict possible consequences, able to cooperate, mobile, dynamic, constructive, having developed a sense of responsibility for the country (Kontsepsiya. . . 2002).

As in the Soviet period, it was expected that the unskilled and low-skilled labour sector would shrink, and the role of human capital (seen as 70–80 % of national wealth in developed countries) would grow, which, in turn, “causes intense, accelerated development of the education of young people and adults” (Ibid).

As before, the education was expected to meet the needs of the individual, society and the state. Vocational education was expected to change, depending on the needs of the economy, the social sphere, science, technology and labor markets. For the first time in the policy documents the term of *labour market*, which was seen as a driver of changes in higher schooling, appeared. At the same time, there was the category of specialist who was *competitive* in the labour market, with a specialty relevant to the level of world standards and who could navigate related fields, while being ready for continuous professional growth and mobility – all characterized by responsibility.

Despite outward appearances, there was continuity in the discourse with the Soviet era, in relation to the development of the relationship between education, basic and applied science, and the integration of several actors: the Academy of Sciences, the educational community, the state, the entrepreneurial sector. Families, the community and businesses were expected to take an active role in relation to education. It was expected that “public educational demand” should serve as an agent of change in education. Families, the community and businesses were to act as consumers of educational services, which would help to draw additional material resources into higher education. Thus policy promoted the linkage between education and making money.

In one document in 2005, the orientation to the labour market was a leading factor, alongside the creation of conditions to meet the needs of citizens and society for quality education (Federal'naya... 2005). The evaluation of the higher education sector was now to be done on the basis of its responsiveness to labour market needs. Labour markets, and effective interaction with them, were hoped to determine the direction of the restructuring of the educational system. It was expected that this would not only achieve high quality education, but also address the issue of educational inequalities in Russia. ‘Lagging behind’ in higher education was now formulated as lagging behind labour market needs.

There was also a more clearly formulated idea of “optimization” in education, meaning the application of economic discourse to education and social development as a whole. The task of this program was quite ambitious, specifically, to ensure the international competitiveness of the country. This, it was stated, could only be realized through the provision of an optimal balance between costs and quality in education and science.

In this document it was prescribed that the postindustrial society would be transformed into an innovative *knowledge economy* with knowledge-based technologies. The evaluation of the program was planned mainly in economic terms (“socio-economic effects”), such as improving the competitiveness and efficiency of the economy. The purpose of cadre was to better satisfy the needs of the economy. In this discourse, “human capital” and “labour” were to be of higher quality and, as in Soviet times, were to be used more efficiently (the Soviet discourse had also dealt with improvement in their use). Many of the results of the program were now linked to organizational and financial changes in education. Even in the section about the “social attractiveness of education”, the results were seen as instrumental in nature (increased demand for qualified personnel,

optimization of the age structure, saving human resources capacity in pedagogical sphere, etc.) except for one item, the reference to expanding opportunities for the professional self-realization of young people.

In 2008, the government articulated the concept of the long-term socio-economic development of the Russian Federation for the period up to 2020 (*Kontsepsiya dolgosrochnogo. . . 2008*), which became the basic document defining the country's development strategy. The new goal for the country was "an innovative socially oriented type of development", as opposed to dependence on raw material exports, which was to be abandoned. Again, education along with other social institutions was declared as the basis for the formation of the competitive advantage of the Russian economy. The development of education was seen as forwarding "citizens' welfare and security of the country". Education was expected to meet requirements for innovative economic development in the society and among individual citizens.

There was also the newly postulated idea of creating a knowledge economy, in which intellectual and creative abilities would be crucial for economic development and for the competitiveness of the country. The new economy was also referred to in terms of the "knowledge economy and new technologies", and the "leadership and innovation economy". One of its components, along with research and development, telecommunications, high technology industries of chemistry and engineering, high-tech medical care, was vocational education. The middle class, seen as half of the population, would be mainly engaged in the new knowledge economy. The document again mentioned that Russia needed to catch up to the developed countries.

In this document the discourse of the new man and personality type was rather limited. The document mentioned some characteristics of human capital, which related mainly to professional qualities, rather than personal ones. In particular, it referred to "a socially responsible person."

Another strategic document, the Strategy for Information Society Development in the Russian Federation, was issued at the same time (*Strategiya razvitiya. . . 2008*). The definition of the information society was not given, but the categories used to describe this type of society showed that the new society was associated with the use of information technologies. The key feature of the information society was the use of ICT by certain groups: citizens, businesses and public authorities. In an information society, technologies, including information telecommunication technologies, were seen to be a locomotive of socio-economic development. This type of a society is seen as related to the knowledge economy: national economies are being integrated into an economy of knowledge. It was argued that an increase of economic added value is considered as largely a result of intellectual activity, advancement of technological level of productions and dissemination of modern information and telecommunication technologies.

The discourse of recent documents in the 2010–2013 period can be characterized as a continuation of this direction, along similar lines. In general, in 2010 there are more frequent and wider references to foreign countries: the list includes OECD countries, the European Union, European countries, China, India, Brazil and Japan.

In some documents, the enhanced normative discourse in relation to the reference countries – “all developed countries” – refers to characteristics such as the system of life-long education.

The purpose of education is generally formulated as realization by the citizens of their potential (social, cultural, economic) to ensure the socio-economic development of the country.

As in the documents of the Soviet period, the new Education Law of 2012 sets the first task of higher education as the preparation of highly qualified specialists “in all major areas of public benefit activities in accordance with the needs of society and the state”. Only after that, the document mentions “meeting the needs of the individual in intellectual, cultural and moral development, deepening and extension of education, scientific and pedagogical qualifications” (Federal’nyi. . . 2012).

Thus, today, education, as in earlier periods, is seen as an instrument in relation to social development. The task of the education system in these conditions looks quite simple – to provide access to quality educational services. Quality education must meet the changing needs of the population, and tasks of social and economic development. Also, education, in the structure and content of specialties, should meet the demands of the labour market.

## 7.4 The Transformation of Purposes

How are higher education and society connected? All the documents prescribe education as having a crucial role in a broader social context, whether it is that of society or the economy. It is possible to consider the relationship of education and society through those *goals*, which society sets for itself, or rather the society, as viewed and acted upon by the state. The documents shape a particular set of social ideals, goals, and objectives of social and national development.

This discourse analysis illuminates a basic dichotomy between vocational training (which is seen as a determining factor in the development of the economy, the knowledge economy or national economy) and personal development/education (which is the basic condition of social, public and spiritual development). These two poles can be conceptualised as economic instrumentalism and social instrumentalism. In both cases higher education is considered as an instrument, a tool for achieving other broader social and economic goals.

Soviet discourse can be characterized as having both economic and social instrumentalism. However, the predominance of social instrumentalism is stressed, because in the Soviet society; which had a specific normative framework for further development, a social ideal, in the form of an education served as a tool to create a new man, who was characterized not so much in terms of professional knowledge and skills (though it was expected that the gap between intellectual and physical labour would be closed), but mainly in terms of other key personal qualities, both spiritual and moral. Perhaps, the formation and socialization mission of higher education prevailed over the educational and research missions.



Social instrumentalism persisted into the early 1990s. Moreover, higher education gained a kind of self-value when it was articulated in terms of individual needs of personal and professional growth. The values transmitted through education were seen as a key instrument of influence on social development. Policy talked about changes in society its spiritual culture, the moral progress of society and the “intellectualization of society.” It was through this relationship that the educational system was expected to affect wider social transformation. However, in the documents of the 2000s education became mainly a tool for economic development.

But gradually this discourse is disappearing from policy documents. The new society of the late 2000s-early 2010s, was characterized in terms of an innovative, socially oriented society; not strictly even a form of society, rather “a type of development” based on the knowledge economy. The documents do not develop further the values of education and the future of society. Instead, the new “type of development” is based on the policies and declarations borrowed from the “advanced”, “developed” countries. Education is seen in economic terms (and in some policy documents there is no section “education”, but only a section on the economics of education) and is evaluated by the criteria of its contribution to economic growth and the extent of its responsiveness to the labour market (in relation to which education has been perceived as continuously in the position of catching up, lagging behind, and being forced to adapt, by external means). Some discourse on formation and personal development has been preserved in the documents of general and pre-school education, but this theme has largely disappeared from contemporary higher education documents.

It is also possible to try to link higher education with a wider society via the *drivers of changes* expected or hoped for in education. Those drivers are usually are exogenous, external to higher education and derive from what are seen as “objective” forces and trends outside higher education. Among them are “level of contemporary requirements” (1956), “scientific and technical progress” (1956) and “its acceleration” (1978), “socio-economic progress” (1973), “acceleration of socio-economic development of the country” (1987), “modern cadre policy” (1987), “need of national economy and culture [in cadre]” (1963), “labor market” (2000s), world trends of economic and social development and a threat of lagging behind them (2000s), “depletion of raw-export model of economy” (2000s), social and economic inequality within the country (2000s), status of a great power, global competitiveness (2000s).

As it was shown, the drivers of change have remained the same and mostly relate to the socio-economic development of the country, which includes a level of development of technologies as well as the categories of human resources (the cadre during the Soviet era and the labor market in the Post-Soviet period).

It is worth noting that the Soviet documents did not appeal to international experience or achievements. For instance, scientific and technical progress and “contemporary requirements” were represented in policy discourse as universal in nature. The USSR regarded itself as a great power, a Socialist country, which had both a higher level of social development and moral authority in comparison with capitalist states. Hence, in Soviet society, economy and education could not, by

definition, lag behind other countries, but on the contrary, policy sought to explicitly underline claims regarding Soviet advantages over capitalism.

Policy documents started to use an international comparison framework in the early 1990s. The discourse referred to the experience of “advanced”, “developed” countries in relation to their economic and technological development, including their level of informatisation. At first the list of comparator countries was limited to the USA only, but gradually it began to expand. Russian policy documents expressed the dangers of being behind other countries.

Thus, the purposes of education began to be shaped with regard to agents and trends from outside educational system, in the social, economic, technological spheres of the nation, and increasingly references were made on an external global basis.

The understanding of the link between higher education and society can also be seen through the way higher education and its activity is *evaluated*. This also underlines the consistently instrumental role of education. During both the Soviet and Post-Soviet eras, policy documents specify that the activity and performance of higher education should be evaluated in terms of the ‘fit’ between the outcomes of higher education to the external environment. Thus, it is clear why the discourse about the connections between higher education to life, practice, the production sector, and research retains continuity, across the scope of analysis. The Soviet state tried to establish the interdependence of all actors in Soviet society and economy: higher education, industry, organisations, cultural establishments, agricultural establishments, articulating the specific responsibilities of each of them, in order to build the commitment of all parties with regard to realizing the socially important tasks of training, the distribution of the cadre among key sectors of production, and forming a new type of a man.

It is important to summarize some of the discourse *continuities* across the Soviet and Post-Soviet periods, in the factors seen to link higher education with society. Among these continuities are the need to match higher education and future needs of the labor market, the employability of graduates (it was called “better use of specialists” in the Soviet time) which refers to inadequate “use” of the potential of specialists with higher education qualifications; the importance of not only the practical, but also the theoretical component of higher education; the need to intensify cooperation between higher education and the production sector, which also helped to improve the educational mission of universities and the intensification of basic and applied research at higher educational institutions. For example it was argued that research at HEIs should include both theoretical developments and practical applications. HEIs should help address “the most pressing problems for the national economy” (1969), and actively participate “in the implementation of the results of work” (1969, 1973). This required HEIs to strengthen ties with production, and with research institutions, and in some cases to merge with them. The success of the scientific activity of the higher education was associated with “the creative initiative of researchers”, special staffing policy of the party organs and administration, and creating the conditions for creativity.

The research-teaching divide among HEIs has been developed already during Soviet era and was acknowledged in documents. Over decades, the policy emphasized a need to improve research at all HEIs, some documents specified a number of leading HEIs with higher research activity. By the end of the USSR, the documents identified two groups of institutions: “genuine educational and research centers” where knowledge transmission is based on the “organic” interaction of research and teaching and the others characterized as those not providing a quality of theoretical and practical training of graduates. And the latter were numerous (Osnovnye napravleniia. . . 1987). All that laid the foundation for further institutional differentiation among Post-Soviet HEIs in relation to research.

It should be noted that even documents from the Soviet period designated a broader public role of higher education – the dissemination of knowledge – which is today defined as the third mission of universities. It was declared that one important task of higher education was the distribution and promotion of knowledge among the wider population, going beyond universities and addressed to the general public. In particular, documents in 1969 noted that universities should promote advances in science, technology and culture. This work – propaganda about scientific and political knowledge, and participation in public events organized by the university, for the population, was meant to involve not only the faculty of universities, but students.

To conclude, the results of this discourse analysis highlight that policy documents in recent years have increasingly been constructed around the increasing role of human capital/workforce in economic development, and the appeal to global challenges as a driver of change. Human capital is considered in relation to corresponding more closely with the demands of an innovation-driven economy and labour market needs. Today, in Russian political documents, discourse on the knowledge society is virtually absent. The dominant discourse is that of the knowledge economy, which is commonly thought about as a combination of “the knowledge economy and high technologies.” Thus, the policy documents of recent years constitute a mainly economic, instrumental role of education and knowledge, positioning them in the context of their necessity in achieving key economic indicators. In recent years the purposes of social development and the role of education in the development of society have moved outside the political discourse. This approach significantly limits the role, tasks and functions of the social institution of higher education.

In the Soviet era, higher education, in contrast, was seen as integral to a larger national purpose. Because of that its role was associated with more social objectives and tasks than in present discourse, even though economic utility was pronounced during that era. In the late Post-Soviet period, the larger purpose of society has not featured largely in policy documents (as ideas of the knowledge society and even knowledge economy were not clearly explained in the policy documents). “The innovative type of development” in current discourse is taken as self-evident or as an unquestioned assumption. This illuminates a lack of understanding of any broader social purposes of development. Thus, the current economic instrumentalism; the economic discourse and the optimization framework in the documents,

does not provide explicit content for the purposes of higher education. Rather, only the costs and benefits linked to the organization of the higher education is brought into view. Because this is the case, the purposes of higher education have to be formed in practice (if formed at all) not by the government, but the other agents in the field, specifically within HEIs themselves, families, and employers. In the following section, two case studies are analyzed, with the purpose of thinking about higher education in contemporary Russia, from the perspectives of HEIs.

## **7.5 The Purposes of Higher Education in the Social Practices and Discourses of Higher Education Administrators and Faculty**

This section focuses on the purposes of higher education, as they are seen at the institutional level, in the day to day practices within higher educational institutions, from the perspective of their administrators and faculty. It was anticipated that the original CINHEKS interview protocol language (using the terms of knowledge transmission, production, etc. See Chap. 6) would be difficult to use, and therefore it was interpreted to convey the meaning but using terminology familiar to the personnel working in Russian HEIs. The interview protocol did not contain any direct questions about the purposes of higher education (i.e. the teaching mission), but this topic was incorporated during the beginning of the field work. The interview participants were asked to discuss the teaching mission of higher education/HEIs and the differences between comprehensive and technical universities in the sections of the protocol related to the goals and agenda of the HEIs, their networks with external actors, the social background and routes of their students.

This section will summarize the arguments and evidence in relation to economic and social instrumentalism, as they are seen and reflected within the higher education community at two institutions in Russia.

First, it is necessary to provide some brief description of the two institutions involved in this study. One is a leading polytechnic university (LPU) with the status of a national research university. It has 16,000 students and 2000 full-time faculty. It has a long-standing history dating back to the imperial era, and is proud of its traditions and the sense of a community shared by its graduates. The major drivers of changes in that institution are the applied character of engineering knowledge, the close ties with particular industries and research fields, the military/closed areas of study and research, expensive research and development in engineering, and the recent revival of some industries they are working with, which means the activation of research and education in some fields. This HEI does not face the problem of demographic decline. Due to its status and reputation it has to compete only for better students, not for students in general. However, the quality of the student body, in terms of academic performance and cultural literacy, was an issue raised almost in all interviews.

The other institution (ROU) is a comprehensive university by formal status. It is rather new, in the Russian context. It was established just before the collapse of the USSR, so it had to develop under the hardship conditions of the socio-economic situation of the 1990s and early 2000s. It is the biggest HEI in its region with 12,000 students and 700 full-time faculty. In its strategy, the HEI articulate its major goals in terms of regional development. Among the drivers of changes are, first of all, the active position of its top administration which builds new networks, the identification of specific priorities in development, especially the support of applied research; and the changing situation in the regional economy with respect to the rise and fall of industries in the region. The process of demographic decline within the massification of higher education has had most dramatic effects on this institution. Like HEIs in many other regions, it has experienced a drain of its best students to more advanced regions and the influx of academically, socially and culturally unprepared students. This has forced the personnel in the HEI to modify both the teaching and social functions of higher education.

In both HEIs there is a shared understanding that HEIs are not working independently, but they are a part of a larger societal system. The term “social order” [*social'nyi zakaz*], which higher education is perceived to carry out, was mentioned several times.

A [HEI] has requirements which come from above: authorities. And whatever we say, educational system is not independent. We fulfil the social order. Whatever is required, from above, we forge ahead, under this. . . The state never supported education. It supported only the directions which are in need. (faculty member, ROU).

The links which connect higher education and society are seen as students, who come with different social backgrounds and diverse academic levels; employers, which are partners in fulfilling the teaching mission and securing the employment of graduates; partners in basic and applied research, which can be business, governmental organizations, other HEIs and research institutes; the federal government which creates the policy framework for all actors, including higher education and its partners; and regional government, which can be a partner in knowledge transmission and production.

The *main goal* of all HEIs in almost the majority of interviews was defined as “training/educating specialists” (the “cadre”). This objective was considered as the most important both at the regional comprehensive university and the leading polytechnic.

For ROU, this task is usually contextualized within the regional context. Thus it means training specialists for regional business and organisations:

Anyway, either the structure of educational and research activity should be aimed at the region (top administrator, ROU).

The leading polytechnic university (LPU) traditionally is more ambitious in setting their goals: they should be seen in the context not only of the regional dimension (even the capital region), but industry, as a whole:

If we talk about training of the cadre, it is for the labour market, in which we are located, which is labour market of [major city]. And more broadly, we are in the labour market for

industries which are related to engineering, high technologies, the rocket industry, basic industry, mechanical engineering and IT. (top administrator, LPU).

The essence of the polytechnic education was generally seen as more applied, in contrast to the mission of the comprehensive university, which was related to the nature of the engineering aimed at the developing new technologies to be implemented in practice.

There are a few key factors which enable us to understand the dominance of the economic instrumentalism discourse. First, there are economic reasons themselves. Educational activity usually comprises the largest part of an average university budget. This is not true for the LPU, which raises a lot of money via research, but this is an exception from the general rule in Russia. For ROU the income from educational activity comprises 70 % of all income, although the share of research and other activity, like medical services, has increased over the last few years. The income from educational activity includes public money to provide tuition free education, tuition fees and money from organizations (via contracts for the provision of education to particular students). Secondly, the formal governmental indicators of performance of HEIs include the graduate employment outcomes. Achieving these indicators is vital for all HEIs, in monetary terms.

However, the most important characteristic is probably the “ontological” inevitability of the main mission of higher education. Whenever in interviews broached the topic of the goals, functions, and mission of HEIs, the first answer was about training specialists. It is for this HEIs exist. It is for this the state gives money. It is not only transmission of knowledge, it is disciplinary knowledge, professional skills which should be applied by a trained cadre in the workplace. Partly this can be explained by the historical legacy, since the utilitarian approach to higher education has prevailed throughout the history of Russian higher education.

Functional, main task – it is training the cadre. . . The task of preparing students has been permanent [over time]. (top administrator, ROU).

Even if there are other ideas about the goals of higher education, these are dominated by the idea of training specialists:

In fact, higher education is, on the one hand, a part of economy, isn't it? On the other hand, it is clear that any major HEI is a socio-cultural phenomenon. . . Thus, the tasks are training good specialists. . . Tasks are traditional. . . It is the training of a highly qualified cadre for industries in the economy which corresponds to the profile of our HEI, increasing the educational level of members of society. (top administrator, LPU).

Further, the connection is quite clear: if the major task of HEIs is to train specialists, then defining special role in the educational mission of HEIs belongs to employers. The demand or level of a need of employers has become one of the key factors in the development of educational programs. This was documented in the governmental higher education standards of third generation (FGOS-2010), which obliged HEIs to involve employers. The case studies provide further evidence of the way in which this manifests in HEIs. This demand can be realized directly, in the employment of graduates, which implies the development of a

system of networks with business and organisations aimed at shaping the educational trajectories of students, curricula, student internships, and used in refining the targeted enrollments system [tselevoi nabor] designed to provide opportunities for employers to fund the education of certain students who will, become their future employees. The same type of demand can be identified in the competition for fields of study during the admission process.

A student should have two parents, if you want to have a young specialist which you will fine tune after graduation during three years as it was in the USSR, university and employer. (top administrator, ROU).

As a member of an admission committee I can say that most frequent question of a mother for an admission committee is “Where will my son work after graduation?”. . . At least, parents are most interested in knowing this information. (faculty member, LPU).

The employer has become so powerful that if the HEI is not directly addressing an employer, the meaning of the existence of the HEI seems to be lost:

Without orientation towards an employer, it seems to me, means to train for nowhere. We trace the trends which not only started, but also those which are only outlined. (dean, LPU).

We try to approach it from the labour market. Since we don't want to teach students what cannot be used. It is a waste of our time and energy. (faculty member, LPU).

The employer or labour market factor has become the subject of evaluation of the HEI's performance:

The employer is an independent expert who says if we teach right or wrong. . . The potential students are voting with their feet. And what do they look at? Above all, at the labour market. (top administrator, LPU).

We have general understanding that most important thing is employment, employment and employment. The main indicator is that we follow-up and see how [the graduates] are employed, and that is the indicator of how we teach them. (dean, LPU).

Thus, the economic justification of the existence of HEIs can be found in perceptions of administrators and faculty, and in the motivations of families. The objective of HEIs is to provide a clear set of knowledge and skills, in order that graduates can find a place in the world of work. And the success of this mission is judged by labour market criteria, like employer and salary level.

Analysis of the interview data allows us to identify *aspects or characteristics inherent in the system of training of specialists*.

One of the most important conditions for the preparation of “good specialists” is the *link between education and research*, which is implemented through the participation of students in research work (this was noted in both universities), and through improving the quality of faculty members in the course of ongoing research (strengthening requirements to participate in research were also mentioned in both universities).

It should be noted the importance of links between *education and practice*, i.e. obtaining practical experience as part of the educational process and beyond, without which a good specialist is impossible to produce, according to respondents. Thus, the connection with practice is again a bond with the labour market and employers. Practical experience within the educational process is in the forms of

internships, labs, etc., organized at the university or at the employer's place. According to respondents, such activities are mutually beneficial. They allow students to actually "feel" the specialty, to learn more about it, to try it themselves, to explore the possible place of work. For employers it helps with recruiting future employees, and affects the learning process to their advantage. Work experience beyond formal education is also very important. A significant proportion of students work during study (most often talked about this in a leading university) as it is perceived this will help them to find job later.

An important element of the discourse is the question of *matching the field of study and the graduate's job*. This criterion is widely popular in public debate, and could be formally involved in performance indicators of HEIs. That is why this question was often raised in the interviews. Generally, match between field of study and job is considered to be preferable over mismatch. However, according to administrators and faculty members, even jobs that are not related to the field of study are justifiable, if the level of salaries in the target industry are deemed insufficient for "normal life" and/or significantly lag behind working in other sectors. This is often the case in many technical industries, especially national security and basic industry areas, as well as at many regions of the country. This issue was very familiar in both HEIs.

There is a good demand from employers in some fields of study... But our graduates are sometimes reluctant to accept those positions, as they don't always offer a good salary. In this case graduates choose jobs outside their field, but which offer a higher income. (middle level administrator, ROU).

At the same time, as was mentioned at LPU, there are recent developments in some industries that allow more graduates to get jobs in their fields of study. Financially those offers are often quite attractive:

The share of people who work in the field of study, taken broadly, is over 80 per cent. . . Now students have a feeling that it is better to work in their field, and this feeling is financial. They know that in this field they are higher than an average colleague. So it does not make sense to move to another industry where they are novices like everyone else, and that means losing their energy and skills. (faculty member, LPU).

To some with an extreme point of view, the economic discourse is so pervasive, that employment in the field of study can also serve as an evaluation criteria of effectiveness and relevance of HEI's:

How many philosophers are needed in our region, what do you think? Well 5 people can work at a university and that is enough. But we keep preparing them. Where do we prepare them? What for? How many such people should be trained? How many does the market need? If we train them and they do not have a job in their field, that means that customer's value of the educational service is decreasing. (top administrator, ROU).

At the same time, there is an understanding that if one's employment has nothing to do with one's field of study, this is less desirable, but does not necessarily mean that HEIs did not fulfill their mission of training specialists: "What if s/he does not work in their field of study? Say, he did not get a job in my microtechnology, is his or her education meaningless?" (top administrator, LPU).



Generally speaking, if the links between education and world of work fail in terms of matching the field of study and job, how can higher education fulfill its core mission of training specialists? Some believe that under such conditions the *socialization* mission becomes more important:

If we look at the goals of the system of higher education, it is getting a specialty. If we look in reality at educational system, then the goal is getting closer to socialization. In my class I tell students the only thing, I like it very much: education is all that which is left in a head after everything memorized is forgotten. (faculty member, ROU).

Thus, here it comes the most complex aspect of education – *what is the content of the knowledge, perceptions, skills to be transmitted to students?* Are they restricted to those that can only be defined in terms of disciplines and specialisations? What is the role of social mission of higher education?

In the interviews, all kind of knowledge and skills were mentioned. The most revealing ones mentioned were students who did not have a job in their field of study. The direct educational mission of training specialists is seen not to have been realized in this case. Specifically when educated specialists were not using their specialized knowledge and skills, or only were partially using them. For example a student trained as an engineer, working as a sales manager in an unrelated occupational sector.

The possible content of education was seen in terms of three types of elements.

1. Knowledge and skills in a narrow disciplinary area.

No, to develop himself is an individual task. Don't substitute the terms. HEI is a place which gives a specialty or a direction of training. It gives a set of competences, skills which enable to a specialist, graduate to come into an organization of that profile and to adapt fairly fast to a collective (a psychological factor), get involved and start working in this area. (faculty member, LPU).

However, even here, the description is not free of non-vocational characteristics, such as psychological factors.

2. Knowledge and skills in a broader field or area of studies.

In fact, each department prepares a graduate in a general profile. Because, or example, hydraulics, although it superficially seems narrowly focused, in fact, is very wide and has tens, even hundreds of sub-areas in which people can develop themselves further and make their living. The department is firstly trying to orientate the student to the basic things, after which they can choose for themselves what is interesting . . . because no one knows what can be useful in life. Of course, now department believe that a graduate should know the things that are now in demand. (faculty member, LPU).

We don't tie the graduate down, to the map of local corporations and organisations, we do not train them specifically for a particular workplace. It is not like in our local polytechnic where each department used to work on a particular local factory. That was the Soviet organization. . . . I also say to potential students: when you come to HEI, do not focus on being taught to be a

sociologist. You are obtaining a sociological direction of training. You can work anywhere after that. (faculty member, ROU).

3. General, cultural, psychological and other knowledge and skills, which can be probably tagged as socialization.

We tried to concentrate on the so-called general cultural competences . . . And now I tell my colleagues: [Our graduate] whatever specialty s/he obtains, no matter what the direction of training studied, should be able to search for information, be able to understand and transform it into knowledge so that it can help find ways to solve the problem. . . And we structured these cognitive and creative competences separately. Moreover, our graduate, and it was always the case, should be a socially active person who clearly knows their goal and is self-directed. (top administrator, LPU).

The socialization characteristics of higher education can be very general and include the skills that are named as generic (such “ability to work”, “ability to adapt”, “ability to learn”). Respondents put these skills into a context of changing disciplines, changing knowledge, and changing working conditions. These trends determined the priority or at least the importance of those generic characteristics.

[The main goals of higher education] are professional training and some general cultural education. It is clear that some knowledge is relevant today and tomorrow it is outdated. So I believe that HEI teaches a person to learn through his life. All the time a person has to learn something here and there. At least not those who just sit, but those who try to develop. And HEI can teach a person how to learn, understand different kind of activity. (faculty member, physics, ROU).

To which area – economic or social discourse – can the discourse about “teaching how to learn” be framed? On the one hand, it is related to the general social and psychological skills, abilities, motivations; but on the other hand, it should be based on some content, mastering some discipline, field and practical work.

The socialization mission also involved some cultural features which also can help both in life and in one’s profession: becoming a literary person, reading books, reading “thick books” (was named as a special skill, currently not provided in schools). Higher education also gives social knowledge about social construction of the world: social norms and patterns of behavior (HEI as “an atmosphere, as a pattern or model of interactions, relationships”):

In my view, universities are needed, even non-state ones. . . In order that students obtain some notion about life, form a paradigm of their behavior, of further existence in a society, understand what is family, career, etc. In order to move from childhood to adulthood, not become bandits. It is not necessary one would become an engineer. . . Just for people’s socialization, transition to adult life. Even if he buys a diploma, it is for work, not in order to steal, drink and use drugs. One should get a job – [one should get higher education] just because of this. (top administrator, ROU).

The respondents also tended to acknowledge a purely socialization-based mission: higher education as a social amortisator, which helps to keep youth from deviant behavior. This task became especially important in the Post-Soviet period,

when institutional structures in charge of youth education and upbringing had fallen apart, the value of education in early 1990s dropped, and there was a high risk of social conflicts. This function seems to be important still, as no society, nor any social institutions, no labour market seem prepared and ready to deal with 18–20 year old young people.

## **7.6 Political Discourse and University Practices: Concluding Reflections**

This section compares the purposes of higher education as they are represented in the political discourse of the documents, with how they are reflected in institutional practices.

It should be mentioned that LPU formulates its mission on the basis of the Law on Higher Education of 1996, which, as it was shown earlier in this chapter, belongs to the epoch of the blossoming of social and humanistic rationales in policy documents. LPU relies primarily on this document, but adds, as a second task, “meeting the needs of society and the state by providing highly qualified specialists”. This can be viewed as an economic instrumentalist task, rooted in the Soviet era.

ROU’s mission and vision underlines the priority of “meeting the needs of society, the state, students and their parents, industries and organisations. . . with quality education, the quality training of specialists, which determines not only the perspectives of the main industries that form the economic and social infrastructure of the region”. In addition they stress culture and innovation.

So, despite broadly formulated missions, which often are just formal documents, there are clear links to the Soviet discourse of training specialists, which was confirmed overwhelmingly in the interviews.

Hence, the mission of higher education as training the cadre for the national economy prevails in both governmental documents and within the case HEI communities. There is also continuity with the issues raised in Soviet era documents about strengthening research and networks with respect to industry, production, business, and governmental organisations.

Current government economic discourse is easily recognized in the interviews, via continuous and explicit references to the labor market and employers who are viewed as the ultimate customers and evaluators of HEIs. This can also be traced in institutional policies aimed at optimization of cost and benefits exclusively in economic terms. Current documents portray higher education an instrument in relation to the socio-economic development of the country, at the national level; while HEIs, as interviews suggest, at the institutional level, work mostly with individual students and frame their purposes largely in an individual person’s terms: what a graduate should learn, what a graduate should be able to do, what kind of job a graduate should get, etc. The HEIs do not seem to ‘see’ the abstract

needs of society, the state and individuals, but mainly focus on individuals. And it is the approach from the individual student's perspective that probably enables HEIs to formulate the social mission of higher education, which goes beyond professional qualifications to be used at the labor market. This mission is largely absent from the governmental document of the recent years, though Soviet documents provided quite detailed description of qualifications. More detailed requirements, in relation to the competences acquired in higher education, are provided in more detail, in federal state educational standards of the third generation [FGOS 2010]. These refer to both general culture competencies and professional competences. However, those documents are aimed at mostly narrow expert usage, rather than for public understanding, as provided in key strategic documents.

The mission of higher education can also differ by institutional type, which will be addressed here, as there are cases from both comprehensive and polytechnic universities.

### ***7.6.1 Shifting Traditional Institutional Missions***

Some interviewees while asked to reflect *on the differences between comprehensive universities and polytechnic universities*, usually emphasized the applied character of education in a polytechnic, which they saw as more linked to engineering practice and thus to employers or the labour market. Thus, the mission of a polytechnic university is mostly tied to applied and utilitarian purposes. However, the realities of the labour market, of social demand for higher education, do not allow HEIs to focus on this mission exclusively. The old networks and industries that were centrally planned in the Soviet time have now collapsed, and the rise of industries which demand new qualified cadres is still minimal. This is even more characteristic for regional universities, where traditional industries has been declining; but it is also true for the leading polytechnic, which used to work for nationally important engineering industries which have experienced a decline over the last 20 years. Thus, the broader mission, although not explicitly articulated in all interviews, goes beyond training specialists for particular industries:

Our goal as it was well formulated by the rector is to train successful people. Successful in this life, in our country, now, not thinking about "please wait for another 5–7 years until we get our industries working well, and you will come there; and meanwhile wait for it somewhere". Our graduate should start working now and if possible have an interesting job, and we constantly stress this. And this job should provide support for them and their family, so they can be successful citizens of this country. They should understand that they got a solid education here, on which they can build their life. (top administrator, LPU).

At the same time a comprehensive university, especially a regional one, might have a more complicated mission. On the one hand, such an HEI should train specialists which are in demand in the labour market or at least employable on the labour market. That can be achieved on the basis of the basic character of higher education in a comprehensive university, which provides some knowledge and

skills in basic disciplines. On the other hand, such an HEI can fulfil a socializing mission, meeting the social demand for higher education without an explicitly tight link with a particular field of study.

What are the advantages of classical education? . . . What Moscow State University has always preached, we have been preaching. We give education. And where you apply it – it is your business. (top administrator, ROU).

What is the difference between a comprehensive university and technical university? Technical ones train for a specific work in a specific industry. The classical university, especially if we consider classical fields such as physics or basic math, does not have anything close to purposeful training. But people graduating from these fields can adapt more easily in industries where they work and adapt better in the future, compared with people who received purely technical education, undoubtedly. (faculty member, ROU).

However, in reality, this comprehensive university exercised a strategy oriented towards the development of applied engineering sciences, and was cutting down some of their classical fields, especially the humanities. This strategy was driven by economic rationales – to expand income opportunities by addressing local industries. Thus currently, a classical university trains in such fields as aviation engineering, tractor engineering, and automobile engineering and no longer has students in philosophy, and very few in history (enrolled on a rotating basis every 2–3 years). Such specialization is more appropriate for a polytechnic university and has never been the profile of a comprehensive university, at least in Russia.

The development of new fields has faced some counter-reaction from traditional fields:

When I launched our first engineering field, it was the physicists who mostly resisted: ‘Are we a polytechnic?’ ‘Why should we have it?’ But now they understand that if we did not have those fields, the physical-technical department won’t survive. As no one needs those pure fields of a classical university. (top administrator, ROU).

Now it seems there is a consensus about disciplinary diversity in this university:

I would not say our university is classical. . . It is not classical already. Maybe it is better. Because life dictates its own requirements. And we should respond to that. And if we will be retrogrades and keep saying ‘no, we are classical’. And what? And tomorrow we will die. We will get into the [governmental] list of ineffective [HEIs] and that is all. . . . Currently classical universities are so polymorphous, they have an opportunity to develop in economic terms, not only ‘their’ fields. Now it is normal. Universities are changing very actively, every year. (top administrator, ROU).

The trend towards the engineerisation of an HEI’s mission comes simultaneously with the decline of the humanities in the comprehensive universities. The fields not able to bring income do not get budgeted, and thus departments can enroll students only on tuition fee places and not every year. Indeed, the demand for philosophy and history in a region is not high enough to generate many students willing to pay for such an education. Thus, the units in these disciplines are being closed down or merged with other units. In those departments, this is seen as a result of current governmental policy:

If the state requires certain priority fields – physics, math, aviation engineering, etc. – that means it is necessary for a university to have these in order to live on. At all times the state formulates social order, and a university fulfills it. Hence, nothing impedes a university from developing, but the state gives it order. Here is it not too bad, in my view, I mean they do not help, but at least do not destroy. My colleagues [in other regions] say that the priority is not only given to polytechnic fields, but is given at the expense of destroying of humanities. They kept only units working for all university general teaching, but no others. (middle level administrator, ROU).

### 7.6.2 *The Eroding Teaching Mission*

Another important characteristic of the changing mission of higher education, which was mentioned in most interviews, is related to the declining quality of incoming students, in terms of their academic, general social and cultural levels. This decline erodes the traditional mode of realization of the teaching mission of HEIs. Due to the social transformation of the students, faculty members and administrators are unable to use the programs and approaches they used to use, and try instead to adjust their practices to the changing situation.

The students became worse. They come with such [poor] preparation from school. That means everything [education] became bad in schools... What can a university do with them? A student comes and I should help him to solve a task. The majority are unable to do anything at seminars. Eventually all through the seminar I do their home assignment, as almost none of them did it at home. And then one of the students goes to a board and I ask him to write down a sinus of an angle at least, and he does not know that. And I have to explain at every class how to write down a sinus, then I explain what is similar triangles, etc. I waste time which I should use for explaining more advanced things [course on quantum physics for physics and technology department students], but I explain elementary things which everyone should have learnt at school. (researcher, ROU).

The factors which contributed to this problem are manifold. It is the massification of higher education with demographic decline, along with the wide governmental supply of tuition free places at HEIs. All the respondents referred to the decline of the education at school level, which is partly related to the generally bad situation at schools, and partly related to the introduction of the national unified test. At ROU interviewees also referred to the increase of students from rural areas, where traditionally schools are of lower quality than in urban areas. It would be incorrect, though, to consider schools as the only source of this problem. It is also a result of some broader societal changes which have affected education, such as socio-economic deprivation in many regions, the rise of ICT, changing learning and teaching practices, the changing motivations of students and teachers and changing roles of families with respect to education, amongst other things.

This issue of poorly prepared students coming into higher education has started to be discussed in literature, labeled as the phenomenon of “unteachable” students (Lentieva 2014). However, the phenomenon requires further research, and is far from adequate generalization at the national level. Moreover, potential solutions are

unclear: to restrict access to higher education for such groups or not is a question very far from being solved.

The HEIs cannot work with students who do not have necessary minimum of knowledge required to master the educational program and have to work with students who come to them. Institutions do not reject such students even with low scores, as every student brings money in the “funding following student” formula. Two possible solutions can be seen: to adjust the program to the level of students or not to adjust, but provide more assistance to students so that could catch up with the requirements. Faculty members assess the need to lower the bar differently: some believe it is necessary, and some think that it would be a mistake, as it would decrease the quality of education. Hence, both institutions provide some additional classes for students, which help them to keep up with the program. Some faculty members confessed they have to adjust their teaching to the audience level of perception.

Reflecting on other changes in the student body, respondents also mentioned a lack of social and cultural competences, such as behavior in social situations, behavior at HEIs (e.g., a requirement to attend classes, pass the exams), lack of motivation for study, lack of maturity and cultural horizons (as a result of no reading of books at schools). As a result, a university has to try to address those gaps as far as it is possible, and even approach parents to help them. The phenomenon of parental involvement already found in a number of HEIs, especially in regions, is new for Russia, as higher education used to be considered as an activity of adults. But currently, this connection with parents can be treated as an indicator of a strengthening socialization mission of higher education in the age of mass higher education. In fact higher education might be becoming less about training of specialists, despite all the rhetoric, but rather a continuation of childhood, of secondary school. Hence, the social reality suggests that the socialization mission could be at least as equally important as the training one.

Considering transformations of the knowledge transmission mission in the discourse of policy documents together with institutional practices enables us to conclude that these transformations are certainly interrelated, intertwined and complex. In relation to the economic discourse regarding the purposes of higher education, our analysis indicates this has been a defining continuity since the Soviet era. Higher education aimed at training specialists for the Soviet national economy. The idea that specialists which should be “better used”, can be easily linked with the modern economic discourse of training specialists for the Post-Soviet knowledge economy and supplying specialists which fit the actual needs of the labour market. The predominance of economic discourse leads to the distortion of the educational mission of higher education, where the economic demand overrides any other possible rationale for the activity of higher education. However, in this framework, the social purposes of higher education, even if absent in policy statements, can still be found in the everyday practices of higher educational institutions; and moreover, in an environment impoverished by economic rationales, their importance is rising.

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# Chapter 8

## Changing Practices, Changing Values?: A Bernsteinian Analysis of Knowledge Production and Knowledge Exchange in Two UK Universities

Brenda Little, Andrea Abbas, and Mala Singh

### 8.1 Introduction

This chapter analyses data selected from case study research in two UK universities which is part of a larger multi-country project on higher education and knowledge societies. It focuses on three departments/research centres from each of the two universities. It explores the extent to which academics (including those managing universities and research centres) have embraced the ideas, activities and values associated with the growth of a knowledge society and correspondingly with a knowledge economy. Discourses about knowledge societies suggest that globally universities have become ‘engines’ of change whose knowledge products are powering economic growth and transforming knowledge societies (Välilmaa and Hoffman 2008); yet issues of social justice often seem to be downplayed in such discourses. Further, concern with exactly what type of change the knowledge generated within universities is contributing to, has led researchers to question what values and whose interests are guiding it (Neave 2006). The empirical evidence discussed here indicates that in UK universities there is a complex situation in which knowledge activities are driven by pragmatic responses to a

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host of institutional, political, financial, disciplinary and personal imperatives. We identify five discourses which permeate both institutions and all six research units studied. One discourse relates to the research quality assessment processes; a second to the economic use value of research; a third to social and academic value; a fourth to academics' freedom; and a fifth to mixed-discipline research. We argue that these produce a contradictory and confusing mixture of discourses that drive UK research in a haphazard way and that more coherent strategies underpinned by a sense of social justice are needed.

Policy makers and academics who write about knowledge societies have developed new terminologies to reconceptualise the work of universities and their relationship to society (e.g. see Delanty 2003; Etkowitz and Leydesdorff 2000; Gibbons et al. 1994; Leydesdorff 2012). In this chapter we focus on two of these terms – knowledge production and knowledge exchange. 'Knowledge production' encompasses the notion that knowledge is created and valued in ways that are specific to particular historical, social and cultural circumstances (Bernstein 2000; Delanty 2001; Harding 1991). The contemporary context has been characterised as one in which there is: (a) a lack of consensus over the role of universities in the production of knowledge; (b) an increasing diversity of sites and funders of knowledge production (e.g. private industry, companies etc. rather than just states); and, (c) a shift towards a 'politics of application' with more 'actors involved in the definition of problems and the application of knowledge' and consequently less agreement and more conflict about the value and purpose of different knowledges (Delanty 2001). The term 'knowledge exchange' emerges from organisational theory and is used to describe a situation where knowledge is generated, applied or made useful by boundary crossing exercises between non-university settings (e.g. industry or community) and universities (Giuliani and Arza 2009). In the UK it has largely replaced the term 'knowledge transfer' which describes a one-way process between universities and external agents and organisations (see for example, Wilson Review 2012). However, it is this sense that partnerships between universities and external organisations could better serve a wider constituency and the economy that has led to state policy encouraging universities to work with external partners and to prioritise the economic (and to a lesser extent social) use value of knowledge. However, the focus on the economic value of research is associated with more privately funded research and declining state funding and there is concern that the interests of capital may be increasingly dominant (Delanty 2001; Readings 1991). A further dimension of university's knowledge work, namely, knowledge transmission (i.e. teaching and learning), is less significant to our discussion in this chapter of knowledge and the values underpinning it, but as teaching is often juxtaposed with different types of knowledge production work it has some relevance.

To describe the complexity of values at play in the research units discussed here we draw upon the work of the British sociologist Basil Bernstein (2000). His concepts have helped us to explore the impact of the different imperatives described above and to identify a range of factors shaping academics' and managers' of universities, departments and research centres knowledge work. As such, our

analysis presents a more nuanced co-existence of often confusing and conflicting values than are normally portrayed in knowledge society discourses that can be positive or negative in their effects. These values sometimes cause anxiety, discontent and/or disinterest but they also offer some opportunity for creativity, empowerment and transformation.

We begin with a brief description of Bernstein's theoretical concepts and explain their relevance. A short discussion of the key values regarding knowledge production and exchange in national UK policies is followed by an overview of the multi-country project methodology. We then explore five discourses operating in the two UK universities that emerged during our fieldwork and which cross-cut institutions and research units. The conclusion discusses the implications of these findings for universities, knowledge and society.

## 8.2 The Bernsteinian Conceptual Framework

Bernstein's (2000) conceptual framework was chosen because he usefully linked knowledge, democracy and social justice: what knowledge is produced, who has access to it and how knowledge is distributed are all critical questions regarding the (im)possibilities for improved social justice and (in)equities. His perspective facilitates an examination of the discourses of knowledge production which focuses on what values are driving what is being created. This gives us some insight into whose interests are likely to be represented. This is crucial as the knowledge produced has implications for social justice as it can empower or inhibit individuals and social groups from initiating social and political change. Bernstein (2000) suggests that knowledge shapes individuals' consciousness, either in ways that open up a gap between them and their context allowing them to see new possibilities and the potential for transformative action, or it only equips people to becoming proficient within specific contexts restricting them to the reproduction of the existing social order. An example would be that knowledge that is funded by a company to improve its products or practices is arguably less likely to challenge the existence of the product or question its impact on social justice. This simple polarisation of knowledge is just a small aspect of Bernstein's oeuvre which provides a rich resource and a complex range of concepts (e.g. horizontal and vertical discourses and knowledge structures) for analysing knowledge production (Moore and Maton 2001).

Furthermore, Bernstein contrasts the social order with the discursive order – two 'systems of rules' that can vary independently of one another (Bernstein 2000, p. 13). In relation to research, the discursive order we go on to describe (below) plays a role in ordering and framing what is to be researched, when, in what time frame, and the criteria by which the research will be counted as valid academic work.

We illuminate the complexity of the values at work in the six research units utilising Bernstein's (2000) three core concepts. The first, *codes*, are the mechanisms which transmit power relations between people, things, organisations, ideas

and so forth. They are embedded within everything including every day practices, organisations, language and consciousness itself. Codes are constituted by *classifications* and *framings*. Classifications relay power and define relations between categories and give hierarchical relationships to the things being classified. A pertinent example here is the UK notion of ‘research intensive’ (higher status) and ‘teaching focused’ (lower status) universities; the classification separates hierarchically UK institutions that were universities before 1992 from the former polytechnics which became universities in 1992 and which have lower status. Framings refer to the different forms of legitimised communication within these categories. In relation to knowledge production they define who is empowered to produce and communicate what knowledge and by which practices. For example, within these broad classifications of institutions there are elite research units whose status frames and empowers them as more validly representing a discipline than others with less status and power within the same broad categorisation. These concepts help us to identify how power and control is working within the fields of knowledge production we explored.

They are also useful in that they help us to identify and articulate changing practices and values; codes have an inherent potential to change the basis of their own rules and hierarchies (Bernstein 2000). Classifications can be strong or weak and Bernstein suggests that ‘as classifications change from strong to weak, then there are changes in organisational practices, changes in discursive practise, changes in transmission practise, changes in psychic defences, changes in the concept of the teachers, changes in the concept of knowledge itself. . .’ (Bernstein 2000, p. 15). Strong classifications are those where divisions between the two things classified are clear and unambiguous as with the pre and post-1992 universities above. An example of a strongly classified and framed knowledge and identity is that of the surgeon in western medicine. The identity is straightforwardly associated with a particular body of knowledge and it is strongly framed in terms of the selection and pacing of knowledge, who can teach it and where; there are a limited number of institutions which are allowed to teach and bestow this identity. The identity is all encompassing as it usually lasts the person’s lifetime and it defines who they are. When codes, classifications and/or framings are weak, identities are less secure, more complex and change is more likely. For surgeons, this may occur if there was a process of deskilling or if a larger range of organisations were suddenly allowed to train and certify. Bernstein argues that the potential for transformation is built into his model because “although framing carries the message to be reproduced, there is always pressure to weaken framing’ and at some point ‘the weakening framing is going to violate the classification” (ibid, p. 15). Similarly with classification Bernstein argues that although classifications reproduce power in ways that reinforce hierarchies, contradictory and alternative values are never completely suppressed. Here we are interested in whether classifications and framings are weakening or strengthening and if they encompass changing hierarchies, and what impact the knowledge produced is likely to have on nations and global society.

Before turning to our analysis of the departments, we present a brief overview of the classifications and framings inherent in the current UK policies in relation to higher education institutions' roles in knowledge production and knowledge exchange.

### **8.3 UK Policy Context Relating to Knowledge Production, Knowledge Exchange and Innovation**

Two key areas of policy are pertinent to shaping research activities in UK universities, those pertaining to knowledge exchange activities and those relating to the evaluation and funding of research by central government. These are important because they provide core powerful classifications that frame (control) knowledge work in UK universities. We begin with knowledge exchange.

UK policies supported by financial incentives have strongly steered universities towards knowledge based partnerships with business. In Bernstein's terms, the language of knowledge exchange provides its own classifications and framings which are fairly explicitly invoked as the basis for these collaborative relationships. Strong classifications draw strong boundaries between things and policy here focuses on breaking down the boundaries between the research work and interests of universities and the research and development needs of businesses, and to a lesser extent of the public sector. The UK government's 2011 Innovation and Research Strategy (BIS 2011a) notes that the private sector is always going to be central to innovation, but Government has a key role to play in ensuring relevant actors (entrepreneurs, financiers, innovators) have the best possible environment in which to operate, through: funding blue skies research as well as new discoveries and inventions; delivering a better environment for commercialising research; and *improving the interface between higher education institutions (HEIs) and business* (emphasis added). As the 2011–2012 government-sponsored review of business-university collaboration (the Wilson Review 2012) notes, the desire to move away from a 'linear model' of technology transfer and research exploitation, wherein universities were encouraged to enhance their 'technology push' (through developing their own intellectual property methods through patenting, licensing and spin-outs) towards a model focussing on more complex interactions between universities and business, has been taking shape since the early 1990s. Wilson notes that business-university links are now characterised by a more sophisticated and integrated notion of an 'ecosystem of business-university interactions', and this ecosystem approach has aimed to determine the roles of contributors relevant to innovation (for example business, universities, research institutes, finance and technology organisations as well as government funders and regulators), and to establish frameworks and incentives to encourage collaboration through a process of 'knowledge exchange' (Wilson Review 2012, para. 2.2).

This push to knowledge exchange and the weakening of the classification between the interests of universities and commercial enterprises is not new. Successive governments have developed funding mechanisms to support and enhance the process of knowledge exchange. A major review of UK higher education in the late 1990s (the 1997 Dearing Report on the future of higher education) recommended the introduction of the targeted financing of outreach activity, in addition to funding streams for teaching and for research. This led to the Higher Education Innovation Fund (HEIF), which is often referred to as ‘3rd stream funding’ to distinguish it from central government funding for higher education teaching and research. Arguably, whilst universities have worked with public sector organisations, the focus of HEIF-funded activities has always been on commercialisation by universities, so much so that HEIs ‘reaching out’ to other parts of communities has been downplayed (see for example, Benneworth et al. 2008). Such observations indicate that it is the boundaries between universities and commercial enterprises and the re-classification of the economically valuable knowledge that is produced by HEIs and exchanged with other players that is held in the highest esteem. The value that might accrue to communities through the exchange of knowledge with HEIs is less supported by policy and funding. Kitagawa and Lightowler’s (2012) comparison of knowledge exchange strategies and policies in English and Scottish higher education systems note that the English approach has become increasingly institutionally-driven, whereas the Scottish sector has adopted a collective policy-driven approach. Nevertheless, in both systems, “metrics and performance indicators and the underlying policy effectiveness models have been skewed towards market impact and economic development”, and processes for capturing broader socially-oriented knowledge exchange activities remain problematic (*ibid.*, p. 4). This may well reflect an emphasis on knowledge exchange activities that can more easily be ‘measured’ in some tangible (often financial) way, rather than considering ‘all of what counts’ – with ‘what counts’ being determined by the underlying values driving knowledge production and exchange. Certainly, successive changes in the financial relationships between universities, government and the wider community have led the higher education sector to learn the ‘art of financial survival in this new world’ (Williams 2003, p. 1) with a concomitant growth in enterprise and entrepreneurialism. The strong classification of commercial knowledge as being the most valuable is reinforced by this strong framing which insists that universities pitch themselves as generators of commercially valuable knowledge if they are to survive. The coalition government’s 2011 white paper on higher education which focussed on future arrangements for funding higher education re-iterated government’s desire that universities should look again at *how they work with business across their teaching and research activities* (emphasis added) ‘to promote better teaching, employer sponsorship, innovation and enterprise’ (BIS 2011b, para. 13). This claim suggests that there is a broader attempt to integrate a classification which denotes business’ commercial relevance as a marker of high value knowledge into knowledge production, exchange and transmission work.

Policy making bodies have suggested that the production of commercial knowledge improves other research carried out in universities. There have now been four successive rounds of HEIF funding since its introduction in 2001, and at least one government-sponsored evaluation undertaken, 'to inform understanding of the current state and development of knowledge exchange across the higher education sector' (HEFCE website, accessed July 2012). The evaluation notes that 'knowledge exchange engagement has clear synergies with research activities undertaken by academics, with almost half of the academics surveyed believing that KE engagement has given them new insights into their work' (HEFCE issues paper April 2009/15, para. X12.1). Furthermore, the evaluation categorises HEI research in three ways: pure-basic research; applied research (with a high consideration for applicability and use but less emphasis on fundamental understanding); and user-inspired basic research (driven by both a quest for fundamental understanding and a consideration of its use). It notes that though this latter type provides a critical dynamic link between pure and applied research, this interplay 'is often overlooked' (PACEC/Centre for Business Research 2010, para. 2.2.1), and, one might surmise, under-valued. However, whilst there may be a policy which attempts to classify applied and user inspired knowledge as being of great value, and there are doubtless synergies and potentials between differently focused, funded and intentioned knowledge, little critical academic research seems to have been undertaken about the principle drivers for the knowledge exchanged and the balance of values underlying it. Whose interests knowledge exchange is serving and how it fits with the overall goals of universities and broader society, are important questions which require detailed research.

Alongside this strong classification and framing of commercially valuable knowledge inherent in knowledge exchange policies and funding arrangements, there are direct funding arrangements in place to support UK HEIs' knowledge production. These also provide an important and distinct set of classifications and framings. The seven national Research Councils are awarded government money which gives competitive grants to institutions or researchers for specific projects and programmes: five of these are aligned to science and medicine, one to social science and one to arts and humanities. The social sciences and arts and humanities councils pack more disciplines together and funding is lower. However, there are possibilities to apply for some cross disciplinary projects and funding is sometimes targeted in this way, for example, around health. In addition, the higher education funding councils provide grants to institutions to support their research infrastructures and enable institutions to undertake ground-breaking, 'blue skies' research aligned to their own missions and research strategies. But given that there are insufficient central government monies to support all research undertaken in higher education institutions, the funding councils' methods of funding research attempts to target funds where research quality is deemed to be highest and these carry strong classifications. Up until 2008, research quality was assessed on a national basis through the Research Assessment Exercise (RAE). The method of assessing nationally the quality of research since 2008 has been changed, and the next national assessment was undertaken in 2014 using the Research Excellence Framework



(REF) (HEFCE 2013). These methods incorporate a strong classification system; to be included deems research to be of a status that counts nationally and internationally, to not be included classifies the research of individuals, units and institutions as lesser. REF and RAE are important for all UK universities because in ‘measuring’ the ‘quality’ of universities’ research in each academic discipline they provide national rankings and institutions want to be included and highly rated. Despite critiques of such rankings among universities and academics, in practice, they cannot afford to remain outside these research assessment processes for reputational and funding reasons, hence they ‘play the game’ (Broadbent 2010).

Central government funding is allocated on a similar basis for the years following any assessment exercise according to RAE/REF rankings (which span a five-point scale) until the next ranking takes place. For the first time in REF 2014 only the top two categories (4\* – ‘internationally excellent’, and 3\* – ‘world leading’ research), will be funded. Sixty-five percent of the marks that will inform the ranking are attributed to the best (1–4 depending on the experience of the staff) publications of each academic entered; the REF panels which are discipline based make these judgements and this therefore provides a strong classification and framing of what academics are supposed to be doing. It frames their work in that it says, in order to be valued, academics must publish in places and ways denoted as valuable. It classifies their work because the panels judge the articles so their views on what counts as valuable research topics have to be internalised for the purposes of producing high ranking publications. These panels largely (but not totally) comprise esteemed members of disciplines. Fifteen percent of the marks is given to research environment (which includes funding support for staff, infrastructure, external links and positions etc.). Again this provides strong framing, in that academics have to research in areas that are deemed valuable by the research councils. Also the different calls for funding offer classifications regarding what topics are deemed valuable and the government influence over what is seen as valid research is tangible. Also, for the first time, the REF 2014 allocated twenty percent of the overall score to impact. This is designed to measure the difference that research makes to policies and practices outside of universities. This reward based system is an extremely competitive exercise which has been criticised for concentrating scarce research resources in fewer universities because those universities which are successful can end up with even better resources and more opportunities for future growth, thus increasing inequalities and status differences between universities (Elton 2000). The valorisation of international research and impact over the local also classifies who are seen as the most important beneficiaries of research. Research for global companies is likely to be easier to represent as an international impact than research which benefits local users of products and services who rarely have high levels of funds or global visibility. The increased competitiveness of the REF and the new classifications and framings produced through emphasis on research impact will certainly shape institutional strategies and behaviours but how they have changed what academics value in knowledge production and exchange, and how their notions of knowledge exchange may be changing, are important questions that we begin to address here.

## 8.4 Research Methodology

Here we give context to our discussions with academics and managers working in three departments of two UK universities (six in total) by briefly describing the research methods used in the overall project. The multi-country project comprised several strands which used a number of methodological approaches to explore knowledge societies in different historical and geographical contexts. In this chapter we focus on what the discourses of knowledge production and knowledge exchange reveal about what is valued within two UK universities. The fieldwork in these universities included interviews, documentary sources, web research and analysis of existing statistical data.

The two UK universities selected as sites for case studies were chosen on the basis of their being significant examples of a particular ‘type of university’ within the UK national context. As such, they offer contrasting examples, namely a ‘post-1992’ or ‘teaching-focused’ university, referred to here as B1, and a ‘pre-1992’ or ‘research-intensive’ university referred to as B2. The significance of these categories is outlined above. There are obviously difficulties with taking one university to represent a whole subset of UK universities and there are divisions within the post- and pre-1992 groups. However, there is sufficient distinction between the two types of universities across a range of dimensions, for example, the student body, the activities of the universities, and the different levels and sources of funding (Ashwin et al. 2012) for us to be confident that they provide significant and contrasting examples. We do not, however, claim that they are necessarily representative of all aspects of their ‘type’ (see Flyvberg 2006 for general discussion of selection of cases). We argue here that despite these differences there are many similarities that belie the simplicity of the hierarchical classification.

The case studies entailed a range of methodological approaches which were as similar as possible in each institution. In addition to gaining a broad sense of institutional strategies and activities through documents publicly available on the universities’ web pages, interviews were undertaken with senior university staff to explore how they saw knowledge production as being shaped and managed within their university (in B1, six interviews were undertaken with senior institutional staff, and in B2 four interviews were undertaken). These were followed by a series of interviews with a range of personnel in selected operational units. The choice of operational units was informed by discussion with senior management of the university and the research team’s preliminary investigations of departmental/unit web pages.

The initial research design envisaged investigating a limited number of sub-units in each of the two universities (both those engaged in research and teaching functions, and more outward/business facing units) and to focus on certain disciplines such that some cross-institutional comparisons would be possible. In the event, the range of operational units investigated in each institution was determined by a number of factors, including institutional staff availability and willingness to participate in the fieldwork. As such, in B1 the operational units covered tended to

be discipline-based research groupings (covering health and social care, computing, criminology, history) and many interviewees had both academic and administrative leadership roles (fifteen interviews undertaken in total). In B2 the units covered were more a mix of discipline-, and inter-disciplinary focussed groupings (history, knowledge organisation and innovation, advanced inter-disciplinary studies) and a business-facing unit (focussing on licensing intellectual property, patents, start-ups and the like), with interviewees having a mix of academic and administrative leadership roles (eight interviews undertaken in total). Interviews explored the way participants saw their knowledge work and that of the university. Discussion during many interviews tended to focus on knowledge production; given the timing of the fieldwork (May 2011–February 2012) coincided with a period during which UK universities were gearing-up for the next round of assessing the quality of research in 2014, this pre-occupation was understandable. We should also note more generally that our findings are inevitably ‘time-bound’ within a set period, and may not reflect developments that have taken place subsequently within our two universities. That said, though institutional structures and initiatives seem to be changing rather quickly, the fieldwork indicates that the values underlying strategies and policies may be more resistant to short-term changes. And it is to the perceived values (as illuminated through the discourses about knowledge production and knowledge exchange covered during our fieldwork) that we now turn.

## 8.5 The Two UK Universities

These two brief descriptive overviews of the institutions provide context for the subsequent discussion of the discourses relating to values. B1 is lower-ranked in UK university league tables compared to B2 and to most other pre-1992 universities and it is a less economically well-off university. As well as being selected for having typical features of a post-1992 university, B1 was also chosen for its unique achievements, for example, it has won prestigious, coveted and well respected annual awards from private companies for its work with the business community, and national recognition for its regional development work. As is typical of post-1992 universities, it seeks national and international recognition for research excellence in some chosen niche areas (and it aspired to extend the number of areas achieved in the 2008 national RAE in the 2014 REF). Since the 2008 RAE, B1 has also established five new research institutes to focus its growth in areas of strength. At university level its mission and goals are defined strongly in terms of its responsiveness to the declining industrial region in which it is situated. It states its main strengths in relation to the regional development agenda; something which is not equated with being highly rated in the REF. However, its future ambitions orientate it internationally as it wants to generate social and economic opportunities which will improve the locality by becoming a national/international leader in working with global businesses through its niche research strengths. Alongside these aspirations, B1 undertakes international work that is development oriented

and looks towards the social justice agenda, in the sense of building professional capacity in some countries (e.g. training health care professionals); this is also linked to income generation.

B1 has accepted and incorporated the national government's weaker classifications between research for assessment and research for knowledge exchange work. One of B1's Deputy Vice-Chancellors has overall responsibility for and directs research, business enterprise and knowledge exchange work. This 'combined' portfolio at senior level sends a clear message that knowledge production for assessment and knowledge exchange activities are not strongly bounded. In addition academics, who are employed for research expertise or sometimes industry field expertise, are seen as key to generating the links and knowledge required for 'business relevant' knowledge. Partnerships with external organisations are valued for generating income, improving organisations' business performance, contributing to regional development and also as a way of improving the quality of B1's assessed research. Regardless, the institution will not achieve a high ranking nationally overall when only a small percentage of university staff were included in the 2014 REF exercise. Nonetheless, being 'in the research assessment game' is important in maintaining a strong classification between itself (as a university) and further education colleges and private providers who the UK government are encouraging to compete with universities for students.

B2 is a research intensive university with high ranking research in the 2008 RAE but it also appears to accept the government's weakening sense of the boundaries between university and economy. Nearly all B2 academic staff were entered for the UK research assessment exercise in 2008, and overall its research output was ranked in the top ten of UK universities. So it already has a reputation for high quality research across its whole discipline base. It is currently seeking to improve its standing and to be in the top fifty internationally in research through academic excellence in core disciplines as well as configuring major areas of multi- and interdisciplinary research strengths around key global priorities and challenges, and continuing to develop collaborative research opportunities internationally. There seems to be both an academic and a pragmatic rationale for this 'global priorities' focus – the need for inter-disciplinary networks to tackle some of the most pressing global issues in original and innovative ways, and a pragmatic desire to enhance B2's ability to respond to external funding bodies' own research priorities. Two of B2's four Pro Vice-Chancellors (PVCs) have overall responsibility for research strategy, split between broad disciplines. The portfolio of one of these 'research' PVCs has recently been augmented to include a newly-designated brief for knowledge transfer and business engagement with the explicit intention to support B2's research (and teaching) ambition through corporate level regional, national and international business partners. It may be that this signals a deliberate intention to seek even greater levels of business engagement (and may foreshadow some of the impact emphases being introduced to the 2014 national research assessment exercise). B2's knowledge exchange activities span the full range – some of which generate income (for example, through the development of licences, patents and spin-off companies drawing on the university's intellectual property arising from its

more applied areas of research), and others serve more altruistic concerns, and may enhance the university's profile in various local, national and international arenas. Activities at senior levels of the university reflect these ambitions as it works across continents and through strategic global collaborations and networks. Since its establishment in the middle of the twentieth century it has aimed to be entrepreneurial and outward-looking, matching academic excellence with business and industry relevance. It has won prestigious national awards for its links with industry. It was chosen as an example of a pre-1992 university whose ambitions indicate an economic, social and cultural commitment to the local region alongside a primary concern to position itself globally as contributing to 'human knowledge and understanding'. This concern with the 'local' may distinguish it from some other universities in this category but provides a good point of comparison with B1 because the range of concerns is similar but the scale, the focus and the differences in reputation are quite extreme. Its complex positioning between the global and the local is reflected in its ambitions to strengthen relationships with 100 stakeholders who straddle the local and national, the public and the private as well as individual donors, businesses and government and regional groupings.

## **8.6 The Classification and Framing of Knowledge Production and Knowledge Transfer: Five Cross-Cutting Discourses**

Despite these two institutions having very different reputations we did not find hugely different discourses in the two institutions or their units, merely different balances between what was talked about depending on whom we spoke to and what aspect of their work they were discussing. In both universities it seems that staff were perceived, by central management and mostly themselves, to have been granted a reasonable amount of freedom by the institution. Control (or framing) was largely seen to emanate from the national context. In Bernstein's terms the range of classifications and framings were similar. In this section we present five discursive areas which each involve a complex set of classifications (power) and framings (control). We illuminate the ways in which they do not shape the values of academics and managers engaged in the different knowledge production and knowledge exchange activities. We describe each of the discourses briefly drawing examples from across the case studies to portray the range of orientations to the classifications and framings described. The strong framing of research at a national level, in terms of the REF and through policies which compel collaboration, has not fully penetrated academics' consciousness and they operate with a complex set of classifications and underpinning values. Academics value most highly those areas of their work which they see as being shaped by their individual interests: but this is carried out within a context of strong alternative framings. Some values shaping daily work and life are represented as being part of the

researchers' and managers' consciousness whilst others are depicted as being embodied by others in the institution, through government policy or within governance mechanisms, over which they have little control and which they largely accept pragmatically. In the discussion that follows this description, we suggest that whilst academics' research efforts are guided by a strong framing at a national level they are not necessarily constrained by that; rather they have their own set of values that guide their own individual endeavours. Overall there is little sense of a shared national strategy for research; and it is not clear who and what is benefitting, nor whether social justice is being safeguarded.

### ***8.6.1 Discourse 1: Research Assessment Framework (REF)***

As suggested above, three key classifications are defined by REF as constituting the research reputation of an institution (namely, publications that are rated highly by REF assessors, the impact of research, and research environment) and in each of these areas, having an international reputation was a cross-cutting classification. However, nobody we interviewed in research units claimed to have personally integrated this classification system as a meaningful framework suitable for judging the worth of their own or others' research. So there did not appear to be a deep commitment to the classificatory framework offered by REF. On the other hand, in all the research units explored during our fieldwork, academics and managers believed that they needed their research to score highly in the REF for it to be valued by others (academics, their managers and other external audiences and publics). They accepted that to be classified as somebody that was in the REF was considered higher status than someone who was not and they accepted that to be part of a university or research unit that scored highly was prestigious. So at this level though the classifications inherent in REF are treated sceptically or rejected, there is an acceptance that research work should be framed by the classifications of REF because it is dominant and defining and this inevitably shapes their work.

Research active staff in B1 criminology unit had their daily work framed by the fact that if they could produce work that was valued by REF they got time allowances off from teaching. In B1's history unit staff talked of appointments being shaped by candidates' capability for REF rather than teaching. In this context the politics of this was a source of considerable tension between different members of staff, including managers, because there was not general agreement that this was the most valuable aspect of the work done in these units (teaching students was seen as the most important work by some (mostly non-REF) staff and this was sometimes viewed as suffering as a result of appointing staff who did not contribute in this way and/or who contributed less). All of B2 academics' work was strongly framed by REF in that they could be in danger of being subject to their competency being questioned if sufficient of their research outputs were not considered to be suitable for the REF. It was acknowledged by staff in one of B2's strongly user orientated research units that they necessarily have to direct their focus to

producing very different types of publication if they want their work to score highly in REF. However, they did not see this as improving the content or usability of their work or that they necessarily valued this work; it was a pragmatic necessity.

The institutions in both cases accepted the classificatory framework as (at least) a necessary measure of its staff's research – thus indicating a strong adherence to it. As stated above, being part of an internationally REF valued research environment involved getting funding from major research councils (blue chip funding). Academics and units indicated that the changing requirements of these funders shaped their research; for example, in B2 Historians noted that the impact requirements of REF meant that they were more likely to have to work in teams and focus on multi- or inter- disciplinary problems rather than those defined by the discipline. However, staff interviewed did not discuss themselves as valuing their own work in the same way as REF. They had a range of ways of talking about the positive value of research, which was close to what is measured by REF. In particular they valued research that was theoretically strong, was useful to others and contributed to their discipline or field. However, in their view what they were talking about was not necessarily synonymous with REF assessments of research. So, for many academics the autonomy to pursue what they thought was valuable was contrasted with the demands to produce research for the REF. Interestingly, B1 academics in Criminology and Health believed that they had more freedom to pursue research which they valued because they were less REF- driven than colleagues in elite institutions.

A discourse of the inevitability of the REF's reputational value and its pragmatic necessity permeated every unit. In academics' talk, research outputs for the REF and other things which might be ranked highly in research evaluation exercises, such as blue chip funding, are strongly classified (separated and divided in the imagination) from all other activities by other academics, managers and those who look at league tables. Success also gives them funding and therefore it is accepted those REF values must shape their work.

### ***8.6.2 Discourse 2: The Economic Use Value of Research***

Academics' discourse about the use value of their research was not conceptualised in economic terms: no academic gave an example which suggested that the worth of their research was predominantly determined by the money it raised. This may be about the disciplines prevalent in the units we studied. As with discourses about REF there was a pragmatic acceptance of an economic context in which research is shaped by different funders, rather than an acceptance of the notion that the most valuable knowledge was created in response to the needs of those who funded or used research. So this meant that there was a strong adherence to the framing of research by economic funders but a rejection of the notion that the economic usefulness of research defined the value given to it by them. However, this strong framing means that private and public bodies shape academics' research agendas

and that individuals and units developed relationships with other universities, academics and business partners in order to secure economic funding for research. For example, staff in B1's history unit talked of the locally focused alliance with four other universities that was instigated due to available funding, but which was dissolving as the level of funding declined. So even though many of the staff cherished this activity, and it was seen as valuable for the region, once funding disappeared the collaborative aspect of it, which increased its intensity, profile and reach, would not continue. Academics at B1 claimed that its decline was due to other universities only participating in order to generate funding.

Unit and university managers adhered more to the values embodied by the policy frameworks: they talked of simply gaining research funding as indicating the success of their unit, which they prized. As with the REF, international\globally facing and economically valued research is classified as more high status. Staff in B1's health unit noted that they got more prestigious national and international contracts through strategic alliance with other more prestigious universities. It is notable that B2's ability to develop and exploit a wide range of strategic international relationships is important to the status of its economically motivated research.

There was a general acceptance in both institutions that the most high status knowledge was REF valued knowledge rather than economically lucrative activities, but that there was a synergy across the two. Playing to the wishes of those who may principally value knowledge for its economic use value was portrayed as a strong framing which was still gaining strength and was reinforced via the REF focus on impact. In B2's history unit for example, a high reputation is linked to a need to compete for (external) research funds even if this means that topics which may be useful to the discipline itself may become neglected.

### ***8.6.3 Discourse 3: Discourses of Social and Academic Value***

A third set of discourses groups together some classifications through which academics appeared to attribute high value to their research in terms of its perceived social and ethical value. These classify knowledge which has a social value and benefits disadvantaged groups and organisations, and knowledges that developed their academic field or discipline, as more worthwhile than knowledge that was driven by REF or that is economically valuable. It is in this area that we see something akin to the emergence of a new set of values which appear to emerge from the transcendence of the academic\practice divide that is enforced by the policies which encourage knowledge exchange. Health and Social care at B1 provides the most clearly articulated example. In this research unit, there seem to be relatively weak classifications and hierarchies between knowledge production that is driven by the research assessment exercise and that driven by practitioners' concerns; both seem to be valued but neither is valued as much as that knowledge which is co-produced. Staff referred to co-produced research as 'translational



research'. This is a term widely used in medicine to describe academics and external stakeholders working together. Although definitions vary, the following seems akin to what was described in B1's health unit: "translational research fosters the multidirectional and multidisciplinary integration of basic research, patient-oriented research, and population-based research, with the long-term aim of improving the health of the public" (Rubio et al. 2010, p. 470). Translational research is in line with the underlying aim of this B1 unit which is to improve health and social care practice, using the university's expertise, skills and resources, both to try and help practitioners do their work better, and to improve the services for users of health and social care provision. Academics directly challenge national classifications in that they don't classify the REF as driving the best research. Rather, they see that the classification of the university as a non-research intensive (teaching focused) institution not driven by reputational ambition alone, makes it easier for knowledge production to be seen as a more collaborative process involving academic and non-academic participants, and for knowledge to be shaped by the interests of users whilst still drawing upon critical or creative research which is important to pushing forward the boundaries of health and social care as traditionally understood by practitioners and policymakers.

At the same time, there is an interest in how such engagement could help improve academic theory and practice at the university and within the discipline. They see themselves as being advantaged in producing this type of translational knowledge which is based upon more equitable relationships with their user communities. 'Traditional' universities were characterised as doing REF-relevant research or theoretical research, 'gifting' their knowledge to communities which have to be grateful for this knowledge even if it is of little use to them. However, this research has arguably been driven by a national framework in which collaboration and funding have focused on economic and social use value.

#### ***8.6.4 Discourse 4: Academic Freedoms***

The fourth set of discourses grouped those through which staff described their most strongly valued research. This refers to research which was driven by academics' own personal interests and integrity. In some ways it is perhaps best conceived of as that research which is not shaped by strong framing of any kind. However, this does not mean it cannot be research that is done for the REF or for economic gain. It is more important that the classifications (the meanings, which convey power and which are drawn upon and emerge from the research) are shaped by academics' own value systems: translational knowledge fits into this discourse of academic freedoms. Research that is not necessarily articulated as pursuing a common or articulated ethos can also be perceived as involving academic freedom. For example, it is clear that B2's global aspirations at an institutional level pervade much of what goes on, and the key message of staff needing to undertake more internationally-recognised research and better-funded research is clearly relayed

to all departments. That said, B2 academics seem to be able to determine what activities they undertake to flourish academically, and are trusted to know 'where' their research strengths lie. Staff in both institutions and all units talked about work that was driven by their own theoretical, social or empirical interests as being the most valued. So interests in community history were seen as valuable (and undermined by the lack of funding and status). Interests in niche areas of history important to the discipline and theoretical developments in criminology which academics highly valued come into this category. Whilst this classification is closely associated with traditional academic values in this context where there are more collaborative opportunities, there are a wider range of influences and in some instances the passions expressed were for producing user relevant research (B2's business unit) or research that was useful to the local community (B1's criminology unit). B2's interdisciplinary research unit was said to be driven by a passion to engage with real world problems which were by their nature interdisciplinary. University management stated that even the more economic agenda was driven by researcher's own interests but researchers, and to some extent unit managers, saw research driven by their own passions, interest and integrity as only having a small place in their work. Interests that do not coincide with economic interests or those of policy makers which are shaping the funding terrain are less likely to be pursued. This was mentioned often. It is sometimes difficult to see the immediate benefits of such research and any benefits may be to intellectual life as opposed to other areas. However, more positively, new notions of academic freedom may emerge from a diverse environment: translational research is an example of co-ownership of the freedom implied in the term.

### ***8.6.5 Discourse 5: The Complex Classification and Framing of Mixed-discipline Research***

Mixed-discipline research is used here as a catch-all phrase for all types of cross and interdisciplinary ways of working. In discourses about knowledge societies it is the interdisciplinary nature of the real world problems that is an important driver for change. Within B2, there has been an explicit attempt to reconfigure the university's multi-disciplinary research cutting across the natural and social sciences to focus on some key areas of international significance. This reconfiguration may be an attempt at an institutional level to identify the university's multi-disciplinary research clusters in ways more readily recognisable by its publics, and also a practical way of enhancing the institution's capabilities to respond to external funding bodies' own priorities. Yet there are also strong academic grounds for such reconfigurations such that multi- and inter-disciplinary groups of academics can undertake research into some of the most pressing global issues in original, innovative ways. Hence, this may be seen as an institutional attempt to challenge the classifications which organise knowledge according to disciplines and to

re-classify real world problems as defining the significant knowledges that should be brought to bear on a problem. B2's dedicated unit for activities which are geared towards engendering a supportive and enriching environment for the development of post-doctoral researchers interested in undertaking multi- and inter-disciplinary research can be seen as an attempt to give legitimacy and power to an interdisciplinary identity. These researchers were also seen as important to helping the institution to meet its global ambition for highly-ranked collaborative international research. The unit has a strong track record for securing external funding for interdisciplinary research projects and the reputation of the unit is such that researchers aligned to the unit regularly get poached by other UK universities. Yet despite such successes, the discourse within the unit was one of trying to counter academic staff's natural tendencies to undertake research work within their own 'silos', and an acknowledgement of the difficulties in constructing the kinds of interdisciplinary networks needed to address pressing global issues. So although the unit was actively facilitating the development of such networks, there was also a sense that in reality they needed to develop from the ground upwards, from academics' own intellectual curiosity: which often had their roots in the disciplinary basis of their training. (See Townsend et al. 2013, for similar issues arising at another UK university). Other units did not seem to focus on the mixed-discipline discourses that are usually associated with knowledge societies. Given that within the UK, it is success in the discipline- based REF that largely determines the status and career prospects of individual academics, it may be that the intellectual gains that an individual might derive from mixed-discipline research might be outweighed by those that accrue through the REF. In addition knowledge transmission activities are still strongly discipline based.

## 8.7 Concluding Discussion

In this chapter we have argued that there is some diversification of the values informing knowledge production in UK universities. Using a Bernsteinian analysis we have identified that national policy regarding knowledge exchange classifies economically valuable research as being the most worthwhile. Policy provides a strong steer through economic incentives for universities to develop knowledge-based partnerships with business in a process of knowledge exchange. In Bernstein's terms these policy initiatives attempt to generate new classifications and to re-focus thoughts about the value which knowledge has in terms of its usability. We noted that in policy focusing on knowledge exchange there are less policy incentives attached to knowledge aimed at improving social justice and the condition or position of disadvantaged groups. Alongside this, an alternative classification system informs the national efforts of how to assess the quality of UK HEI's research outputs. This system is most important in determining the status of universities, research units and staff and it denotes prestigious discipline-based publications as having more value than any other kind of written outputs for

research. To some extent this appears to embody what we might call traditional academic values associated with academic tribes (Becher and Trowler 2001). The dominance of this classification system influences who universities employ, how they value staff and how academics value themselves, one another and the units in which they work. However, the recent inclusion of 'impact' in the research assessment exercise is starting to reinforce the classifications embodied in policies around knowledge exchange; even discipline based knowledge should be evidently useable. Research council funding, which is seen as important to creating a high scoring research environment (the third component that is assessed by this process) is also funded by government and influenced by its priorities and the economic notion of the utility of research. So these aspects of the classifications measured by the research assessment process also reinforce the economisation of knowledge. However, the discipline and field based nature of research councils ensures that social and cultural research is supported. In addition, discipline based academics play a strong role in running research councils and making decisions about who is funded and there is a strong sense of disciplinarity in the processes and practices of research councils. This produces a complex and contradictory set of values increasingly underpinned by economised codes of knowledge.

At the level of the university and the unit, an even more complex picture emerges. We identified five discourses underpinned by different classifications and variously connected to the framings provided by government and disciplines: a multifaceted terrain. According to university managers, research unit managers and academics, knowledge exchange activities are not necessarily distinct from academics' own interests. Academics' interests tended to be grounded in the systems of discipline based academic values or in fields of research. Whilst surveys have found that significant proportions of academics consider the boundary crossing activities involved in knowledge exchange provide new insights into their disciplines or fields (PACEC/Centre for Business Research 2009) we found more contradictory evidence in our qualitative data. Some academics saw research that complied with the framings provided by national policy as distinct from the research they valued. Others saw their knowledge exchange research as producing knowledge that was representative of a wider set of interests: this was the case with the translational research described by one of our units. Others still were engaged in knowledge production with economic value and saw producing articles for the REF as taking them away from their more important work. In addition academics did not see the classifications provided by the REF as representing the way they valued knowledge and research. On the ground there was only a pragmatic acceptance of the economic framing and little acceptance of the classifications and values provided by knowledge exchange activities and of the status and regime imposed by the REF.

In this scenario the discourses of knowledge societies, notions of universities producing knowledge that is powering economic growth and transforming societies, does exist but mainly at a national and institutional level. Academics view adhering to their own sets of values as extremely important but broader questions of whose interests knowledge production and exchange are serving, and how these fit

with the overall goals of universities and broader society are not addressed. Little critical academic research seems to have been undertaken about the principle drivers for, and the balance of values underlying, knowledge production and knowledge exchange in universities. There seem to be competing values, and academic freedoms often seem to be fairly small victories for individuals (and their stakeholder communities), as opposed to a concerted effort to serve a greater good. Organisations, research units and individuals seem to be increasingly driven by the strong framings of their research provided by national policy. Whilst they do not accept the classifications embodied in these and they adhere to ethical, moral and socially motivated principles this is not a coordinated balance of different types of work.

Clearly, the two universities' approaches are informed by a range of historical, geographical and socio-economic factors and such contextual factors continue to shape the institutions' missions and strategies for the future – a future in which competition for funding (from a range of sources), and linked issues of reputation, are likely to play a large part. In this chapter we have sought to analyse some findings from our fieldwork in a way that reveals the values underlying approaches to, and processes of, knowledge production and knowledge exchange. Our use of Bernstein's concepts and notions of code (which draw the focus away from the economic value of knowledge and towards more overt concerns with 'who' is shaping knowledge) has facilitated the identification of diverse values and their constitution by different classifications and framings. This has enabled us to explore the complexity of the processes of change as it is experienced by staff involved in academic work. Whilst we have found competing and sometimes contradictory values underlying their knowledge work, it does seem that the strong framings for knowledge production and knowledge exchange provided by national policies steer academics' efforts towards economised codes of knowledge. And whilst the knowledge society discourse talks of universities' potential to transform societies, such a steer may be limiting this potential if one values societal transformation in all its diverse, non economic dimensions.

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# Chapter 9

## Global, National and Local? The Multilayered Spatial Ties of Universities to Society

Anna Kosmützky and Amy Ewen

### 9.1 Introduction: Homogenizing University Profiles?

One of the most recent prevalent changes and pervasive forces within higher education is its globalization. The increase of international activities and international interconnectedness has been well documented, and national higher education systems have started to account for global trends in their nation policy making process (see e.g. Ziguras 2011). As Altbach and his colleagues Reisberg and Rumbley recently put it, it is impossible for higher education “to opt out of the global environment, since its effects are unavoidable” (Altbach et al. 2009, 3), and they assert that there is “no corner of the globe or institutional type” that “has proven itself immune to the call to internationalize in some fashion” (Rumbley et al. 2012, 3). Going global and increasing the international dimension appears to be a holy grail, a magic bullet, a “must do” for all universities, their leaders and their departments. Recently, one of the founders of the MOOC platform Udacity, Sebastian Thrun, even predicted in an interview that there will be only ten

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universities left in the world in 50 years – he thinks of universities that are able to network and operate on a global scale (Economist, December 22, 2012) indicating increasing global competitive processes, and thus pointing to homogenizing competitive forces that operate on a global scale. Based on our field work in the CINHEKS study, we agree that there is a lot of pressure on universities for “going global”, specifically on university presidents, and we clearly see a pervasive interconnectedness. That said, to better understand the way in which current trends might actually play out, this pressure and recent developments needs to be contextualized both with regard to the nature of globalization processes, as well as the history of the university, as an institution, which generates its own highly situated realities which do not merely mirror or mimic societal change.

Robertson has described this nature of globalization with the term “glocalization”, which refers to the “simultaneity and interpenetration of what are conveniently called the global and the local” (Robertson 1995, 30; see for a similar multicausal/multidimensional perspective: Giddens 1990). Thus, glocalization points to the co-presence of both universalizing and particularizing tendencies of globalization and localization and of globalization and multiple and intermingled dimensions of globalizations processes. These processes are highly fluid and relate to each other in a dynamic way. And partially, there can be antagonistic tendencies at different levels which are operating in a contradictory or oppositional fashion, which manifest in backlash(es). Instead of a homogenizing global development, one can find examples of coexisting processes of nationalization or regionalization everywhere. The picture is more complex than it seems at first glance, and it gets even more complex if one adds a historical dimension to the picture and focuses on historically multilayered spatial orientations of universities. And there is a wide-ranging consensus in research on the historical development of the university, that the university has always been a bi-focal or multi-focal organization, depending on the focus of its mission – teaching, research, innovation and transfer – and has operated between the poles of local-national-global and balanced both (Stichweh 2001; Välimaa 2004; Krücken et al. 2007; Scott 2011; Marginson 2011).

Within the collaborative framework of the CINHEKS project, our case study teams started off from the common ground that will be identifying one ‘globally focused’ and one ‘regionally focused’ institution with an institutional profiling, followed by the study of similarities and differences between selected institutions, using in-depth case studies. For the German team this was especially complicated. Germany has been and legally still is, basically differentiated along the lines of binary structure consisting of Universities and *Fachhochschulen* (Universities of Applied Sciences). Since the 1970s the configuration of the system was based on the assumption of an overall equality of universities on the one hand and *Fachhochschulen* on the other hand, and funding structures, institutional settings

and regulations were built on this assumption (Kosmützky 2010).<sup>1</sup> But at the same time the regional function of (German) universities has been emphasized since the 1970s (Teichler 1982; Webler 1984). Whereas the focus of political debates in the 1970s regarding the relationship of universities to their region was on students, reducing educational and social inequalities and an increase of competitiveness of universities for students, the relationship of universities to their region became of industrial interest in utilizing the universities' potential in basic research in the 1980s. This led to a lot of governmental-sponsored schemes for regional development of universities, particularly those founded in the 1970s and 1980s, with a particular regional mission. In the 1990s regional innovation systems and models of knowledge production (mode 2, triple helix) that emphasized networks between university, industry and government were key to policy debates, thus again emphasizing the relationship between university and the region (For a detailed discussion of economical and non-economical functions of universities, see: Larmann 2013). Within policy debates regarding knowledge society topics (e.g. advancement of knowledge, life-long learning or expectations of utility and relevance) and in the realm of globalization, the international dimension has become more important for all German universities and affects many decisions, and international activities have become central and systematic (Teichler 2010; De Witt 2009; Teichler 2004).

Therefore we assumed that university profiles were, at best, 'snapshots' of quickly evolving institutional realities, in general, which would nevertheless allow us to identify more global and more regional oriented cases. Eventually, we problematized our selection of profiled higher education institutions, with a key question; thus, this chapter examines how German universities position themselves on different competitive horizons and how –or if – they cope with and reconcile their traditionally multilayered spatial ties in an increasingly globalized environment. Within higher education research two heuristically promising concepts for the empirical analysis of the three-level structure of the locality of contemporary universities can be found: the glonacal agency heuristic (e.g. Marginson and Rhoades 2002) and the competitive horizons heuristic (e.g. Välimaa and Hoffman 2007). Both concepts offer complementary accounts: the glonacal agency heuristic emphasizes a simultaneous significance of all different spatial orientations, whereas the competitive horizon heuristic highlights competing logics, along the spectrum of the reproduction and transformation of knowledge; where these logics play out, in the global division of scholarly labor; the supply and demand linked to key strata and the scholars, students and stakeholders implicated in each. Although this might

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<sup>1</sup> But such equality has always been more fiction than fact, and as Teichler has noted, beneath this legal institutional differentiation, a diversification through types of institutions "was constantly 'on the move' and 'never stable'" (Teichler 2010, 159). And despite the overall makeup of the system configuration differences both vertical (differences in quality, basically research quality) and horizontal dimension (differences in disciplinary profiles) were present in the German system. Typically the vertical dimension has been more emphasized and attributes related to the horizontal dimension (international vs. regional) have been interpreted vertically and the attribute internationality has been seen as more reputable than the attribute regionality (Teichler 2005).

be perceived as contradiction at first glance, we argue that universities are loosely coupled organizations usually comprising different disciplinary backgrounds and a variety of departments that accomplish research and teaching tasks and functions (e.g. Weick 1976; Clark 1983; Musselin 2007). Furthermore, particularly the third mission tasks of universities come along with a regional orientation (Laredo 2007). Thus, a dominant orientation profiled at the institutional level often misses the complex demand implicated by all three functions and the sub-units which directly address these co-existing realities in their day-to-day work (Hoffman et al. 2011). Therefore, we combine both heuristics – the glonacal agency and competitive horizon – to conceptually illuminate, trace and disentangle the local, regional, national and global embedding of universities regarding distinct strata of universities activities. Due to the nature of globalization processes and the historical persistence of multiple spatial orientations of universities, we do not expect a unilateral striving for a global interconnectedness among university leaders and among university members, but rather differences – which can be better explained – along the lines of the missions of universities (research, teaching and knowledge transfer), at particular horizons of demand and the aim of this article is to analytically capture and empirically unpack these differences.

The chapter is structured as follows: To provide conceptual backing for our argument, we firstly advance Robertson's concepts of globalization and the abovementioned complementary heuristics, integrated with a historical dimension of universities and the national or nation-state dimension. This backing allows for an analysis of the highly situated, emergent, structural nature of contemporary universities.

Second, the methodological approach of the empirical investigation is outlined. As mentioned above, our empirical analysis is part of a larger international comparative research collaboration which aims to illuminate the changes and continuities in networks of higher education institution in knowledge societies, and included a two-stage research design based on intuitional profiling and institutional case studies. On the basis of stage one, the institutional profiling, we selected our case study objects (globally vs. regionally oriented universities); on the basis of stage two, the case studies, we now take a closer and more detailed look behind the curtains of the official self-description of the universities' spatial orientation. Third, the results of our comparative case study analysis are presented. We argue, firstly, universities are currently profiling a primary competitive horizon, using institutional facts and figures and representing the international dimension as more prestigious and more highly valued by university leaders. However, it is equally clear that universities simultaneously operate on different spatial dimensions according to their research, teaching and third mission tasks. Thus, our conclusion eventually points to a *nuclear shell model* or *atom model* of spatial orientations of universities to society.

## 9.2 Conceptual Framework: Dynamic and Interrelated Global, National and Local Ties

Against a unilateral and one-dimensional economic and political explanation for globalization, Robertson (1992) has re-introduced global culture as important dimension of global developments to sociological globalization theory in his seminal work. He outlines a “minimal model of globalization” (1992: 57), describing globalization as an open and voluntary development based on complex independent social agencies and cultural interpretations, which is not meant as reduction of just another single factor, but rather as methodological turn calling for empirical investigations of concrete processes beyond capitalistic driving forces. From this point of view globalization is seen as a complex set of economic, political and cultural developments and driving forces, not as a single process and not as a one-directional maelstrom that absorbs all other development. It is important to distinguish between globalization and processes with different spatial dynamics: localization, nationalization, regionalization, internationalization and even transnationalization. Globalization is not coercively contradictory to such spatially restricted processes, but these processes are highly fluid and relate to each other in dynamic ways with partially antagonistic and partially confluent tendencies at different levels, operating to some extent in a contradictory or oppositional fashion, partially in a synergetic one (Robertson 1992; Held 1999; Djelic and Quack 2003; Scott 2011). Thus, globalization is by no means just a one-dimensional and single process, but one might agree with Välimaa (2004), who has described localization, nationalization, and regionalization as dimensions of globalization.

According to Robertson’s perspective, the university is one of the most important cultural institutions, and has been central in the last two centuries and it has become even more central within the knowledge society that has emerged during the last half-century (Frank and Meyer 2007), and has not been just passively anticipating and adapting globalization, but rather is at the same time has been one of the driving forces of a world-wide rationalization (Schofer and Meyer 2007) and glocalization. Additionally, if one wants to discuss the interactions of universities and higher education institutions in general within an increasingly globalized environment, one has to take into account that universities as organizations have a long tradition of combining different spatial orientations, also fostered by the combination of a research and teaching function. Since the beginning of its history, the university has been committed as a local organization – usually even associated with a particular city and its name. But at the same time the university was an equally international or transnational institution that has always served the transfer of universal knowledge, had appropriate curricula and “internationally mobile” teachers and students. And an additional national integration of universities has developed – at latest – with the emergence of the modern research university in the ninetieth century – initially through nationally oriented curricula and examination practices (state exams) and training of civil servants, but at the same time

universities have become highly fixed to their geographic location due to the necessity of constructing a community of students, professors and critical resources like libraries and laboratories (e.g. de Ridder-Symoens 1992; Stichweh 2001; Rüegg 2004; Marginson 2011; Scott 2011). Focusing on the historical development of the university shows ongoing tensions, but also synergies between the local, national, and international or transnational and global positioning of the university.

The glonacal agency heuristic has been developed to advance the significance of studying global phenomena in international comparative higher education. A field that the authors describe as conceptually focused on the nation state, whereas they argue that universities are nevertheless increasingly global actors that expand their influence internationally, they are at the same time globally, nationally, and locally implicated and these “multiple realities” are central to the glonacal agency heuristic (Marginson and Rhoades 2002, p. 288). Thus, their term “glonacal” incorporates the terms – global, national and local as “three intersecting planes of existence, emphasizing the simultaneous significance of global, national, and local dimensions and forces” (ibid., p. 282). They do not see a linear flow of influence from local to global or vice-versa, rather simultaneity and reciprocity of flows of influence on different levels. None of the dimensions has a priority and there is no primary referent level, but rather the heuristic emphasizes the intersections, interactions, mutual determinations of these levels (ibid., p. 289), and, thus, illuminates the simultaneity of local resistances and oppositions to global patterns and global pressures on local conditions. Furthermore, they are emphasizing that not only are universities organizations, but also departments and colleges can be international, national, local in their activities. The second part of their concept refers to organizational agencies and human agencies that exist at each at the institutional levels as well as department, school or college levels, and is exercised through different mechanisms, creating quite different and even contradicting dynamics.

Other than the glonacal agency heuristic, which – to our knowledge – has not been challenged empirically, the competitive horizon concept is an outcome of an empirical study on the reactions of Finnish universities to the challenges of the Bologna Process (Välilmaa and Hoffman 2007; Hoffman et al. 2011, 2013). Välilmaa and Hoffman initially articulated the heuristic to explain why basic units (Becher and Kogan 1992) on the same campus perceived the purposes and potentials of the Bologna Process quite differently – and acted on those perceptions. Their analysis is rooted in Bourdieu’s analysis of academic and scientific power (field-specific capital), and thus they were focusing on the resources at stake and processes in play regarding the local, regional/national or global orientation in basic units and of individuals. “In this way, the competitive horizon (of an individual, faculty or university) empirically illuminates the quite different perspectives whereby academic personnel orientate their effort in relation to the mission of the university” (Välilmaa and Hoffman 2007). In their comparative case study analysis they found three different types of basic units with different competitive profiles “high, low or no profiles with regard to recognizable empirical proxies of internationalization” (ibid., p. 5), depending on the resources and processes in the basic unit. In later studies, in which the heuristic was conceptually elaborated and

empirically grounded (Hoffman et al. 2011, 2013) these strata were characterized as world class, ‘national champions’ and ‘local heroes’, indicating three fundamentally different competitive horizons and illuminating a division of labor regarding the spatial scope within departments. The empirical work highlights that the orientations are not mutually exclusive as there are overlaps, interesting border areas and connections between strata. That said, basic units often have a primary orientation which results in a dominant focus: “these focal areas are not mutually exclusive as overlap can occur and does occur. However as our results indicate a basic orientation can be found” (ibid., p. 5).

For us, both concepts offer complimentary accounts: a focal or dominant horizon coexists – and illuminates – interactions, intersections and mutual determinations as well as resistances and oppositions, and we specifically ask where the different spatial dimensions play out and what kind of agencies are influential in this respect.

### 9.3 Methodology: Institutional Profiles and Comparative Case Studies

When “how” questions are posed, case studies are a highly preferable strategy and the focus is on a contemporary phenomenon within some real life context (Kohlbacher 2006 referring to Yin 1981). Precisely, a two-fold research strategy, combining a larger set of institutional profiles (step 1) with a smaller set of case studies (step 2), was set-up (see Chaps 3 and 6). According to the overall CINHEKS research design, the profiles and the case studies were designed to methodologically illuminate continuities and discontinuities in the relationships between higher education institutions and society at different levels of analysis. Thus, the profiling and case studies were used firstly to examine the nature of spatial ties and relationships. Secondly, since case studies are generalizable to conceptual or theoretical propositions and not to populations (see e.g. Hartley 2004; Yin 2003; Stake 2004), we have utilized the profiles and case studies to generate analytical generalizations to discuss and develop conceptual level discussion the glonacal agency and competitive horizons heuristics provide.

We initially completed institutional profiles for five German higher education institutions, purposefully selected because of their highly distinct institutional contexts, which are emblematic of the German system. This said, we did not envisage focusing on a German case “as such”, but rather on the analytical generalizations that become available in a particular national context, an important distinction lost in international comparative higher education (Kosmützky and Nokkala 2014). Sources of information for the institutional profiles were first and foremost information available in the public domain, mainly institutional websites and publications and databases from the institutions and furthermore “systemwide” websites like *Hochschulkompass* (see <http://www.hochschulkompass.de>) and data sources like official statistics, accreditation reports and rankings – if applicable.

**Table 9.1** Research design

Research Design			
Research strategies	Profiles	↔	Case studies
Research methods	Data collection and review	↔	Content analysis
Research dimensions	Institutional context and mission		
	Knowledge organization and management		
	Knowledge production		
	Knowledge transmission		
	Knowledge transfer		
Research objects	Traditional (old) university (multidisciplinary, but without engineering), high reputational		
	Young(er) university (multidisciplinary, but without engineering), high reputational	→	Globally focused university
	Reform university (founded in 1970s), member of network middle-sized universities	→	Regionally focused university
	Monodisciplinary university = technical university, member of network of technical universities (TU9)		
	Teaching oriented university (Fachhochschule), large and wide range of subjects		

Thus, the data used for the institutional profiles is mainly descriptive in nature and sets out – due to the shared CINHEKS framework – the current institutional context and mission, knowledge management, knowledge production etc., whereas the case studies were designed as explanatory case studies according to Yin (2003) and as instrumental case studies according to Stake (2004) (Table 9.1).

The information collected with the institutional profiling was compiled in a comprehensive German profile report and utilized for the two case study reports, for the purpose of international comparison and confidential for project members. Furthermore, we selected two universities for the case studies on the basis of the institutional profiling and along the lines of the competitive horizons concepts assuming on the basis of their facts and figures that these universities might also maintain a self-perception as global and as regional player. One that is primarily ‘globally focused’ with a tendency towards a global orientation and a main focus on international cooperation and networks and one that is primarily ‘regionally focused’ and deeply rooted in the region (two of the five universities were regionally oriented, two were globally oriented and one was in-between).

Case 1, according to our institutional profiling the globally oriented case, is a mainly mono-disciplinary university founded at the beginning of the nineteenth century as a polytechnic school. At the end of the nineteenth century, the institution was renamed an institute of technology, and in 1967 it became a full university. It has about 20,000 students and 350 professors, and offers about 90° programs, in several fields, focused on sciences and engineering, but also including social

sciences. The university is listed in international rankings, is in the top 40 in the funding ranking of the German Research Foundation (DFG) and was successful in the Excellence Initiative.

Case 2, a regionally oriented university according to our profiling, is a medium-sized university (about 10.000 students and 200 professors) and was founded in 1970s within the frame of the national expansion and reformation of the German system of higher education. It was established to enrich its region with economic and cultural impulses and to strengthen the region as a center of science and research. It has five departments and offers about 90° programs in natural sciences, social sciences and languages and cultural studies. So far the university is not listed in any international ranking, has not reached the top 40 in the funding ranking of the German Research Foundation (DFG) and was not successful in the Excellence Initiative.

Thus, we concluded from the institutional profiling that both universities profile themselves at different competitive horizons, and therefore have adopted this as their focal or dominant spatial orientation. This overall spatial orientation confluent with the size and history of the university indirectly and it follows that this, in turn might have an effect on the resources of the university and the processes at play. However, the case study, as a methodological approach, allowed us to problematize, confront and challenge both institutional self-perceptions and self-descriptions and the extent to which this unilateral picture is connected – or not – to an empirical basis and the complex organizational realities of contemporary universities.

To complete the case studies, we used multiple sources of evidence (Gilham 2000). Basically we performed a total of 59 one-hour interviews (conducted in 2011) with university leaders and heads of departments as well as scientists from selected disciplines and institutes (Sociology/Social Sciences, Mechanical Engineering, Chemistry and Biology of the Marine Environment), used participant observation and interview memos as well as several types of texts and documents produced by the institutions.

Using this data allowed us to develop insights into the nature of networks in German universities along the dimensions of (a) institutional context and mission, (b) knowledge management, (c) knowledge production, (d) knowledge distribution and (e) transfer of knowledge. The interviews have been fully transcribed and analyzed with qualitative content analysis (according to Mayring 2000, 2003 also following Gläser and Laudel 2004) with a directed approach for the examination of data material, starting with our conceptual dimensions (institutional context, knowledge production, knowledge management etc.) as guidance for initial coding of the interview material (see also Kohlbacher 2006). Supported by the qualitative research software MaxQDA, the interviews were coded and every unit of analysis allocated to one or more dimensions (revised in feedback loops within the process of analysis) followed by the interpretation of the text as well as of the underlying context, latent structures of sense and things that do not appear in the text.



## 9.4 Case Study Analysis: Starting from Different Competitive Horizons

In this chapter we present the results of our comparative case study analysis. The results are presented in a way that is aimed at analytical generalizations. Thus, for both cases it first focuses on the perception of competitive horizons. We focused on the on these competitive horizons related to the institutional context and mission of both universities mainly in interviews with those who are in charge of the “official” mission of the university: university leaders and heads of departments and institutes. We did not confront our interviewees with a specific spatial perspective of their university, but rather talked about the university’s mission and recent changes of mission in general.<sup>2</sup> Secondly, aspects that have been addressed as affecting the composition of different spatial layers are discussed. They are related to the core tasks of universities – research, teaching and their third mission tasks. In addition, these corresponded with the conceptual framing focused on by the CINHEKS team leading the cross-case analysis of profiles and case studies, specifically: knowledge production, knowledge transmission and knowledge transfer. These were approached by purposeful selection, which lead to interviews with faculty in different departments and units.

### 9.4.1 *Deeply Rooted in the Region, Striving for Internationalization*

Along the lines of our assumptions about our regionally oriented case, its regional character has been emphasized. The regional orientation is very important – regarding the research and the teaching function, as well as regarding its third mission – but internationalization has become an important issue and strategically labeled, in the past 5 years as a “second leg” (*zweites Standbein*). University leaders saw the university as “deeply rooted in the region”, but striving for internationalization and this is “the agenda for the coming years” (regionally oriented university, leadership interview). The region alone was not perceived as a singularly reasonable, unique selling point or brand essence for the university. Instead, in terms of image and institutional reputation, it was perceived that a regional orientation, by itself, easily turns into ‘provinciality’, if the university does not develop and maintain international top tier collaborations at the same time, and provinciality is perceived as a competitive disadvantage as the following quote illustrates:

The worst thing that could happen to us would be to be kept here, in quotation marks, as a (...) provincial university that only works from the dyke to the meadow and which does not

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<sup>2</sup>The name of the university has been replaced in all quotes by “the University”. All quotes in German have been translated into English by the authors.

exchange with, now I would say deliberately, Harvard, Princeton, or something similar. That would be our death sentence (regionally oriented university, leadership interview).

Maintaining international cooperation (at top tier level) is perceived as essential and a matter of course for a university. Being just a regional entity without international exchange is described as subverting the university into provinciality, which implies connotations such as being too narrow, backward oriented, underdeveloped or limited. The term death sentence implies that a university without international exchange is not perceived as university at all.

Another competitive disadvantage for the regional player is its size. It is perceived as a particular disadvantage, which does not allow for a nation-wide competition for research funding, the Excellence Initiative, and the international research competition, because in small universities, a wide range of subjects is often covered by a small number of professors.<sup>3</sup> As expressed in the next quote, the university is described as small no-name university, which connects size and reputation:

This is a small university, yeah? A no-name university, so to speak. So we have to specialize in certain areas. It's not big enough really to compete on all levels. So we have a hard time, let's say, taking part of the excellence initiative of the German Science Foundation because groups are too small. Though there are certain parts of the university that are really good. They can compete on an international level, I would say (regionally oriented university, leadership interview).

In this quote a relationship between overall size of the university, its competitive capacity and specialization is drawn. Size is interpreted as condition for institutional reputation and the chance to compete in the nationwide competition for research funding, the Excellence Initiative.<sup>4</sup> The implicit and underlying chain of cause and effect is: small size and low reputation calls for specialization, because the ability to compete for research funding is based on large(r) groups. But the quote furthermore illustrates that there are two kinds of competition: one for funding (nationwide) related to size and one for reputation (internationally) based on research quality, which is expressed in the ability to compete on the international

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<sup>3</sup> As Blau (1994) and Becher and Trowler (2001) have argued, it is beneficial for small universities when they hire professors who cover a wide spectrum of topics, because this attracts Master students, and having a lot of Master students is again attractive for professors.

<sup>4</sup> The Excellence Initiative is a billion Euro funding program by the German Research Foundation (DFG) in cooperation with the German Council of Science and Humanities (WR) for German universities, which has started with a budget of 1.9 billion € in 2005 (for the funding period 2007–2012) and has been prolonged from 2012 to 2017 with an increased funding volume of 2.7 billion €. The initiative *is trying to establish internationally visible research beacons in Germany* (BMBF-Excellence Initiative). Therefore, its main goals are to support top-level research, to improve international visibility and competitiveness, creating outstanding conditions for young scientists, intensifying scientific competition and promoting equal opportunities for men and women. Excellence Initiative has three funding lines: graduate schools for promoting young researchers, clusters of excellence for supporting top-level research and institutional strategies for advancing institutional innovations and has become a very important source for research funding for German universities.

level. The solution for this disadvantage that was presented to us in a very straightforward way in all interviews without seeing any alternative was specialization and internal differentiation. But this “solution” creates another tension that is expressed in the following quote and labeled with the description “stretching in two directions”.

We are a small university, and we are supposed to serve the region in terms of simply doing, sort of, basic higher education for the needs of the region, where there is no huge metropolis, so it is not supposed to be too sophisticated. At the same time now, we are supposed to produce international top research. So what can we do? We have to cluster; we have to sort of concentrate in a few areas and this creates a tension. On the one hand we need all these colleagues who do the nitty-gritty lower teaching work (...) and at the same time we need the top specialists who can compete or at least be in the same conferences as the people from Harvard or Stanford or any other top place. And that is a very difficult thing because you are stretching in two directions (regionally oriented university, leadership interview).

Stretching in two directions as an organization comes along with the perception of two opposite or at least different types of scholars or academics: colleagues who basically teach and colleagues who are perceived as specialists for international research competition. The two directions that are mentioned are not just perceived as horizontal differentiation of the competitive horizons of research with a more regional focus vs. research with a more international focus, but rather as vertical differentiation between teaching (“lower work”) and research (specialists who participate international research conferences). And international research cooperations are more highly valued in this university and strategically fostered:

Cooperation in research between individual scientists can't be, nor should be, I think, centrally controlled. For international partnerships that is of course something else. International partnerships bring forward a scientist's research and at certain places try to force them. We have some core partnerships which we try to furnish well. (regionally oriented university, interviews presidential level)

Whereas we found a wide-spread perception in leadership interviews that research cooperation and collaboration in general is a self-organizing network among scientists, consequently international collaboration is seen in a different light and as something that is “of course” different from cooperation in general.

But when it comes to the teaching function of the university, a different picture has been presented to us. According to our institutional profiling both universities also have quite different catchment areas for recruiting students: very regional to broad nation-wide. The catchment area of our regionally oriented university is predominately regional and a proud regional orientation was also expressed in our interviews:

We have never made a secret of it, and in fact always stressed with a certain self-confidence, we recruit strong regionally (regionally oriented university, interviews presidential level).

Whereas a regional orientation regarding the research function has been described as death sentence for a university, recruiting strongly regional is seen a source of self-confidence and obviously does not come along with negative

consequences for the university's image. Particularly for undergraduate studies the regional focus is seen as very important.

At the Bachelor level we need to strengthen the regional function and the demand shows us that we are right and that we play an important role at the classic areas. That is the case of course in the field of economics. There we train the students focusing on the local economy. There are a lot of people from the region who want to stay in the region and want to study here with the aim of working afterwards at a company here and so on because many have strong ties to the region. The students say: I need a cow in front of my window and if I don't have it I cannot be happy. And we are not bad at that. And this regional function, which is even expected and it is also one of the veins of the University. Because the University was strongly supported by the region in its foundation phase.

Focusing basically on the region as catchment area works out for this university because of a supply-demand balance at the undergraduate level. The interviewee also pointed to a specific type of student who can be described as being more local and prefers to stay in the rural region. The aspect of geography and landscape (rural vs. urban) is addressed as potential influencing factor on student's choices. German students study preferably near their place of origin. This phenomenon that has been addressed in the literature on choice behavior of high school graduates in terms of distance from home and has been labeled as hotel mama pattern of choice and educational sedentariness (for an overview on the German literature on educational sedentariness, see: Larmann 2013, 40). However, a regional function has even been labeled as lifeline (*Lebensader*) of the university, and refers back to the founding conditions of the university. But besides its regional orientation and a regional job market that is strong enough to absorb enough graduates, there is an awareness of the need for international competencies of their students and the university's role in opening up the local/regional horizon of students to the international dimension. Thus the university has established a program that internationalized their students "at home" so to say, and brings international scientists as lecturers to the university to introduce teaching in other languages to students and to bring other university cultures to the university. The main aim of the program is summed up in the following quote:

Students should come into contact with other cultures and also with university teaching in a foreign language during their studies. However, in our program they are safe and warm in their home country. The hope is that they'll also be more likely to develop the idea of time to go abroad.

But it was mentioned that this is an important and somewhat difficult task, since most of the students are coming from the region and have a strong regional orientation:

It is a particular challenge for the university to inspire those who are already so focused regionally, for example, to study abroad, for foreign language teaching and the like (regionally oriented university, interviews presidential level).

And still, a great deal of teaching is focused in the region, with other nearby universities, and this, coupled with the strong regional makeup of the students, adds an element of competition that a more globally focused university may not have to

deal with. But recruiting students mainly locally is also somewhat problematic due to the increased competition for students, as has been mentioned above, and the university is highly interested in recruiting more students nation-wide and even international and “placing” more of their graduates internationally. This has been described as something that is inherent to the nature of a university (“naturally”):

We are naturally interested not only that the students educated here remain only in the region but in fact also, let’s say, that they go to other powerful research units around the world, such as in the post-doctoral phase, so as to also make clear that the university there is a powerful university, which also makes the corresponding export. On the other hand, at the level of the students, it is very, very important that people from America, from Asia, from Africa come here and know that we are a visible place to study for these people, that if you think about it, where one is going, the university is considered. This is absolutely essential (regionally oriented university, interviews presidential level).

Thus, university has developed different strategies to attract more international students, e.g. international summer schools to attract international student, the establishment of an Erasmus-Mundus-Program, and they have established a European school in a certain research area, particularly dedicated to an international student population. The term naturally refers again to a perceived the nature of a university. A core of this nature includes the maintenance of international exchange and furthermore the transition function for student experiences from the local to the global level.

But this is just one part of the picture we were confronted with in our regionally oriented case, because at the same time an increased and sharp nation-wide competition for students at the master level has been mentioned in many interviews. And correspondingly we found the assumption of specific “competitive disadvantages” or “structural disadvantage” that this university faces because of their size and peripheral geographical location, which has been particularly expressed in terms of missing high speed train connections. Highly specialized Master programs are seen as a feasible strategy to attract more students nation-wide or even internationally and the university tries to foster such an offer. The university already offers a masters in mobility management which attracts students more, nationally-speaking. Specifically: 80 % of the students *do not* come from the region. But university management also confesses that this master is an exception and best-practice-model, whereas the university copes with mainstream studies in most of the other social science masters, which are thus more attractive to study in a large city or even metropolis like Berlin, Hamburg, Köln or Munich.

In study programs where we have a relatively strong standard mainstream offer we have to cope with the problem that it is really difficult to attract students who do not know the university already. So, without wanting to offend the colleagues when it comes to Social Sciences, if the offer is similar, one can study of course in a more beautiful or more attractive even bigger city (regionally oriented university, interviews presidential level).

In our regionally oriented case place and size have been emphasized not just regarding the spatial ties of this university in research and teaching, but also in regarding its community outreach and third mission in general. Regarding technology transfer, community outreach and the third mission of the university in general

our regional player has strengths in a certain research area in acoustics and runs an open house for that research which is a mixture of lab for applied research, place for public lectures as well as place for science fairs and research and business meetings, etc. This open house is run by researchers of the university, but it is clearly supported by university leaders and has even been labeled as the flagship of technology transfer and local community involvement of the university. This strategic initiative is based on inclusiveness and focuses on local businesses and industry also including the local community and local students and the wider local public. There appeared to be a more grounded awareness of the relationships to the regional and local community at our regional case. Our interpretation is that this stems from the founding story of the university according to which the university was founded specifically to fill an educational void in the area, and this mission remains. Additionally, as the university is located in a smaller city and the relationship of individual members of the university with the city is perceived as relevant.

Of course we are citizens of [this city] at the same time and of course we impact social life (...) so a couple of faculty members and they slowly diffuse into the society, of course it has an enormous impact. This same thing in Berlin, you would hardly feel it. There are three million people and couple of universities, professors. They don't change the system but in such a small city, yes (regionally oriented university, interviews presidential level).

Small universities in peripheral locations are mostly in small towns, which means the university has little competition for public attention and may play a dominant role in the city (Larmann, 2013).

#### ***9.4.2 Internationally Established, Grounded in Regional Strength***

In line with our results from the institutional profiling, our globally oriented university positions itself very confidently amongst the leading research institutions worldwide. Global and national rankings confirm this position. But nevertheless, when we talked about this top tier position, excellence and competition, all of our interviews pointed to certain specific research areas, groups and institutes, which were perceived as flagships in terms of visibility, reputation and strength in research internationally, but also nationally. The following quote illuminates that the idea of creating internationally visible lighthouses or *internationally visible research beacons in Germany, as fostered by the Excellence Initiative*, is interpreted not at the institutional level, but rather referring to two research areas which are perceived as largest, biggest and strongest at the national level. But at the same time the overall reputation of the university, even without detailed knowledge about the research, attracts potential international and private-sectors cooperation partners:

When it comes to lighthouses we are the largest (...) researchers in Germany. In the field of (...) we are the strongest and the biggest and also the ones with the greatest expertise. The

other thing is that when people come, they say in a very broad way that the university is great. They have heard that somewhere, they want to find out how they can cooperate with us but ask us what we actually do. We have received those questions from the private sector and also from academic partners from abroad. They know something like (...) and so on but where, what exactly and about our profile they have no idea (globally oriented university, interviews presidential level).

This quote demonstrates that size matters also in the self-perception of our globally oriented university. Similarly the national level is marked as important reference point in this quote and has played an important role for many of our interviewees when we talked about competition. But at the same time the region is stressed as important and university leaders clearly express the need to be rooted in the region. In our globally oriented university we found a similar, but inverse perception regarding the spatial orientation than in our regionally oriented university: being globally or internationally oriented, while being grounded in the (technology) region. The region is perceived as a necessity and somewhat important for the native local grounding of the university. In the following quote the regional orientation of our case has been tied to necessities of the labor market:

It is very important that we have a strong regional focus, a strong regional orientation. In the technology region the University is a very important employer, and thus, the relationship between the University and the region is clearly strong (globally oriented university, interviews presidential level).

Another quote illustrates:

We live in a networked world, in a globally networked world and sometimes you get the impression that it is all about having the right international networks, right? I am completely convinced that this is not true, but rather, that one can only play at the world top tier on the basis of regional strength. (...) you have to be very strong in your very own area, where you can act very direct and quickly on the basis of relatively short distances—expressed in meters and time horizons and minutes – and where you move things quickly and inspire people. You have to be strong in your core area, in your region, otherwise, everything else would be very, very difficult (globally oriented university, interviews presidential level).

Whereas the international role of this university has not been questioned, the importance of the regional role in this case is emphasized, basically being described as employer in the technology region.

The university plays a very important role in the region, particularly for small and medium sized enterprises. A lot of cooperation with them takes place. As a matter of fact there are spin-offs and stories like that. And I believe that university also benefits from the technology region. But when I look at the international market, then I even have to explain to people where the university is (...). But the role that the university has for small and medium size enterprises should not be underestimated. It is an important partner for them. (globally oriented university, interviews presidential level).

The catchment area for recruiting students has also a core in the region, but is basically nation-wide. Correspondingly, none of the interviews pointed to any problems of recruiting student's nationwide, an increased competition or competitive disadvantages that this university might have within the national frame.

Instead we were confronted with a widespread confidence and conviction of a competitive advantage that their graduates have on the job market stemming from to the international reputation of the university, which is illustrated in the following quote:

In a practical way, the job market is much better for the students if they have references from something that is internationally known. That it's different having a degree from a, I would say, a local university (globally oriented university, interviews presidential level).

The distinction that is made in the quote is between an internationally known university and a local university, thus clearly referring to different competitive horizons of universities.

Even if this university perceives itself already as global, the big draw in this university is the international aspect and recruiting top students for PhD programs and graduate schools. Interestingly, teaching was marked as important in all interviews with university leaders.

Teaching is important but we are at a University which, we must admit (...) a strong inclination towards research. And teaching should be twice 50/50 but the focus here is clearly towards research and one has to point out that. Yes, the university is regarded as a research institution. We are one of the largest, with the largest research facilities in Germany and one of the largest in the whole world. Nevertheless, teaching plays a very important role above all. (globally oriented university, interviews presidential level).

Interview pieces like the one above have nourished the overall feeling that teaching is not taken as seriously as research and one should be a bit skeptical about its real importance. Additionally, all of the interviewees at the faculty level mentioned that the line between teaching and research is blurred, the time dedicated to teaching is smaller than the time dedicated to research, and teaching – while being indeed comprehensively evaluated – is not valued the same as research. Particularly, since the Excellence Initiative has put a great deal of pressure on the institution, and since the additional money comes more for research, not teaching. One interviewee commented that while she enjoys teaching, others do not and may say that teaching is a waste of time. She added that “the call is clearly research, research, research.” (globally oriented university, interview faculty level).

Focusing on the universities' third mission, we found an opposite strategy than in our regional case. The basic strategy of our global player is focused on the national and international dimension and exclusivity and their flagship of technology transfer is built on the idea of a business club which has membership rules and regulations and even fees, and brings together companies on the management level with heads of university institutes and university leaders. The “ulterior motive” behind this club has been described as follows:

Once a project comes to an end or any of the people involved loses his or her job, the communication between both parties is interrupted and the same is true between the companies and the institutes. What we are aiming with the Business-club is at intertwining strategically on the managerial level. (...) And that goes a little bit into, I would say, the relationship management. It is more about strategies and people than it is about technology. Technology follows it eventually. And that fires that up pretty well (globally oriented university, interviews presidential level).



Among the members of this club are basically large national and multinational technology companies and firms. They get special access and care to the university via the leaders of the university as the following quote illustrates:

Each Business-Club member can of course be put through the Presidium directly and they have time also. You cannot offer that to everybody. That means the membership and the membership fees and this special care is certainly a special access for people to get to the management structure, to issues, services and so on. (globally oriented university, interviews presidential level).

The difference to the third mission approach in our regionally focused university and the third mission approach in this university is evident from the quote above: international relationship management performed through university leaders (based on a strategy of exclusivity) vs. local community involvement by individual academics (based on a strategy of inclusivity).

## 9.5 Comparative Case Study Discussion: Blurred Boundaries and Ideal Types

We started our case study analysis with the assumption of two different competitive horizons of both cases according to their institutional profiles based on facts and figures: one of them appeared to be a globally oriented university, the other one a regionally oriented university. But as our two case studies analysis reveals, this juxtaposition has already been blurred in the perceptions of university mission officials. Internationalization is on the institutional development agenda in our regionally oriented case and it is important for our globally oriented case to also have a strong focus in the region, which indicates that (1) even if a university asserts or profiles a dominant or primary competitive horizon as regional or global player, university leaders have to counterbalance this spatial tie by developing the “other side of the coin”, and (2) even if “local/regional heroes” – as units who operate mainly on the local/regional level have been labeled by the competitive horizons concept – might be a very appropriate analytical description for a university on the basis of its facts and figures, this depiction alone does not work as unique selling point for the universities image as expressed by university leaders. Thus, we conclude from our analysis that universities in general are perceived by their “mission officials” (e.g. university presidents) as organizations with different layers and conditions of spatial orientations from local to global, but with certain strengths, depending on both current conditions, size, resources/personnel and research quality. One of our interviewees in the globally oriented university explicitly compared the multilayered spatial orientations of universities with geological layers as the following quotes illuminates:

One has to think of the University as model that is built like the layers of the earth. In its core the University is a local institution, as next layer comes the technology region, than the

federal state and the nation, than Europe and the world (globally oriented university, leadership interview).

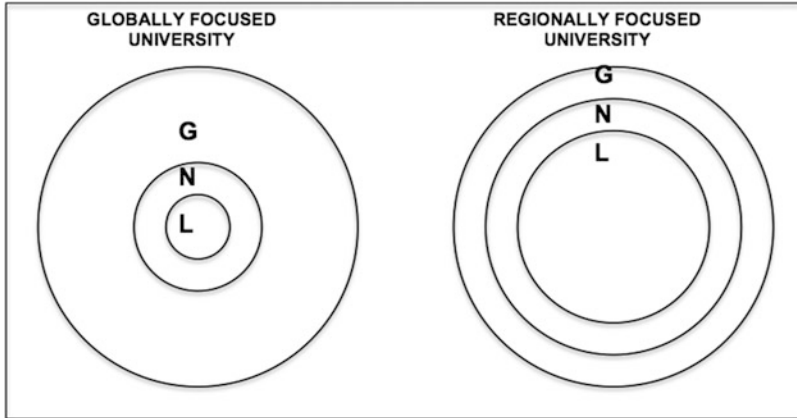
On the other hand globally oriented universities try to ground themselves in the region through local and regional technology transfer and partnerships. Thus, regionally and globally oriented universities stretch out in two directions compensating the lacking spatial tie. But this stretching out in two directions, described as “mission stretch” by Scott (2007), might threat institutional coherence and integrity and maybe even efficiency in the regional oriented university.

But nevertheless perceptions of different value spatiality prevail related to the functions and tasks of universities (research, teaching and third mission tasks). Regarding research, regionalism refers to provinciality. The nature of a university – either a global player or regional player – is perceived as basically international. A university is an international institution. If not (if they are kept in the region and, thus, provincial), they are not “real” universities. “Real” universities transfer knowledge from the local to the global level and maintain international exchange. Regarding teaching, regional ties play out differently: they appear as lifeline of a university and something one can be proud of in the regionally oriented case. But nevertheless the need to open up and link primarily local and regional oriented student experiences to an international dimension is emphasized due to the nature of a university. Both teaching and the region are more important in case of the regionally oriented university, whereas the research focus as well as an international orientation also for the teaching function is emphasized in the globally oriented case. But the reference point here is not the student’s experience, but rather the job market.

According to our analysis and the abovementioned quote, our conclusions are best summarized with the following figure (Fig. 9.1):

Both cases refer to global, national and local/regional ties in research, teaching and also regarding their third mission tasks. But if one symbolizes the significance of each layer as described by university leaders and university members as its thickness, the result is two ideal types of spatial ties shell models. As typical regarding ideal types, a lot of shades of both exist in reality and being globally oriented and being regionally oriented are two opposite sides of a continuum of spatial orientations.

Does this mean that both species live in peace in two different spatial niches? Our case studies indicate the opposite. The national spatial dimension has been perceived and described as the main competitive ground of both species – for funding and for students. And their different competitive horizons of our cases turn into an either in an advantage (globally oriented university for funding, regionally oriented case for students) or disadvantage (regionally oriented university for funding, globally oriented case for students). Furthermore, what we found through comparing our cases is that size is perceived as the most influencing factor for the overall spatial orientation of an institution. A small size is seen as competitive disadvantage and being big is associated with being strong – at least in certain areas. But furthermore, place (small city, rural areas vs. technology region) has



**Fig. 9.1** Two ideal types of spatial ties models of universities

been mentioned as influential as well as the founding history and the initial founding mission of a university. As perceived by university leaders and university members, universities actual spatial ties are tied to size, place and founding conditions of universities. Either labeled as organizational identity or organizational memory, this indicates in any case that organizational traditions and self-description play a role in institutional policies and strategies (Stensaker et al. 2012; Kosmützky 2016). Size and place matters most of all for national competition for funding sources, but the cure to transform specific disadvantages and a lack of internationality into advantages is seen in specialization and hiring (more international) people. As Hoffman et al. (2013) have shown in an empirical analysis of the competitive horizons of Finnish universities, all three spatial dimensions exist in the same universities regarding the competitive horizons of institutes and departments. As the authors have put it: “Empirically it is possible to distinguish basic units (. . .) that have high, low or no profiles with regard to recognizable empirical proxies of internationalization.” (Hoffman et al. 2013, p. 60). The same holds true for our cases. It only needs a finite number of world class institutes to elevate a university as organization to a different competitive horizon. Even a university which aspires to world class status and is globally oriented consists of basic units on different competitive horizons itself. Thus, our regional case is striving to furnish certain institutes, which basically operate on the global level very well, and is trying to hire more top international colleagues for these institutes to elevate the university as a whole to another competitive horizon.

## 9.6 Conclusion: A Shell Model of Spatial Ties

Our overall conclusion regarding the spatial ties of universities to society on the basis of our comparative case study analysis is that a focal dominant horizon coexists with spatial interactions on different levels regarding the research, teaching and third mission of universities. The spatial ties of universities to society are best described as a shell model of spatial interaction. Whereas the international and global layer of interactions, ties and networks in a global player is thicker than in a regional player, the regional core is stronger in a university with a foremost regional competitive horizon. But nevertheless both maintain ties on all level and strive to compensate and balance their different spatial interactions. But these are just ideal types or model of universities building the two end poles of dichotomy and reality many different compositions of spatial orientations can be found. The university has also always been an important mediator between local environments (through their governance, financing, organization and – above all – the composition of the student body) and global or universal (knowledge) cultures in scientific research (e.g. de Ridder-Symoens 1992; Rüegg 2004; Scott 2011). And even in an age of globalization and a pervasive global interconnectedness, the local and regional grounding of universities is warranted through teaching and their third mission, whereas interaction in research constitutively contains an international dimension. In the end, it seems that universities must be rooted strongly in their communities, while still developing global reach. But nevertheless the most important competitive ground, in many cases, manifests in the national context. In this sense, perhaps universities can be likened to ‘ivory lighthouses’, standing on firm local ground while aiming high for an international presence and competing for resources nationally. Regardless of the size and scope of the lighthouse, the goals are the same: think globally, act locally, compete nationally.

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# Chapter 10

## ‘World Class Local Heroes’: Emerging Competitive Horizons and Transnational Academic Capitalism in Finnish Higher Education – 2010–2012

David M. Hoffman, Terhi Nokkala, and Jussi Välimaa

### 10.1 Introduction: Background and Approach

This chapter introduces an analysis based on five **institutional profiles of higher education institutions** (HEIs) (See Chap. 5) and the two **institutional case studies** that were carried out in Finland as part of the CINHEKS study. We begin with our purpose, research questions and methodological approach to case studies in international comparative higher education, in general and in particular, conceptually driven purposeful selection of *focal settings*: higher education institutions (HEIs), sub organizational units; and *individual interview participants within settings*. In terms of theory of the middle range, our empirical focus begins with mission emphasis, disciplinary cultures, career stage and competitive horizons. Following this, we introduce this study within the scope of the CINHEKS study (see Chaps. 2 and 3).

In our analysis, we spotlight three key features of the Finnish case, which are particularly relevant to CINHEKS. This focus has been adopted because it both illuminates salient linkages with other chapters that focus on the countries in which the CINHEKS teams were operating and underlines features of the Finnish case which remain unique. These three features can be most readily seen when our analysis is considered in terms of the relationships between system level, HEI, basic unit and individual levels of analysis (Becher and Kogan 1992).

Firstly, we present an overarching variant of the Finnish higher education systems’ incorporation, in a general sense, of what Kaupinen (2012), Slaughter and Cantwell (2012) have identified as transnational academic capitalism. This is accomplished by contextualizing Finland’s recent legislative overhaul of the laws

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underpinning higher education and its ongoing implementation as this volume goes to press. Our analysis underlines tensions between established tradition, at a national competitive horizon and emergent competitive horizons linked to the global division of scholarly labor. Secondly, the way in which this division of labor manifests is illustrated by a focused contrast on two extreme cases within Finnish higher education. These two focal cases illuminate regional (and *HEI*) survival in one case, and a pragmatic, calculated foray into the global-facing world of HEIs vying for globally significant ranked profiles, reputation and outcomes. The ‘essential ingredients’ judged most worthy by higher education actors in this initial effort speak volumes about what might be seen as our ‘station’ in an emerging global division of scholarly labor and – in retrospect – indicates a further drift from our historical roots. Thirdly, we focus on the resulting *misrecognition* (Bourdieu 1988) of *enduring features* that characterize the Finnish system, as a whole, across the extremes in our case studies, as well as the *paradoxical change and state of flux* that presently characterizes this system. Specifically, from the *outside-looking-in*, Finland’s society, in general and education system, in particular, is internationally – and often uncritically – valorized, on a regular basis (Hoffman et al. 2014). However, from the *inside-looking-around*, many higher education actors are of the opinion that higher education is not changing quickly enough, while others are firmly convinced higher education is changing far too quickly. As in the case of system-level and HEI, it is an analytically driven focus on basic units and individuals – within national systems and HEIs – (Becher and Kogan 1992) that illuminate the continuity and discontinuity that can be compared and contrasted with other cases, yet remains interesting, in and of itself. Our discussion centers on the uncertainty as to the viability of the signature features that are often cited as the basis for the quality of life in one of the last remaining strong Nordic social democracies, in general, and the education system in particular (Välilmaa and Hoffman 2007). Specifically, a form of social cohesion characterized by equality and tight connections between societal need and higher education provision (Välilmaa 2001). Our analysis, in a holistic sense, introduces the question if these may become collateral damage within a higher education system in which a durable survival narrative (Nokkala 2007, 2008) is confronted with a hypercompetitive, economic global ethos in which new higher education hierarchies – in the form of social and institutional stratification subtly emerge, challenging institutional culture grounded in established beliefs, values and norms which explain how Finland arrived at this juncture in the first place and why we are changing, in the second place (Välilmaa and Hoffman 2007).

### ***10.1.1 Purpose, Emergent Research Questions and Methodology***

Concerning the empirical elements of the CINHEKS study two key research questions come to the fore when considering both the sequential and concurrent elements of CINHEKS. These types of emergent research questions are critical in



case studies and result from three key research design tensions in the CINHEKS study (See Chap. 3). The first tension is between sequential and concurrent approaches to the study, the second tension is between approaches aiming at holistic analysis and those which focus on particular, narrower focal points. The third tension is between approaches that take advantage of inductive logic and those which rely on deductive logic.

The profiles and case studies can best be characterized in terms of these tensions as part of the sequential series of empirical studies carried out within the CINHEKS design, specifically, the analysis of institutional profiles, institutional case studies, survey and our development of an approach to comparative social network analysis. Further, this must be qualified in terms of lower level of abstraction used in the profiles (description) and case studies (interpretation) and that, methodologically speaking, these are primarily *inductive* approaches. These qualifications made, we assert two research questions that cut across the CINHEKS study, as a whole are:

1. *To what extent can continuities and discontinuities concerning the relationship between higher education and society be empirically described, interpreted and explained in terms of established theory?*
2. *In what instances, do relationships – in empirical terms – indicate the need for development, elaboration and testing alternative explanations, challenging assumptions and asserting new conceptual approaches to substantive and conceptual framing that better facilitates sound interpretations and explanations?*

In more concrete terms, when does one use theory that already exists and when does one need to advance new theory? Firstly, the profiles of HEIs and institutional case studies constituted both an opportunity for CINHEKS research teams to consider social dynamics in selected HEIs in six countries, in terms of current theory of the middle range (Merton 1968), with respect to question 1. Secondly, these studies allowed us to develop interrogate and augment the notion of Networked Knowledge Societies (See Chap. 2) with respect to question 2. The purpose of the institutional case studies is thus to conceptually and comparatively illuminate meaningful phenomena that spotlight key issues of interest, while at the same time, empirically grounding novel conceptual assertions that contribute to the overarching aims of CINHEKS.

### ***10.1.2 Methodological Notes***

There are several ways to approach case studies and multiple case studies. This methodological latitude is the approach's greatest strength and at the same time, its' most glaring weakness (See Creswell 1998; Miles and Huberman 1994; Tight 2012; Yin 2003). In the Finnish case studies, following Miles and Huberman (1994) and Yin (2003), a conceptually robust approach was adopted to the extent possible, while allowing for the fact that – for many reasons – sending several sets of teams into the field, in several countries, inevitably results in the type of variation that

characterizes the case study, as a qualitative tradition (Creswell 1998; Stake 1995). This variation is not a bad thing (Stake 1995), as long as the results, *within cases* and *across cases*, are evaluated within the established traditions that have emerged concerning case studies (Creswell 1998; Yin 2003). The approach of the Finnish team was based on a historically-grounded sensitivity to the evolution of the Finnish higher education system (Välímää 2001); the highly situated and particular types of HEIs that arose within that system; the current state of flux resulting from recent, large-scale legal and administrative reforms – amidst global recession (Välímää and Hoffman 2007; Ahola and Hoffman 2013); the policy discourse driving these reforms (Kallo 2009 – See Nokkala in Chap. 4) and the theory of the middle range needed for meaningful comparative analysis (as outlined below) with regard to the emergent research questions (above).

Additionally, the team drew extensively on experience gained during the cross-case analyses of several recent multiple case studies focused on Finnish universities (Hoffman 2007; Hoffman et al. 2008, 2011). Finally, because of the interaction with other CINHEKS teams, the policy analysis of Slaughter and Cantwell (2012), along with Kaupinen (2012) about the relationship between contemporary capitalism and HEIs in what we have characterized as networked knowledge societies (See Chap. 2) became increasingly convincing, the more time we spent in the field. For this reason, the over-riding approach of this chapter might best be characterized in terms of *the way in which contemporary debate in international comparative higher education illuminates social dynamics within a particular national setting* (Välímää and Nokkala 2014).

### 10.1.3 Design

Miles and Huberman (1994) make a useful distinction between *tight* and *loose* case study designs. Their assertion, like Yin's (2003) could be paraphrased: *where a great deal of conceptual-level knowledge has been established and linked; substantively or empirically to a particular domain or setting, a case study's design can be quite 'tight', in other words, specified, in terms of theory*. The extent to which a case study is 'tight' greatly increases the likelihood of robust analytical generalizations, to theory and interpretations useful in explanation building, in subsequent sequential and end-stages of a study, especially with respect to other elements of mixed-methods designs. In particular, the use of theory of the middle range (Merton 1968), at the design stage, is one of the signature features of a high quality case study (Yin 2003). Because of the extensive knowledge and contextual experience of the team members – combined with established theory of the middle range concerning higher education studies – particular attention was paid to context-sensitive, conceptually-driven, purposeful selection of HEIs, sub organizational units, settings, groups and individuals within these units, settings and groups. In addition to the substantive and conceptual framing that shaped our purposeful selection, the structural focal levels of analysis highlighted by Becher and Kogan

(1992) framed our analysis. These focal levels of *system*, *HEI*, *basic unit* and *individual* underlines the extent to which *national focus* – amidst increasingly powerful *global trends* – remains highly important. The focal points most relevant to our purposeful selection are outlined immediately below.

### 10.1.4 Analytically-Driven Purposeful Selection

In order to establish a basis for comparison and develop future case study protocols with regard to replication and increasingly robust approaches; particularly with regard to the limitations of this particular study, the following substantive and conceptual starting points are discussed in terms of the analytically-driven purposeful selection (Creswell 2002; Yin 2003) that informed our empirical focus.

**Disciplinary cultures.** Becher and Trowler’s (2001) analytical coordinates concern two focal points. One is the cognitive component of **what** is studied by an individuals and basic units in terms of the **hard-soft, pure-applied** dimensions that delineate the substantive context to which scholars orientate – along with their attendant attention to theory and linked traditions of inquiry and discourse. The other is a social component that illuminate **how** individuals – and ultimately, basic units – carry out their scholarship, in terms of dimensions that draw our attention to distinctions illuminated by **urban–rural** spectrum, in relation to the settings in which scholarship is actually carried out, as well as **convergent-divergent** orientations to potential topic(s).

**Mission Emphasis.** Välimaa’s (2001) analysis of career patterns in Finnish higher education illuminates crucial distinctions between the missions of **research** and **teaching** in Finnish higher education, in addition to mission related dynamics affecting scholars who assume **administrative** responsibilities. His findings clearly underscore the consequences, in terms of career opportunities linked to the missions and activities within Finnish HEIs. Välimaa’s analysis was elaborated by Hoffman (2007) and Hoffman et al. (2008), who assert a more nuanced approach that seeks to illuminate the distinctions between activities in HEIs related to research, teaching, service, administration and strategic level leadership. In particular, in the analysis leading to Hoffman et al. (2013) a focus on the rapid expansion of ‘new professionals’ (Rhoades 1998) who are neither teachers, researchers, strategic managers or engaged in service, i.e. any mission of the university, but whose activity is perceived to be critical for the control and steering of scholars by non-scholars (Slaughter and Cantwell 2012; Hoffman et al. 2013; Rhoades 1998).

**Career stage.** Baldwin and Blackburn’s (1981) study of career stage – as a developmental process – serves to underline the distinct perspectives researchers can expect to encounter when trying to understand phenomena within HEIs, from very different **experienced-based assumptions**. These perspectives manifest at different points in individual career trajectories. The views of an HEI from the perspective of a senior strategic-level leadership position, a tenured professor, a lecturer, a temporarily employed graduate student or research assistant are akin to

the blindfolded group of people describing the proverbial elephant. This empirical contrast is often far more meaningful, depending on the topic, than a focus informed by a single career stage or other perspective. While all of the aforementioned perspectives have potential value; the contrasts between early stage, early career, mid and late career operational, support and management personnel are particularly important in multiple case studies, if empirically-grounded, holistic analysis is the 'end game' of a case study.

**Competitive horizon.** The heuristic of competitive horizons in contemporary Finnish HEIs, was advanced and grounded analytically by Välimaa and Hoffman (2007) and empirically grounded by Hoffman et al. (2008), Raunio et al. (2010), as well as conceptually problematized in relation to methodological nationalism (Shahjahan and Kezar 2013) by Hoffman et al. (2013, 2014). The heuristic illuminates three fundamental horizons can be analytically illuminated by the orientation of an individual or basic unit to their most important competitors, in terms of resources. The dynamics that underlie these orientations are produced by the tension between **reproduction** within the structure of a discipline and **transformation** of (or linked to) that same discipline. This tension was conceptually and empirically illuminated and advanced by Bourdieu (1988), its implications highlighted by Brennan (2002) and confirmed within the Finnish context by Hoffman et al. (2008, 2011). Attention to this heuristic draws attention to the social dynamics of basic units and individuals operating at the cutting edge of their disciplines/specialities at **world class**, where the most important norms are linked to scientific power (Bourdieu 1988, 2004), specifically, the power to transform one's discipline/speciality. In contrast are **local heroes** who transmit and translate knowledge, but take no part in producing it, primarily orientating to the reproduction of the next generation of local scholars, through the control of the time and resources of others. Between these two extremes are **national champions**, middle tier scholars, who attempt some type of balance between transformation and reproduction, often without necessarily recognizing it, as such. The heuristic of competitive horizons draws attention to the challenges of managing HEIs, as activity at all horizons are in demand because they correspond to the global division of academic labor, while at the same time, often being thoroughly misrecognized (Hoffman et al. 2011) in normative-level policy and organizational debate, where prescriptive fashions and fads (Birnbaum 2000) lag far behind, or are completely disconnected from the empirical space occupied by established and emergent stratification that defies convenient and obvious framing.

The purposeful selection using these four criteria to the extent possible, insured that not too many similar types of personnel participated in interviews from units that were too similar. It was hoped that the purposeful selection would aid the Finnish team in illuminating the most interesting aspects of continuity and discontinuity regarding contrasting extremes within a single higher education system.

In addition to the theory of the middle range cited above, attention was also paid to particular units which were thought to have particularly important impact on the local community and settings in which interdisciplinary effort was discussed with respect to recent merger activity on the level of HEI or sub-unit.

The purposeful selection approach was designed to be complementary to the cross-case analysis of all HEIs within the scope of the CINHEKS study (see Chap. 5). The lead case study team suggested a common interview protocol which was distributed to all CINHEKS teams (See Chap. 5). It was recommended to use this protocol to the extent possible (adapting where necessary to local conditions/languages). The main ideas of the interview protocol focused on units, groups and individuals whose responsibility spanned *across the HEI* in **Phase I interviews**, as well as a focus on *operational-level sub-units within the HEIs*, in **Phase II interviews** (See Appendix B).

### **10.1.5 Interview Procedures**

In both institutional case studies, participants signed detailed consent forms regarding the uses of interview data. The participants were informed that they, their unit and HEI would be mentioned in empirically descriptive and analytical terms, not by name, in order to address issues of anonymity. Interviews were conducted in Finnish and English, depending on the team member and interview participant facilitating the interview. For the purposes of analysis involving multiple teams, all quotations have been translated to English (where interviews were not facilitated in English) and edited for clarity, while preserving the meaning of the communication to the best of our ability. Due the limitations of the analysis mentioned below, paraphrasing, from detailed interview memos, is used in some instances rather than direct quotations from verbatim transcription.

### **10.1.6 Limitations**

The biggest challenge to all teams conducting case studies in the CINHEKS study was the lack of a case study protocol of the type recommended by Yin (2003) or Miles and Huberman (1994). This type of limitation, as detailed in Chaps. 3 and 12, of this volume is ‘business as usual’ for many teams who carry out case studies, highly irregular for others (Miles and Huberman 1994). It is precisely this lack of methodological clarity that caused Tight (2012) to exclude the very notion of ‘case study’ when characterizing methodological options in contemporary higher education research. The central challenge facing any team producing a case study is producing a robust analysis in spite of its’ inherent methodological vulnerability to limitations. A second limitation regarding the Finnish team was a lack of resources. While not unique to the Finnish team, what was unique was the decision to rely on detailed field notes and interview memos, rather than full interview transcripts. This approach presents considerable challenges when attempting anything other than an ad hoc analysis (Kvale 1996). Because of this known limitation, team members

ected to preserve data files of the recordings, in order to allow for the possibility of future transcription and the more robust approaches to interview analysis. A further limitation is the small number of institutions and individuals who were ultimately able to participate in interviews. Therefore, a great deal of thought and careful attention was given to analytically-driven purposeful selection. That said, our purpose in making explicit our focus, the limitations of our resources and methods, as well as providing the profile template, recommendation for the development and testing of future case study protocols and the interview format is specifically aimed more robust future analysis and empirically grounded accounts both inside and outside Finnish higher education. In the following section, we briefly introduce the initial set of studies done, on which our analysis is based.

## 10.2 Higher Education Institutional Profiles and Institutional Case Studies

In order to contextualize our analysis and discussion, it is important to briefly outline the initial set of studies which were done in the Finnish case. As is noted in Chaps. 3 and 5, these included both *higher education institutional profiles* and *case studies*.

### 10.2.1 Finnish Institutional Profiles

The Finnish team noted the importance of HEIs of distinct types, functionally speaking, located in the center and on the periphery, in both geographic and socioeconomic terms; along with status. This assumes a particular importance in the Finnish context – as it does in many countries located on geographic, linguistic and cultural peripheries – where HEIs can assume a critical role in the very survival of a community. It should be noted, for example, in the Finnish case, that many municipalities in which there are *no HEIs* (but are similar in other respects) to the municipalities in which there *are HEIs*, could fairly be said to face a highly uncertain future in the European and Finnish context.

**Institutional profiles: Finland** (See Chap. 5 for a more detailed analysis of the HEI profiles)

- *Globally-facing HEI with elite aspirations – metropolitan area, Engineering School (research university): Metropolitan Elite University*
- *Regionally-focused multi-faculty HEI with pluralistic focus on research and teaching – Geographic Periphery (research university): Far North University*
- *Regionally-focused multi-faculty HEI with pronounced focus on research in STEM fields – Northwest Periphery (research university): STEM University*

- *Community-focused HEI with heavy emphasis on 3rd mission/societal engagement teaching – Northern Periphery (Polytechnic): Borderland College*
- *Professionally-focused HEI with socioeconomically-driven pragmatic agenda aspirations – metropolitan area (Polytechnic): Societal Reflection College*

### 10.2.2 Finnish Case Studies

For a more in-depth focus, two of the above HEIs were selected for institutional case studies. This selection was ultimately, one of contrast, which illuminates the stark realities and tensions underlying Finnish higher education, as well as its' potentials. In this sense, the best contrast is between **Metropolitan Elite University** (here and after *MEU*) and **Borderland College** (here and after *Borderland*). While Far North and STEM Universities, as well as Societal Reflection College are highly interesting, it is the *contrast* between the socioeconomic and geographic playing field of the two communities in which MEU and Borderland are set – as well as their competitive horizons – which makes them a solid choice, when considering Finnish higher education in the early twenty-first century. Specifically, while the official view of MEU, as born out, particularly by Phase I interview data, is as an emerging world-class university, with its institutional competitors scattered around the globe; Borderland, by contrast, is populated by 'local heroes' (Hoffman et al. 2013), whose academic reality plays out within the often ill defined, yet very real third mission of higher education.

## 10.3 Analysis: The Competitive Horizons of Twenty-First Century Finnish Higher Education

In the following three sections, we move from *system* to *HEI*, to *basic unit* and *individual* level to spotlight three key features of the Finnish case, which are particularly relevant to the CINHEKS study. This focus has been adopted because it both illuminates salient linkages with other chapters that focus on the countries in which other CINHEKS teams were operating, while at the same time underlining features of the Finnish case which are unique. In our analysis we argue that higher education in Finland has now been confronted with fundamentally new logics, at system level. That said, it is equally important to focus on what is *not happening*, what is *not prioritized*, what is *not said* as much as what *is*, in systems like Finland's in the early twenty-first century. We return to this assertion in the concluding section of this chapter.

### ***10.3.1 Transnational Academic Capitalism in the Finnish Higher Education System: 2010–2012***

The data in the Finnish HEI profiles and institutional case studies was gathered between 2010 and 2012 (See Chaps. 3 and 5). When thinking-through an approach to profiles and case studies, the way in which global trends were currently manifesting – inside Finnish higher education – suggests attention to system-level contextualization. This focal level was inescapable during the time frame of the CINHEKS study, in order to meaningfully contextualize contrasts in continuity and discontinuity. This is because the single most influential legislative reform in several decades was being implemented during this time period.

*Under the new Universities Act, which was passed by Parliament in June 2009, Finnish universities are independent corporations under public law or foundations under private law (Foundations Act). The universities operate in their new form from 1 January 2010 onwards.*

<http://www.minedu.fi/OPM/Koulutus/yltiopistokoulutus/?lang=en> (Finnish Ministry of Education and Culture Website, 2012)

In parallel with the implementation of the new Universities Act the Finnish university system witnessed a series of several mergers, many of which are still ongoing. The system of research universities shrank from 21 doctoral-granting HEIs to 14, the above-mentioned changes in their legal status, along with all university personnel losing civil servant status and entering into private employment arrangements with these new HEIs (See Ahola and Hoffman 2013). As in many countries caught up in the prescriptive and normative international agenda setting of the OECD's modernization policy recommendations (Kallo 2009; Välimaa and Hoffman 2007), these reforms were as fundamental as they were controversial within Finland.

The state of flux, resulting from the simultaneous enactment and implementation of the new Universities Act amidst the onset of the 2008/2009 global economic crisis formed the contextual backdrop of the CINHEKS study in Finland. It must be mentioned that the impact from the former – while causing a great deal of concern amongst many HEI personnel – at times seemed to distract many from the latter, whose effects were not felt to the same extent as within HE systems in other countries where CINHEKS teams were operating (See Chap. 3). That said, the concurrence of these two major events resulted in a state of 'system stress' that, in some ways, was ideal for empirical studies focused on continuities and discontinuities. This is because when a higher education system is placed in a highly uncertain climate, fundamental characteristics or aspects of key relationships and contextually-based circumstances become exceptionally clear, as do significant changes or breaks with these characteristics, relationships and circumstances.

All countries, higher education systems, and implicated actors in the scope of the CINHEKS study experienced issues linked to the global economic crisis. That said, it is worth pointing out that the legislative objectives of the reforms/implementation



Finland's Universities Act – which were specific to the Finnish case – were aimed at *creating the systemic features of the very countries in which the crisis emerged*, specifically the USA and – to a lesser extent – the UK, who were currently bearing the brunt of their exposed economies, in which many of their own HEIs rested on the shaky foundations of neoliberal logic underpinning new public management. Despite this irony, none of the individuals interviewed in the field work carried out in the Finnish case 'connected the dots' regarding the complex interconnections between the *international agenda setting* (Kallo 2009) linked to *emerging transnational academic capitalism* (Kaupinen 2012), the *legislative intent* of the new Universities Act and the way(s) in which they went about their work, in the context of managing their HEI or working in their HEI's unit. This is interesting because the moves Finnish higher education was making fit into a larger – global – pattern that is neither new (See Currie and Newson 1998), nor obscure (See Marginson 2006; Pusser et al. 2012; Slaughter and Cantwell 2012). Neither could it be said that the implications of the way in which these larger events were manifesting inside Finnish higher education had not been addressed, rather critically, *inside* Finland (See Hoffman et al. 2011, 2013; Kallo 2009; Välimaa and Hoffman 2007). Rather, in the field work, it was much more typical to locate personnel, like this **Unit Director in a small Finnish HEI, Borderland College**, who expressed the opinion:

... big changes rarely have clear argumentation behind them, they seem to just come from somewhere, and go again, and those involved try to act as best they can under the circumstances.

### ***10.3.2 Narratives of Established and Emergent Competitive Horizons in Finnish Higher Education: 'Where Everybody Knows Everybody'***

Conceptually speaking, the institutional evolution of both HEIs chosen for a contrastive case study, allow us to build on the dimensions of *domain* and *mission*, advanced in the cross-case analysis (See Chap. 5), by integrating a third critical conceptual dimension: *power*, using the competitive horizon heuristic. While the distinctions of domain, referring to *intra or cross-sector network linkages (or both)* inside and outside higher education; and mission, referring to *university missions aimed at public good, private good (or both)* are a useful starting place to think about continuities and discontinuities, regarding networks, power allows more nuanced interpretations and an approach to the explanation-building which tight, conceptually-framed case studies allow (Miles and Huberman 1994; Yin 2003).

Contrast in Finnish higher education is not difficult to locate, especially with respect to the research questions we advance in the introduction of this chapter. When narrowing our focal scope to a particular national context, it is precisely the radical contrast between two of the HEIs within the Finnish system that illuminates

several key issues of interest in CINHEKS. Further, this contrast underlines why the two Finnish HEIs were chosen for development in the Finnish case studies and why they can be used to inform empirically-grounded discussion about the ways in which higher education and society are changing within Finnish society and what, if anything, this tells us, comparatively speaking.

The two communities in which our case HEIs were located could not be more different. MEU, is a globally-facing HEI with elite aspirations spread across several campus sites in the most affluent sections of Finland's largest and most densely populated metropolitan area. Borderland was a community-focused HEI, with primary emphasis on teaching and community engagement or service, serving two rural communities in Finland's far northern periphery. We do not use the 'was' accidentally, as Borderland ceased to exist on 1 January, 2014, when it was combined with another college in a larger town, around 100 km or 60 miles away.

The contrast between MEU and Borderland comes out in their basic narratives. MEU aims at a deliberate attempt to create a globally relevant HEI, because enough people in Finnish society believe Finland's future is tied into world-class research and that the way our previous higher education was set up simply was 'not delivering'.

The biggest factor driving MEU is the general international context in which Finland operates. All countries are putting more resources and emphasis on science and research. In the early 2000s there was a general worry in Finland about where our university system was going. We had fairly limited resources and Finnish universities were nevertheless expected to do world-class research. It was realized, that Finland's future success is dependent on universities, and they needed to resources to do research and education that have global significance.

In this version of the reality Finnish higher education is faced with, one of **MEU's Directors** with institutional-level responsibility contextualizes MEU's – and Finland's – global-facing international reality where **global impact** is the hard currency by which HEIs are measured and which translates into a benefit, for Finland, as a whole. This narrative, specifically, 'that MEU is now moving out into pole position, as the flagship of the Finnish university system, on behalf of the nation', was shared and repeatedly articulated with remarkable consistency, clarity and conviction across the team of people we interviewed, who had institutional-level responsibilities, as this **MEU Vice Rector** articulates.

Finland . . . It's straightforward. We rely on each other. In a position like I have, you know a lot of people in business. You have direct contacts. If you need to talk to somebody the door is open for you. It's different than France or Germany – the bigger countries. In a small country we have to focus. We have to rely on each other. We have to think everybody is trying to do their best for Finnish society. In cases like ours, MEU is not only based in this city. It's for the whole country. And that's why I think industry was convinced to help MEU in our efforts.

The idea that 'everybody knows everybody in Finland' was emphasized in both MEU and Borderland, where the **Manager of Borderland's Science Park** stressed they just pick up the phone and call whoever has the required knowledge or expertise for a particular project. S/he mentioned that in Finland, "everyone

knows everyone”, and thus relations are very informal. Further, this idea will not be unfamiliar to actors within the Finnish higher education community and its most important stakeholders. However, the easily recognizable familiarity, characterized by low – or no – thresholds between actors might obscure what now distinguishes institutional-level reality at MEU from Borderland. Specifically, that MEU is now taking the lead, as an HEI, on behalf of the entire system and country. At Borderland, no such ambitions will be found, only socioeconomic exigencies.

Borderland’s story, while it may be familiar to readers in many countries, conveys an entirely different reality. One of Borderland’s **managers with responsible for institution-wide internationalization** stressed “*We need to make sure our region could offer higher education for our young people, so they don’t need to move to the South, but can study HERE.*” Like geographically peripheral areas the world over, demographics define many societal issues which are recognized as acute in HEIs like Borderland. These concerns define the narrative because not only is the region hemorrhaging its younger population, those who remain now constitute a demographic that program managers and instructors have to adapt to, in order to meet the needs of age cohorts they are unfamiliar with, as this **Program Head and Senior Lecturer in a soft-applied unit** that primarily serves private sector industry underlines. Borderland has to account for a new generation of very different students and program needs:

- |                         |  |
|-------------------------|--|
| <b>Senior Lecturer:</b> | The population has changed. It’s not like in the past. In the beginning we normally dealt with people from age 18 to 24 – max. Now, you see people entering the same room. They are 40–45.   |
| <b>Head of Program:</b> | That is our future. The population here is aging. And also for the survival of Borderland, we need to develop our capacity for further and continuation training: Life-long-learning. We all have to do this. It’s continuous. Language courses, IT courses – and internationalization. People have not been thinking of internationalization. Now they HAVE to. So, when they’re 40 or 45, they need to come back and start studying. |

To round out the fundamental demographic pressures of this picture, the local demand of Borderland’s story is shaped by a rapidly aging population, which relies heavily on Borderland’s well-established health sector hard-applied programs, which are very integrated into the community’s medically-related organizations. As one of Borderland’s **Deans**, with, institutional-level responsibilities emphasized, when talking about the development of alternative (new) programs: “*WE CAN’T decrease student intakes from the health sector, because the need is so BIG!*”

**The Narratives of Finnish society – and her HEIs.** On the surface, the contrast between MEU and Borderland might appear quite striking. But, in global terms, these contrasts exist in many countries. There are important similarities that come into view, when considering theory of the middle range (Merton 1968) grounded in the study of higher education. In this regard, a bigger picture emerges especially when considering the contextual elements of the Finnish system, at national level, which, in turn, is tightly conforming to the OECD’s modernization agenda, as

outlined in the first section of our analysis (Kallo 2009). The transnational neoliberal rationalization processes linked to academic capitalism (Kaupinen 2012; Slaughter and Cantwell 2012) explains, in part, how the two most interesting cases we focused on, in our case studies, were the outcomes of either deliberate, strategic HEI mergers, as was the case with MEU or a ‘hostile’ merger, in the case of Borderland. In both cases, *making a virtue out of necessity*; in the case of MEU, *or the best of a deteriorating situation*; in the case of Borderland, played out against a much larger, global backdrop which was rarely acknowledged as such, in interviews in Borderland, but better understood at MEU. In both cases, reactions to context were given the distinct ‘spin’ of two contrasting narratives familiar within Finland, less familiar to the international media. The first is of a ‘light, fast, agile, innovative and resourceful Finland’, who rides sea changes like a sleek sailboat, emerging unscathed from the worst geopolitical or economic storms. The second is of a ‘struggling, peripheral and somewhat inhospitable location, tugged at between imperial powers like Sweden, Russia and now: *Brussels*’. (Hoffman 2007; Lehtonen 1999; Nokkala 2007, 2008).

Within the context of the first narrative, the idea that the destiny of the Finnish nation ‘lies within MEU’ was remarkably consistent, across the institutional-level management at MEU, as was much of the cross-institutional ‘message’ that came across. This **Director** sums up the perception of a balanced mission that creates a Finnish public good – across the board:

We understand societal impact in terms of three dimensions: social, cultural and economic impact. In other words, MEU can also ‘do good’ without an economic impact. Changing the world can be done in many ways. The responsibility in this lies within MEU and our community.

When thinking about the spectrum of mission, as highlighted in Chap. 5 as outcomes linked to private goods and public good, it is clear that large, complex HEIs can – and do – aim at both (Brennan 2002), and this is especially clear, as the **Director** states (above).

However, at Borderland, almost everything was framed in terms of a highly contingent national and harsh regional reality of a struggling HEI whose fate – not destiny – was out of its hands, as this **Program Head of a soft-applied unit** emphasises.

The institution has a strong role in fulfilling the needs of the local industries and supporting the development of the area. Its role is influenced by the dual trends of diminishing youth age groups and their domestic migration from the North to the growth centres of the Southern Finland.

This is Finland’s parallel narrative, never far below the surface, of an economically struggling, geographically, linguistically and culturally isolated and demographically challenged hostile location. This narrative is seldom featured or valorised in the international media. Yet this narrative is not difficult to locate within Finnish higher education, nor the society it serves. The **Dean of Faculty**

whose **soft-applied programs** were not in high demand, tried to put a positive spin on things:

I would like to keep this area civilized, to make it possible to live in the area and to succeed. But, sad to say, there are always, in other organizations, DIFFERENT kinds of views. For example, another member of our management team was invited to a meeting a month ago, and there was a person from The Confederation of Finnish Industries – a very important organization in Finland – and a person in a leadership position. S/he said 'It is not important at all to have any kind of higher education institution in our region.' The Ministry is the light in this kind of discussion. They really see the whole country. So many other organizations only think of the South.

While the Dean's positive outlook was genuine in the interview, the irony of their loyalty to the Ministry was underscored by the fact that during the time it took to complete the CINHEKS study, Borderland was merged with another HEI, in a larger city in the region. While some of their programs survived, Borderland, as a HEI, did not.

While both narratives found within MEU and Borderland play on the idea of the 'whole country', the reality of continuity and discontinuity within this 'whole country' looks very different, depending on which HEI and community one is standing at the time.

**It is all important: Or is it?** No matter which narrative one invokes, what our team was confronted with, in our studies of MEU and Borderland were two HEIs which appeared to be interested in remarkably similar things, despite their strikingly different situations, narratives and the overriding idea that 'everybody knows everybody'. For example institutional-level management in both HEIs spoke in reverent terms about the entire spectrum of *domain*, where networks with other higher education institutions, locally, nationally and internationally were regarded as essential, as were networks that included partners and organizations outside higher education, especially industry. As a **Dean, from Borderland's soft-applied-school** mentioned:

Our strategy in Borderland, is that we will be international – in so many ways – not just taking international students. We have a reputation of having the most international R&D projects of any university of applied science in Finland. If we compare ourselves to any other university of applied science in Finland, we will be the most international, in terms of these projects. But also, thinking about students and education we have made a strategic line that we will add programs, to make it possible for international students to come study in our school. Our faculty has been a pioneer in internationalization.

Across Borderland, inside and outside higher education, establishing especially international connections were seen as very important at all levels.

At MEU, as well, unless one listened carefully, the idea that 'it's all important' easily seemed to be the message, whether inside or outside higher education, in terms of domain and whether the beneficiary was taking advantage of a public or private good, in terms of mission, in the nuanced manner Pusser et al. (2012) illuminate. As one **MEU Director** stated:

The most important output of the university, in terms of impact, are its graduates. Through their sheer numbers and competencies, they can change the world. The stakeholders to whom the university must look are not just a group of companies, but society, both the public and private sector, in Finland and globally speaking. This broad perspective drove our fundraising campaign. There were fears that the establishment of MEU would essentially mean that companies would simply establish product development labs in proximity to our Engineering labs and buy the research they need. However, our long term view – and the task of MEU is more than producing new knowledge. No single stakeholder is considered more important than others . . . We understand societal impact in terms of all three (university) missions.

In both HEIs, the public good inherent in further developing excellent teaching, research capacity and community engagement was assumed, as were the private benefits needed by students, employers and especially industry. Clear concern for the local community, international partnerships and collaboration were *all* important, especially in institutional level interviews, but also within the programs in which interviews were carried out. A **Senior Lecturer at Borderland, in a hard-applied unit** preparing graduates for the health care sector underscored the long-standing, tight connections between their teaching-focused program and the public organizations who would employ most of them, even before they completed their degree and occupational certification.

**DH:** What about cooperation in the community? Is the demand big?  
**Senior Lecturer:** It IS big. Because the need of our graduates is very high. We're very well established, with long traditions and we KNOW our partners.

The empirical reality that so much is expected of Finnish HEIs – from all quarters – in a way that mirrors global expectations of higher education in many societies (Delanty 2001; Välimaa and Hoffman 2007) means that further conceptualization is needed, in order to analytically draw meaningful distinctions within and across HEIs regarding the nature of the continuities and discontinuities. These distinctions are needed to illuminate knowledge generation, transmission and transfer that now occur in many places within and across societies and are not limited to HEIs.

In other words, *are all the facets implicated by domain and mission equally important, in actual terms?* Building on the analysis advanced in Chap. 5, the questions become: ***When both institutional-level and unit level actors tell us they believe networks within higher education are important, as are networks outside higher education; and that teaching, research and service are also all extremely important, what else can we look at, when aiming at comparatively meaningful analysis? Where is the 'real' focus? What are the 'real' priorities? And how do these relate to higher education institutions in other societies? Or do they? What conceptually distinguishes the knowledge generation, transmission and transfer that occur in higher education institutions from other domains and focal settings, for example industry research labs or social media?***

Concerning higher education, in general and international comparative higher education, in particular, it is these sorts of questions that are needed to connect social theory (as discussed in Chap. 2) to the broader, more meaningful conclusions

necessary for scientific advances which simultaneously highlight policy leverage points and inform actual practice within the networks in which higher education institutions play an integral part.

Conceptually, as is asserted in Chap. 2, the idea of *power* is necessary to complete this type of conceptual problematization and draw more careful distinctions. HEIs, come into view, analytically-speaking and are distinct from other organizations outside the domain of higher education because of the power connected to knowledge, in general and the spectrum of potential(s) formed by the reproduction and transformation connected to knowledge in particular (Bourdieu 1988). Because higher education institutions are one of the few institutions uniquely situated to operate along the entire length of this spectrum – *simultaneously* – with regard to a wide range of disciplines, fields of study and specializations, the dimension of power, when integrated with domain and mission to form a three dimensional conceptual field quite unlike the space occupied by any other organization or institutions within and across the domains most relevant to knowledge. ***This conceptualization explains why the HEI is organizationally, institutionally, professionally and politically quite unlike any other in Finnish society. In this sense, the higher education institution is 'the perfect node'.***

While this chapter principally concerns facets of Finnish higher education and society that are unique, it is this conceptualization we advance, that analytically builds on CINHEKS comparative findings (Chap. 5) and which can be used to conceptually elaborate and empirically ground the theoretical ideas in Chap. 2, aiming at our final analysis in Chap. 13.

**Domain, mission and power.** In Chap. 5, the dimension of *domain* was defined by a distinction between intra and cross sector networks; while key distinctions regarding core university *missions* was highlighted by an emphasis placed on outcomes linked to public or private goods. While the descriptive-level analysis of publically available information can lead to a surface-level preoccupation with what are seen as 'entrepreneurial' features as opposed to an 'academic' or 'traditional' stress placed on HEI missions, the problematization of public and private goods, as advanced by Pusser et al. (2012) is analytically, far more revealing. Specifically, the way in which Kaupinen (2012), Slaughter and Cantwell (2012) assert these social dynamics play into emergent transnational academic capitalism.

*Power*, as a third key coordinate can be analytically illuminated by the distinction between reproduction and transformation that takes place at distinct competitive horizons, as defined in this chapter, as well as Chap. 9. The reason narratives in higher education institutions, at times, sounds as if 'it's all important' is because the spectrums that form the dimensions of domain, mission and power are not *either/or* binary distinctions. As our theoretical proposition illuminates (Chap. 2) and the cross-case analysis of HEI profiles (Chap. 5) empirically illuminated, many, if not most higher education institutions employ a realist *both/and*, approach to society, recognizing that the extremes at the ends of these dimensions are not mutually exclusive. Power is no different. What might be different is the way in which CINHEKS teams in Finland and Germany (See Chap. 9) both used the competitive horizons heuristic to problematize and analytically illuminate social dynamics that

allow better explanations than are possible when narrower scopes of analysis or framing, especially those shaped by methodological nationalism (Shahjahan and Kezar 2013), cloak significant phenomena that is misrecognized or undetected within the folk psychology in which unquestioned assumptions form the ‘ceiling’ as to the level of abstraction in use. Put another way, by using conceptual problematization, we – along with Kosmützky and Ewen (in Chap. 9) – assert the conceptual problematization that interpretive case studies actually allow: one step further on the path to new knowledge.

The heuristic of competitive horizons was articulated and developed in a series of studies on Finnish higher education that – when read together – illuminate a nuanced view of the relationship between the established and emergent division of scholarly labor within Finnish higher education and distinguished what was actually new or unique and what was the result of internationalization, Europeanization and globalization of higher education (See Välimaa 2001). While many issues and ideas were viewed and discussed as ‘new’ by higher education actors in Finland, the heuristic of competitive horizons revealed this as an oversimplification that obscured the way in which global trends manifest concretely, in Finnish higher education (Hoffman et al. 2008). Secondly, follow-on studies, used the competitive horizons heuristic in both empirical studies and policy analysis (Hoffman et al. 2011; Välimaa and Hoffman 2007) to illuminate how new or unique developments, often were obscured in an uncritical rush to follow the tune of international agenda setting linked to transnational academic capitalism (Hoffman et al. 2013; Kallio 2009; Kaupinen 2012; Slaughter and Cantwell 2012).

These studies illuminate qualitative distinctions between orientations to fundamentally different types of demand – within Finnish society and within global science – that explained the differences between two extremes. The first was in fields which had no competition, to speak of, except for institutions providing nearly identical curriculum, but in different locations around the nation. In these programs instructors focused (year after year, decade after decade) on pragmatically-grounded, state-regulated and professionally determined qualifications for highly regulated and institutionalized fields like nursing, teaching, accounting or social work, in which the state, higher education institutions and professional bodies maintain strict monopolies of power. In terms of university personnel, the focus is on societal reproduction in slowly changing fields of study, shaped by institutionalized (structurally speaking) cultural assumptions. The stakes of the game, at this horizon are controlled by academic power, that will determine the next generation of faculty and staff, who in turn will mediate societal need and programmatic outputs. The capital of academic power is mainly *the control over other people’s time and the flow of resources within a highly situated institutional setting*. Competition in these settings is thought about in terms of students and stakeholder demand and is easily seen, in the form of vested interests for which clear needs and immediate plans for graduates are articulated. As the heuristic evolved over the studies cited above, the personnel in these programs were termed *local heroes*. This term reflects the high demand linked to acute societal need, the students who directly filled those needs and especially the program instructors who



are, literally, the link between supply and demand at local and regional level (Hoffman et al. 2008, 2011).

*Local heroes.* The Dean of a **hard-applied program** at Borderland sensed that competition was simply not possible and said the only hope for Borderland lay in a consortium, cooperating with HEIs in nearby, larger cities, which directly competed with Borderland, *for the same students*. A **Lecturer** from that same **hard-applied program** also underlined that competition is essentially for the students, and the curricula are the means of the competition. The closest competitors are other small, teaching-focused colleges in two nearby (larger) cities, both of which are collaboration partners, one formally (via a new consortium) and one informally, based on past practice. Belonging to the new consortium, the **Lecturer** speculated meant that perhaps that former HEI should not perhaps be considered a competitor, yet there remained trepidation about the future of Borderland vis-à-vis the other small teaching-focused colleges in that peripheral region of Finland.

A **Senior Lecturer** in one of **Borderland's soft-applied units** articulates the resources, specifically, local students, who determine the program's competitive horizon.

As there are very few choices in this part of Finland, the HEIs that are here focus on the students who want to study locally. One advantage our competitors have over us, is that they are large.

It was clear to the **Senior Lecturer**, that their program's rivals were HEIs in two larger cities in the region, with similar programs. Even though both cities were partners in a new consortium, they were the only competition for students who would choose to study higher education, in the Senior Lecturer's field of study, in Northern Finland.

*The world class.* By contrast, interviews with institutional-level leaders at MEU instantly clarify that it is actually very few HEIs, programs and activities in very few places that actually matter, when talking about either cooperation inside or outside higher education, inside or outside Finland and the nature of the partners who *should* form MEU's future networks. This is because of the fundamentally different competitive horizon of the world class, where the very nature of disciplines are continuously re-defined and where crossing the state-of-the-art concerning knowledge or even inventing entirely new fields of study is 'business as usual'. This competitive horizon is nothing new and the social dynamics that govern this part of the higher education field are determined by the exercise of scientific power, *a field-specific form of capital linked to the empirical proxies that change the nature of one's disciplines and specialities – and even generate entirely new ones* (Bourdieu 1988). These include ground-breaking studies, discoveries and the presentations and lectures in which they are initially presented; the funding and assembly of resources necessary at this level of effort and the status that result, over time. While it is easy to locate basic units and especially research groups who aspire to or operate at the level of globally-acknowledged top-tier science, the idea that *an entire HEI* profiles itself as 'world class' or in actuality obtains this status in ranking that is taken seriously is fairly recent in Finland. That said, this is the competitive

horizon at which MEU is clearly aiming its efforts. As one **MEU Vice Rector** pointed out that they had recently established a strategic partnership with what is arguably one of the top tier universities in the USA, in the area of entrepreneurship along with what they believed will be one of the one of the most important new universities in China. Across the management team, they were aware it was *strong programs* what were the essential ingredients for world class status and *fewer partners, not more* was probably the quickest route to ascend to world class status, as a HEI. One **Director** echoed that MEU was going to be very choosy, at the institutional-level with cultivating strategic partnerships.

Internationalizing and looking for external partners is the responsibility of everyone, both faculty and staff. The departments and research groups have to think about how to position themselves internationally, and who they should collaborate with; and similarly the university must do that at the institutional level. The aim of MEU is, over the next five years, to build strong strategic partnerships with around 10 universities. The process has already started with one partner in China and one partner in the USA. These university level partnerships are reflected also on School and Department level. Additionally, the Schools and Departments have their own collaboration partners. The major change regarding strategic focus is that at the institutional level, ten close partnerships are enough, as opposed to hundreds of loose agreements.

Another **Director** with a strong background in business put it more succinctly.

If you look across all schools we have around 1700 different kinds of agreements with different universities. Which means we probably have 1650 too many. We have to focus on those which are important for US and have the same kind of strategies.

While the quotes above are more about intra-(higher education) networks, concerning most directly the dimension of domain and the way in which the missions of research and teaching – in that order – will be configured accordingly, this also concerns cross-sector selectivity where the need of the kind of organizations with the capital (the kind you deposit in the bank) is needed to finance world-class outcomes, as this an **MEU Director** asserts:

...if we want to be world class, we can't be local. We have to be global. If we take a look at our list of donors, we have only a couple of global companies, not located in Finland. Big challenges.

While a key organizing pillar of MEU's merger was the incorporation of a business school that was firmly integrated into 'doing business in or with Finland', whether or not that will translate into 'doing business at world class competitive horizons', is an open question that remains to be seen.

### 10.3.3 *Conceptualizing Higher Education Institutions: Universtasis*

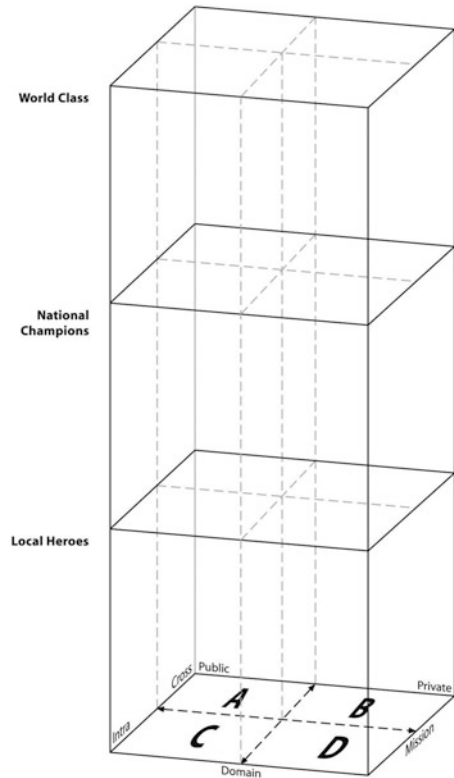
There is a middle ground between the two extremes where *local heroes* mainly reproduce power relations related to knowledge, within societies, within HEIs and where *world class* scientists transform the globe, in their quest for new knowledge.

The middle ground is occupied by *national champions*, whose demand is defined by stakeholders in need of highly educated graduates, needed across all sectors of an increasingly complex society, within an increasingly complex region, in a multi-polar, highly interconnected – and socially stratified – world. National champions often have a focus on research and teaching and are often involved heavily in service as well. Their focus can emphasize teaching or research and they often do, but programmatic duties and teaching, guidance often limit the time needed to do ground breaking research, although ground-breaking research may very well be taking place some place on their campus. While our focus on national champions best serves the following section of this chapter, the identification of all three strata of the competitive horizons heuristic allows us to introduce a conceptualization that expresses the relationship between the dimensions of *domain* and *mission*, as introduced in Chap. 5, within the field of Finnish higher education, in terms of the competitive horizons heuristic, which is necessary to conceptually problematize *power*, as asserted in Chap. 2.

The purpose of the conceptualization of *universtasis* is to illuminate and enhance the analysis of data and problematize the complexity, potentials and limitations inherent in a HEI, as an organization in which knowledge generation, transmission and transfer are dynamically and continuously mediated. As stressed in Chap. 2 and initially empirically illuminated in Chap. 5, none of the dimensions are 'either/or', nor mutually exclusive. Rather, the conceptualization captures the idea that very different types of social dynamics are implicated, in very close proximity, organizationally-speaking. It should be emphasized that not all relationships can be captured within this particular field, especially other network nodes outside the domain of higher education and other higher education institutions. Rather, the salient linkages *within single higher education institutions*, like MEU and Borderland, are what are brought into view in Fig. 10.1. This conceptual-level problematization can be used to frame several types of empirical analyses.

Further, the conceptualization is useful in explanation-building, as to the dynamic relationships within particular higher education institutions, but also between higher education institutions and their networks, within and between networked knowledge societies. Finally, the conceptualization of a specific field, in this case a higher education institution is a necessary link between empirical data, analysis and further exploration and analysis aimed at theoretical elaboration. The conceptualization of *universtasis* is asserted to underline the normative power of ideas, social dynamics and their potential balance, literally 'stasis' with respect to a particular HEI. That said, the empirical realities encountered in any single focal setting, at any level of analysis may or may not reveal stasis, intended or otherwise. It may reveal the opposite, specifically empirical investigation could reveal patterns emphasis with regard to domain and mission (highlighted by outcomes A, B, C & D in Fig. 10.1), and the way in which these manifest at different competitive horizons. In other words, as was highlighted in Chap. 5, a descriptive level of analysis does not necessarily reveal the difference between what HEI actors *say* they are doing and what they are *actually* doing, nor their – or anyone's – *understanding that these might be very different things*, especially with regard to the societal reproduction of

**Fig. 10.1** The conceptualization of a higher education institution: *Universtasis*



power relations in which HEIs are inextricably bound. While this assertion, by Bourdieu (1988) is neither startling, nor new to those who study higher education, the ways in which the logics of reproduction and transformation play out – across the globe – obscures manifestations of highly situated outcomes in HEIs in distinct societies, as is focused on, in the following section. Put another way, while an HEI might claim (in publically available information) that they are very concerned about ‘excellent’ or ‘world class’ teaching, research and service to society that simultaneously impacts local communities, the nation and the state-of-the-art science on an international scale, empirical realities, using the analytical point of departure we advance, might reveal an altogether different picture. A picture that escapes both those in HEIs and societies.

As the above conceptualization is complete to the extent that it can be for the purposes of this chapter, we now move on to the final step in our analysis where the middle ground of an emergent stratification within Finnish higher education illuminates and mirrors closely the stratification of the global division of scholarly labor, within a specific national context.

### 10.3.4 *The Paradox of Finnish Higher Education: When 'Good' Is No Longer 'Good Enough'*

In this final section of analysis, we focus on the tensions between competitive horizons, which are best illuminated by tensions expressed by HEI management, aiming at bringing an entire HEI to a world class competitive horizon; mid-tier national champions who want no part of this, as they have long mediated, translated or disseminated breakthroughs in world class science into the scientific fields, within the Finnish national context. This is not to imply that world class science has not previously been done in Finland. Quite the opposite. Finnish higher education has been stratified much longer than many might think. In the study 'The Best Science, The Best Science in Finnish – and English – or The Best Finnish Scientists?' Hoffman et al. (2013) conceptualize the analytical coordinates which can be used to illuminate, and easily locate, world class basic *units* (not HEIs) where scientific power is the principal capital in use, mediated by long-standing structural dynamics best understood as a manifestation of institutionalized *global scientific culture*. Within the same system, HEIs and occasionally the same hallway of the same building, it is as easy to locate local heroes, where academic power remains the principal capital that governs social dynamics best understood as a manifestation an institutionalization of *Finnish cultural norms*, used to govern scholarship. The norms, values and beliefs of culture, whether 'local culture' or 'the culture(s) of science' are often sets of powerful, unquestioned assumptions. Over long periods of time culture is institutionalized, within the social structure of HEIs. It is these long periods of time that are important to keep in mind, as it takes decades for subtle shifts in culture concerning what is right or wrong, good or bad, true or false to fade from *alternative* to *assumption*. While scientific power concerns transformation, academic power concerns simple reproduction, both mediated in the case of Finnish higher education by distinct sets of cultural values, the former older and deeper, the latter more circumscribed and exceptional. In the middle ground, between these two extremes, national champions, as described in previous sections (above) who have, for decades, balanced the pragmatic needs of Finnish society with the demand, faced by higher education systems the world over, for keeping up to date with the latest developments concerning new knowledge. In some cases and in some fields, cutting edge knowledge production occurred in world class units within Finnish higher education, but across all fields, as in most systems, this is neither necessary, feasible nor realistic.

In Finnish higher education, the middle ground, occupied by national champions has become important as international agenda setting has increasingly influenced neoliberal cultural norms, values and beliefs that underpins transnational academic capitalism (Kaupinen 2012; Slaughter and Cantwell 2012), which has manifested in what has been perceived as an urgent, fairly undiluted, message from the OECD to the Finnish legislature, Ministries and now to Finland's higher education system.

As an example of the way in which this now manifests, concretely, one **Vice Rector at MEU** pointed out, the introduction of the tenure track means that instead

of ‘old school’ practices in which ‘the most suitable persons’ are appointed to professor posts, explicitly evaluated career advancement of ‘the best candidates’ will now take place, as defined by the tenure process, with the progression of assistant to associate to full (tenured) professor. The Vice Rector gave an example of a professorial position in ICT, which would have traditionally attracted 20 applicants, but now attracted about 160 applicants, 2/3 of which came from outside Finland. In the future, The **Vice Rector** said positions will be very competitive, with international applicants for each position. In the new climate this type of competitiveness is likely to foster, they observed that some of MEU’s present personnel may notice that they do not ‘fit in’.

This is nothing less than a cultural change – at the level of an entire HEI. Or, more accurately a cultural challenge, as the changes advocated illuminate *alternatives* between discontinuities or continuities. The question is, as Marginson, paraphrased (2006) ‘are we, the faculty, silently complicit in uncritically accepting discontinuities?’ Or do we recognize the alternatives for what they are: *choices*? And the implications of our decisions?

**The paradox of Finnish higher education.** The tensions in Finnish higher education are seen most easily by paying attention to data that implicates the cultural values within and between competitive horizons and the way this plays in different fields of study, HEIs, basic units and the structural dynamics that increasingly determine positions and trajectories within and between competitive horizons. The extent to which we recognize continuities and discontinuities brings to mind *misrecognition* (Bourdieu 1988) more than recognition when thinking about the ‘story’ of *enduring features* that characterize the Finnish system, as a whole, across the extremes in our case studies, as well as the *paradoxical change and state of flux* that presently characterizes this system. Many in Finnish higher education feel that ‘a new story’ or narrative is now needed.

While Finland is valorized the world over for the excellence of its basic education system, quality of life, high tech forays and novel achievements (Partanen 2011; Radcliffe 2004; Sachs 2004; Saukkonen 2013), it would be difficult to argue those distinctions are rooted in *deliberate* effort to produce ‘the world’s best *anything*’. Put another way, it is much easier to argue that these efforts have actually been highly contingent outcomes of the type Gladwell (2008) features in the popular book ‘Outliers’, which explains exceptionalism in non-exceptional terms, i.e. *exceptionalism is always explainable*. What is interesting about the Finnish case, is that what often passes for ‘explanation’, in the Finnish context, is no more likely to withstand scrutiny for oversimplification than any of the folk psychology Gladwell torpedoes in ‘Outliers’.

Our point: There are interesting paradoxes in play here. One very specific to the contrast between HEIs like MEU and Borderland is that it is now desirable that a Finnish institution, organization, effort, position, product, etc. be labeled ‘world’s best’. In the past, as an individual personality trait or group characteristic, it might have been difficult to locate individuals and groups seeking to be ‘the world’s best’, except in fairly circumscribed circumstances, for example Olympic-level athletes, or corporate CEOs and strategic-level managers in highly competitive global

industries, commanders of UN peace-keeping troops. These are all positions that have clear, high-value outcomes, like Olympic medals market share and the absence of armed conflict.

For a specific HEI to set its' sights on global recognition and status is a clear departure from what generations of Finnish citizens and scholars believed their universities *should* be all about, *could* be all about or in fact *were*. More than that, it both *implies*, because of the known stakes and *explicitly requires* subscription to new codes of behavior, levels of skill and focused effort, according to several institutional level managers at MEU. In other words, individual scholars and unit leadership now need to aspire to a fundamentally different sort of commitment, dedication and willingness to compete, deliberately with other individual scholars, units, management teams and support staff, *on different continents* to the outcomes necessary to earn the unique form of capital that accrues to institutions believed to be World Class HEIs: status, recognition and reputation. In an abstract sense, this is neither good, nor bad, it merely is a set of management challenges. At the level of cultural values, norms and beliefs, this challenge materializes in a set of inevitable value judgments concerning the cultural reality that potential of individuals to feel these sorts of aspirations are inherently bad and run against the true core of what scholarship is or should be about. As one **MEU Vice Rector**, put it:

Trying to change an entire university and bringing about a new operational culture is a complicated process. Finland has an excellent primary and secondary school system, which produces excellent students for universities, and our university system is also good. But our university system has largely been based on following guidelines and trying to optimize mechanisms aimed at 'getting funding from the Ministry', according to the norms that have been laid down, to be 'good enough' to get that funding. The big question this raises is how to be more ambitious than that, to think that things could be done better, to be creative and innovative . . . the starting point must be one's own enthusiasm related to the questions we need to ask in order to cross frontiers of knowledge, create encouraging working and teaching communities, where people are willing to share things . . . For example, the way in which people's lives have changed due to social media: how people share their lives and network through it. The challenge is to bring the good points from that to research and education, and to reach an operational culture where it is self-evident that people encourage each other and share things.

The **Vice Rector's** passage is telling, if one notices what s/he labels as 'excellent' (primary schools, secondary schools and students) and merely 'good' (Universities). The emphasis on 'encouraging' and 'sharing' are also instructive in the sense that as individual and group characteristics, and cultural values, norms and beliefs these would be quite easy to discuss in Finnish culture, in some ways, but as organizational attributes, especially in competitive domains, those values beliefs and norms are an uneasy match in many settings with the habitus necessary to achieve world-class results, over the long term. As in many organizations, in cases of aiming at purposeful, cultural change that manifests in attitudes, behavior and outcome, the question becomes the extent to which the cross-currents of the vision become a 'mission impossible' or an intended – and achieved – breakthrough.

From the *outside-looking-in*, Finland's society, in general and education system, in particular, as the Vice Rector notes says, is internationally valorized on a regular

basis. However, from the *inside-looking-around*, many higher education actors are of the opinion that higher education is not changing quickly enough, while others are firmly convinced higher education is changing far too quickly. As in the case of system-level and HEI, it is an analytically driven focus on basic units and individuals – within national systems and HEIs (Becher and Kogan 1992) that illuminate the continuity and discontinuity that can be compared and contrasted with other cases, yet remains interesting, in and of itself. It is this internal struggle over new means to new ends, underlined by new values which are playing out within Finland's evolving system. The emergent neoliberal values of transnational academic capitalism (Kaupinen 2012; Slaughter and Cantwell 2012), in the Finnish context demand 'a new story'. As one **MEU director** put it:

Selling is mathematics, more or less. What you need is a good story, which we have – the best story in Finland. Then you need to get the contacts. Your target groups. The foundations, the companies, the individuals, our Alumni. We conveyed our story to specific groups, depending on their needs. We had the MEU strategy, it's what we had to sell.

What is new here is the idea that higher education is about selling a story or a strategy to become the world's best, at the level of a specific HEI. However, while this new profile and intention is clear, the means to this end are not as clear, especially within fields that have traditionally never actually operated at world class competitive horizons, which would include most basic units visited by the authors in most studies of Finnish higher education. In these basic units the ideas of tenure track and impact factors and fretting over whether or not a publication is indexed by a particular service were unknown a decade ago and may still be viewed with scepticism now. However, if you work MEU, you may be in for a bit of culture shock, whether or not you think Finnish higher education is changing too quickly or not. In **one soft-applied unit** that had traditionally serviced a fairly circumscribed, national competitive horizon, a **lecturer** was fairly clear about how they saw the new expectations of MEU management.

I definitely don't really care about the publication game ... I'm not really into the game of managing my career within the university ... The talk about career paths, the tenure track ... (Shaking head negatively)

Ironically, this lecturer had studied in two of the three universities which merged to form MEU and is involved in an extended, interdisciplinary study of a topic that spanned across several of the purported interest areas of MEU. Despite the Lecturer's highly unique interests their disdain of the new norms makes it impossible not to wonder whether or not if scholars, like them, whose 'means' are not a great 'ends' with regard to empirical proxies of world class status were exactly the same who The **Vice Rector** had spoken about may no longer 'fit in' the hyper competitive culture MEU is now 'selling'.

**Easier to manage world class scholars than be a world class scholar?** Structurally speaking, the organizational re-configuration of the three universities which combined to form MEU began, outwardly as a three-way partnership with three schools covering the general functional aims of the newly formed MEU. This



organizational configuration was clear as the CINHEKS team produced our first draft profile for the cross-case profile analysis which is the topic of Chap. 5. However, by the final draft, a not-so-subtle shift had taken place. *Three schools had become six*, four of which corresponded to the single 'strongest' and 'largest' campus, which was the most obvious (superficially speaking) 'explanation' most interview participants used to account for the lopsided 'partnership'. That said, a research assessment also carried out during the same period of time as CINHEKS began, also clearly identifies several world-class units that predated MEU, some by decades. The majority of them came from the single partner that had split into four, during the time the profile was being made. If one considers the aims of MEU and the essential ingredients of a world class university (which map on to each other), there was no other possibility than to give the lion's share of the new partnership to the single university that brought the most scientific capital to the table. But that's not the end of the story – data wise or in terms of analysis. Bourdieu (2004) identified *administrative power* as distinct from the collegial 'old school' focus on the control over other people's time (academic power) or scientific power, as 'the object of the game' *par excellence* of higher education. If you administrate either – or both – posits Bourdieu, your power, within the field may very well trump either of the more established forms of field-based capital relevant to higher education. His analysis of the nature the contemporary science enterprise was reflected not so much by what our many interview participants said, as by *who they were, how they saw the world and what it was they were doing*. In other words, at MEU, the scholars with backgrounds from the least known and least scientifically powerful HEI brought to the partnership was administrative capital. *They now run MEU*. The implication of this reality, as the chief executives of many universities in many countries know: It may be easier to become a manager of world class scholars than to be a world class scholar. It is fair to counter that if one manages world class scholars in a way that elevates and sustains operations *of an entire HEI* – at a world class competitive horizon – one *is* engaged in world class scholarship. That observation is interesting because this change within Finnish higher education is fundamental. We no longer occasionally study academic capitalism. We are in the business of academic capitalism.

Several of the individuals who now run MEU 'returned' to MEU from the private sector, after successfully running and managing businesses, often international businesses. They are perfectly adapted to the transnational academic capitalism (Kaupinen 2012) that is the standard in which HEIs are now ranked. As one **MEU Director** stated:

...Our product, MEU, is the best in Finland, the easiest to sell. There is a common understanding in Finnish society that something needed to be done, for the universities, so they can move one, two or three steps forward. And MEU was selected to be number one. The government decided to support MEU, heavily and industry – the confederation of Finnish industry – also decided to support MEU heavily. Without those decisions, getting 200,000,000€ from Finnish industry during the economic climate of the last three years would not have been possible.

Amidst this watershed moment it is not difficult to locate the tensions within and between competitive horizons. This not only concerns individuals and units who work at local and national competitive horizons, but also individuals who work within basic units, whose scholarship is best expressed in terms of – ironically – precisely the scientific power that captures the transformative genesis of MEU, from the scientific side. A **hard-applied researcher** working in a unit that predated MEU said:

Inside MEU, our status is not very high. However, almost all of the examples, the photographs, the PR material are from HERE. But within MEU, this is a very marginal place . . . The university can be so closed to the outside world. Large, campus-wide processes are seen as internal . . . They are not internal. Especially at MEU. We are now raising funds from outside. We need to think carefully what we are going to do with that money. What will we give back? Our third mission has not been carefully developed. Students often show up with the idea that they want to make the world better. But in technical fields, this idea is killed very quickly. They study computers, mathematics. Abstract things they may never use. They need to wait several years to get at the things they came to university for in the first place.

- DH:** Do you see a shift in this kind of thinking?  
**Researcher:** No, but students are ready for that. They come here with a very strong sense of mission, you can see it in them . . . We could task our students with society's impossible problems, like aging. Problems that if solved could have societal impact. We need to look at a common focus and forget the boundaries. You can solve many problems in this way.  
**DH:** What is going to have to happen for this kind of thinking to go forward?  
**Researcher:** There's a big obstacle: the tradition here. There's the idea 'First learn the basics, then after four or five years you can discuss with the students.' You can discuss with a six year old child. I think there are a few key people ready for this at MEU and I hope we can do it . . . The management group of MEU is isolated from the rest of the community and their vacuum is quite impossible to penetrate.

This researcher, who worked inside one of the interdisciplinary, creative settings that many argue inspired MEU, was quite skeptical, on the one hand of the private sector ethos that alienated MEU's management team from the faculty and students. That said, they saw hope, across the newly forming campus, especially in the world-class scientists who originally envisioned the building in which we had our interview, the kinds of students these people attract and the ideas they together create.

While the researcher's comment (above) might seem antagonistic to MEU managers who participated in some of our interviews, it is equally clear that MEU's Managers clearly understand the kind of creativity and scientific power encountered in MEU's world class basic units 'sells'.

What is not as clear – across MEU – is whether not it is understood that not every individual in every basic unit of every world class university is a world class scholar. While this seems like stating the obvious, it underlines the misrecognition of the nature of supply and demand within and between the emerging competitive horizons of the HEIs Finnish Higher Education would like to showcase, like MEU. And those we get rid of, like Borderland.

As our team interviewed managers and working scholars aiming their efforts at particular competitive horizons at both Borderland and MEU, we now take one step back, from what looks like a great deal of change in Finnish higher education, to consider a larger, more global and comparative picture.

#### 10.4 ‘World Class Local Heroes’: The Re-branding of Finnish Higher Education?

Our discussion centers on the viability of the signature features that are often cited as the basis for the quality of life in one of the last remaining strong Nordic social democracies, in general, and the education system in particular (Esping-Andersen 1998; Partanen 2011; Radcliffe 2004; Sachs 2004; Saukkonen 2013). This is the ‘old story’ in Finland, the story that may have gone missing amidst our rush to jump to the tune of the neoliberal piper. Specifically, a form of social cohesion characterized by equality and tight, pragmatic, connections between societal need and tuition-free higher education provision (Välilmaa 2001; Also see Nokkala in Chap. 4). Our analysis, in a holistic sense, introduces the question if these features may become collateral damage within a higher education system in which Finland’s durable survival narrative is confronted with a hypercompetitive, global ethos. Currently, new hierarchies – in the form of institutional stratification within Finland are emerging, challenging deeper layers of culture grounded in established beliefs, values, norms and a disdain for stratification that ironically explain how Finland arrived at this juncture in the first place (Välilmaa and Hoffman 2007). Secondly, these observations in part, shed light as to questions of why our higher education system should – or should not be – changing. Returning to the conceptualization in Fig. 10.1, the three dimensions of *domain*, *mission* and *power* are useful in conceptualizing and problematizing the two extremes examined in this chapter. This is because the poles of the dimensions highlighted in the cross-case analysis of the HEI profiles introduce basic questions that can be posed about key *choices* confronted within the unique conceptually illuminated territory we have encountered in twenty-first century HEIs and the societies they serve. Whether the outcomes and networks emanating from this space concern primarily intra-sectoral, cross-sectoral or both; and whether missions are geared to the public good, private goods or both takes on a structural nature that is quite useful when distinguishing, for example what HEIs *say* they are doing (which is clear in profiles) and what they are *actually* doing (which becomes more clear in conceptually-driven analysis of multiple sources of data in case studies). While this is not a new distinction (Bourdieu 1988, 2004) the empirically-grounded analysis we present here is designed with comparative framing in mind. This concerns, as it always has across the elements of the CINHEKS studies, a search for insights and questions relevant *within* societies and *between* societies, amidst the trends that shape an increasingly global division of scholarly labor.

It is the third dimension, *power*, introduced in this chapter, that allows a more nuanced, comparative view of globally stratified higher education and the way in which several types of supply and demand and the forms of capital relevant (or not) in each, further explain the ways in which multiple cultures simultaneously mediate and are mediated within more the more durable social structure necessary to sustain and project very specific supplies that correspond to the clear demands at distinct competitive horizons. The dynamic complexity formed by the powerful interaction of distinct cultural imperatives, institutionalized within highly specialized HEI basic units, loosely coupled – at best – determines, to an extent often not understood in individual interviews, the type of agency and agencies that are viable amidst these social dynamics. As Robertson (2014) points out, the extent to which courses of action are even recognized for what they are, i.e. *alternatives*, is not simply recognized by many, as neoliberal logic promotes assumptions that those inside universities spend no time problematizing, resisting nor questioning at a more fundamental level.

These conceptual-level observations are worth exploring further within countries and supra-national regions and alliances and across them. We elaborate, below, this assertion, in terms of our analysis of two extremes that define a set of tensions within the highly situated focal point of Finland's higher education system.

In this study, the contrast we have spotlighted is between the realities of two types of HEIs. The first, at system level, is *an HEI viewed as unviable*, regardless of what management, faculty and staff at Borderland were fighting to maintain, to best serve their geographically peripheral, socially and economically struggling community. The second HEI is what the most powerful actors in the nation are eager to showcase as *our new HEI flagship: MEU*. These two extremes illuminate, conceptually speaking, a middle ground. *Specifically all Finnish HEIs that 'still exist', but are not regarded as 'the best Finland has to offer' in the global marketplace*. Put another way, the 'key ingredients' judged worthy for an attempt at world class status were science, technology, engineering and math, the same STEM formula that's on offer, the world over. MEU incorporated a dash of highly appreciated niche capacity symbolically linked to the Nordic region and topped this off with the business capacity to bring a hopefully interdisciplinary combination of these 'key ingredients' to market – as soon as possible, while also managing the MEU as an enterprise. The use of the word enterprise is not meant in a pejorative sense. It is the new law of the land. Universities in Finland are either corporations under private law or foundations. The fate of universities of applied sciences (teaching-focused colleges, which do not grant doctorates, like Borderland) is being decided as this volume goes to review.

This contrast is neither good, nor bad in a normative sense. Rather, the contrast is the outcome of a set of policy choices. On a conceptual, substantive and empirical level the consequences of these choices can be – and will be – evaluated in several ways. It's far too soon to guess how MEU will fare, with respect to their aims, but it is clear that the changes in Finnish higher education may have unanticipated consequences not visible when focusing purely on extremes. However, the extremes cast an analytical shadow on the elements of our higher education that

were *not chosen* as worthy of our foray into world class competition. And this is where the critical potential of our analysis leads to questions as to the way in which HEIs and the societies they serve may be changing, in important ways. These types of questions are relevant to a larger, comparative picture.

In this sense, some might wonder why the arguably unique elements of Finland's higher education system were *not chosen* for offer to the global education marketplace, for example *education* itself or HEIs with units directly tied to Finland's long-standing status as one of the 'world's best countries' (Partanen 2011; Radcliffe 2004; Sachs 2004; Saukkonen 2013), especially actual expertise with regard to the nature of *equity, social cohesion* and *quality of life* that are simply absent in several parts of the world. These features of Finnish society are inextricably linked to our higher education institutions and frequently valorised in the international media, yet less often critically scrutinized (Hoffman et al. 2013). While not profitable, these HEIs, basic units and individuals exist and – on a global scale – may be far more unique and perhaps 'in demand' than another 'STEM-focused HEI with a business program'. MEU's approach seems well thought out, but it has little to do with the historic soft-applied roots and traditions of Finnish higher education (Välilmaa 2001). At the extreme, MEU, in its present configuration can be seen as a *re-branding of Finnish higher education* that conforms perfectly to transnational academic capitalism (Kaupinen 2012). This is not the same as saying that a unique capacity of Finland's higher education system is not still hard at work and that Finnish society still benefits from higher education institutions, basic units and individuals that explain, in part, the reason people the world over travel to Finland to see whether there are 'lessons from Finland' that apply to their own society. But programs linked to Finland's truly scarce resources are *not* what Finnish higher education offered, when it came time to aim for world class competitive horizons *in the form of a single HEI*. Rather, our offer mirrors a 'formula' that can be found in many places, as does our transnational neoliberal higher education policy convergence (See Chap. 4). These observation leads to a deeper set of questions as to the way Finnish society and her HEIs may be changing, as our re-branding not only manifests in MEU. It permeates the legislation, administration and strategic management of our system, as a whole.

Figure 10.1 offers important hints as to why HEI's linked to Finland's most often valorised features may have been passed up when thinking about the 'best offer' for the world higher education marketplace. Many HEIs and basic units linked to widely admired features of Finnish society, especially its education system are those which are experienced, within Finnish society, as *public goods* shared by a small, consensus-orientated, relatively culturally homogeneous, affluent population with a tightly regulated and highly structured labor market where 'everybody knows everybody'. The features of a small Finnish society and higher education system can be and have been handled almost exclusively at local and national competitive horizons since the inception of the system (Välilmaa and Hoffman 2007). And it is because the inward looking tendencies that characterizes lower competitive horizons that a paradox emerges. Many HEI personnel in the units which are and were in fact responsible for the world-class educational outcomes as

evidenced in OECD comparative studies seldom offer convincing explanations for this success, especially in terms that would be relevant in any other culture than Finland (see Hoffman et al. 2013). This has been made vividly clear in recent decades by demographic pressures of a rapidly aging population and an ambivalent acceptance that replacement migration may be the only way to maintain a viable dependency ratio. As this has happened, what would be considered very small amounts of migrants have introduced considerable difficulties not only in basic units focused on education, but across the occupational sectors that underpin the most unique facets of Finnish society. The paradox of this situation results because our higher education system has operated at local and national competitive horizons for so long, servicing culturally homogeneous demands in key areas related to quality of life. From within these areas, as might be expected from this mainly inward focus, neither extraordinarily convincing, explanations for our successes exist and neither does an understanding of the need to rise to a world-class competitive horizon, in order to produce the highly situated transformative knowledge now be needed within Finnish society. In other words, Finland's world class local heroes may be quite unsure of the 'lessons' they have to offer, nor aware of those they need to 'learn' (Hoffman et al. 2013, 2014). This said, perhaps this paradox was actually well understood by those who backed MEU's approach. Specifically, it may have been *a good business decision* to not profile areas we are not very sure of, ourselves. The undisputedly world class talent at MEU, by contrast, is clear, primarily aimed at higher education outcomes experienced as private goods and uncomplicated by the thorny topics raised in programs that actually need to explain and engage the most urgent societal challenges to Finnish society regarding the characteristics that defined it during the twentieth century. These characteristics, like forms of equality enjoyed by the general population linked to the relative absence of social stratification will either now evolve or continue to fade from the policy agenda into the realm of history. Topics like these, that define the nature of society, are inextricably linked to higher education institutions. This is because the scholars and students with the potential to understand, explain, engage and impact society are drawn to the conceptual nexus in which this can play out. That said, the evolution of the defining features of Finnish society and her higher education institutions in the twentieth century are anything but self-evident with respect to the choices analytically illuminated by a focus on mission, domain and power.

#### ***10.4.1 Further Studies and Policy Implications***

The wider policy questions arising from our discussion concern the extent to which Finland's higher education system actors and stakeholders perceive the need to develop the capacity to preserve what have long been regarded as the societal characteristics that define strong social democracies? Or, on the other hand, do policy-makers and scholars accept the types of stratification resulting from the most

important recent policy choices in higher education? The answers to these questions are more complicated than either/or framing allows, but it is clear that historically, Finnish higher education and Finnish society have been tightly linked to a greater extent than is the case in many societies (Välilä 2001). It is for this reason that we frame and problematize our analysis, in order that a more nuanced, critical and comparatively viable analyses of the choices, alternatives and consequences be made possible. Much of higher education research and policy debate seems preoccupied with endless permutations of 'the rules of the game' (governance, quality assurance, rankings, audits, IPR issues), increasingly defined by means of international agenda setting (Kallo 2009). This analysis hopefully can be seen as an attempt to illuminate 'the object of the game' (Välilä and Jalkanen 2001), in more nuanced studies of HEIs within and between networked knowledge societies. The question, for scholars across the scope of the CINHEKS study, is their efficacy with regard to 'the object of the game'. ***Or is the object of our efforts something to be ceded to those who steer the nexus of universitatis, without entering it?***

Using the analytical coordinates identified in this chapter, it is possible to identify *where our world class talent is. And where it is not.* To contrast what *higher education institutions and their basic units say they are doing* – and what *they are actually doing.* And it is possibly to assert, in terms of policy analysis: *We know what we are focused on.* Finally, also in terms of comparative policy analysis, our framework highlights the nagging question (easy to miss): *Do we realize what we are not focused on?* Within Finnish society, what we are not focused on – at world class competitive horizons – at the level of HEI may be much more interesting and unique than what we are. Comparatively speaking, this type of problematization may be quite fruitful, as it introduces comparative contrasts yet to be done, regarding 'features of Finnish society not suitable for export' and the relationship between the way in which higher education is related to our defining societal features – or not – and whether these features are changing in ways that are relevant to other societies.

Within Finland, this analysis may be viewed as provocative by those who assume our higher education system has been successfully reformed to with respect to the most important societal challenges, without noting that many crucial areas are simply outside the scope of most units at places like MEU. These basic units are spread across Finland's other 13 research universities. Yet, these other universities are subject to the same legislation that was born concurrently with MEU. Regarding the most important challenges within Finnish society it will surely be interesting to carry out research on the way in which the Finnish variant of academic capitalism begins to work out, as no serious alternatives to simply imitating and implementing the structure and culture of global science have been seriously considered. For many basic units and individuals, who have operated at world class competitive horizons for decades, they will be no real changes, nothing to adapt to. They will view our system-wide propagation of transnational academic capitalism as 'the rest of our system trying to catch up with them' (Hoffman et al. 2011). However, because there are actual alternatives and space to manoeuvre, even think or resist, higher education settings at lower competitive horizons face unique challenges.

This is especially the case in units containing personnel in the position to understand, explain and engage Finnish society's most pressing challenges in ways that can no longer be done at Borderland, because it doesn't exist, or MEU, because it is outside the scope of what they are focused on. These topics include the aging of Finland's population, the challenges faced by a growing numbers of migrants who face emergent ethnic stratification in education and the labor market, at precisely the time the higher education system has embraced status hierarchies (Forsander 2004; Jaakkola 2005), as well as the challenging geopolitical realities that have defined and shaped Finnish society for as long as it has existed.

Concerning higher education research in Finland, we have conceptually illuminated those topics we *could* study, but usually do not (see Teichler 2004; Tight 2012; Scott 2013). These may be the most promising topics illuminated by our analysis of the contrasts: Our most creative efforts alongside our institutional casualties. While our spotlight is more analytical than empirical, in terms of open questions and implications, further study, along these lines may be quite revealing. In terms of the objectives of CINHEKS, the reason Finnish society has characteristics that are quite unique, is based to, to a large extent, on our higher education system that were a reflection, in turn on our unique historical circumstances, geography and culture (Välilä 2001; Välilä and Nokkala 2014). And now, as our higher education system re-brands itself, thinking about the idea we are now following a global agenda, a formula authored and scripted by others, is clearly warranted. Do we like our 'new story'? The degree to which the most vexing challenges in Finnish society (our 'actual story') are going to be engaged 'between the extremes', or *if* they are, remains both a question for future research and one which will play out, in society. The same can be said with regard to the potential Finnish society has achieved in the past: our 'old story'. Purposefully engaging the former and building on the latter: *simultaneously*, within the conceptual space of univertstasis, will explain, in part, whether we remain distinct, as a society. Put another way, in Gladwell's (2008) terms: *Will what has been seen, in the past, as Finland's exceptionalism withstand the empirical scrutiny that the conceptualization we assert makes possible?* We look forward to engaging that very real question with our colleagues, as it is as open as it is unanswered.

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# Chapter 11

## Exploring Social Network Ties of U.S. Academics: The Importance of Employee Status, Institutional Type, Discipline, and Geography

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and Gary Rhoades

### 11.1 Introduction

This chapter examines the external collaboration networks of United States academics outside their university. Much has been written about the changing structure of academic work, changes that are moving universities beyond conventional, fixed, disciplinary and academic based forms of organization to more fluid networks and forms of work and collaboration. Yet there is relatively little empirical work at the unit level and the level of individual academics that documents the extent and nature of such changes. The first part of this chapter reviews some patterns, concepts, and research on institutional diversity, collaboration, and the changing context of academic work. The second section discusses the interpretive framework of social network theory as a useful rubric for exploring academic collaboration. In doing so, there is reference as well to changes in academic labor markets. The third section of the chapter presents some results of a social network analysis (SNA)

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examining the collaborative ties of academics in three public institutions in the United States. The analysis is of how those ties are structured along various dimensions, from the employment status of the academic, to institutional type, to disciplinary field, to geographical orientation (local, national, and international), to linkages within and beyond academe.

A large body of literature examines one sort of academic collaboration network, the increased ties between universities and industry over the last three decades. That changing relationship has been characterized in various ways. For example, Gibbons and colleagues (1994) associate these university-industry ties with a structure of knowledge production they call “*Mode 2*” science—that is, the co-production of applied knowledge conducted by multidisciplinary academy-industry teams. The shift to “*Mode 2*” entails a radical metamorphosis in knowledge production, which is changing the university as an institution. In this scenario, “*Mode 2*” knowledge is mainly produced directly in the context of its application. This is asserted as a more powerful dynamic than “*Mode 1*” knowledge, which is firstly developed in universities as basic research, only later to be diffused “into society” (Gibbons et al. 1994; Nowotny et al. 2001). Another characterization of academic ties that are extending beyond academe is Leydesdorff’s and Etzkowitz (1996) concept of the “triple helix,” speaking to the interaction of universities, government and industry that now plays a crucial role in purposeful innovation in increasingly knowledge-based societies. This triple helix interaction has been the subject of much study in the higher education literature (e.g., Slaughter and Leslie 1997; Slaughter and Rhoades 2004; Feldman et al. 2002; Owen-Smith 2005; Owen-Smith and Powell 2003; Geiger 2004).

Some scholarship has focused on university-industry links in terms of quantitative indicators of technology transfer and intellectual property, studying patenting and licensing; others have focused on bibliometric analysis of co-authorship across university-industry boundaries (Perkmann and Walsh 2007). As important as these issues are, such work “risks missing forms of collaboration that do not result in patents or areas of industrial innovation where patents do not play a primary role” (Perkmann and Walsh 2007, p. 261). Moreover, other forms of collaborations (e.g. public meetings and conferences, exchange of students and other personnel, contract research, and consulting) as well as other types of collaborators (e.g. non-governmental organizations, NGOs) are too often missing from the scholarship on technology and knowledge transfer.

Some higher education scholarship internationally and in the U.S. probes to the level of individual academics and units in detailing some of the effects of academic capitalism on various aspects of academic work. That work concentrates on policies, resource allocation patterns, types of scholarship that are supported, the sort of values that define a unit, and the socialization of (graduate) students into field based norms (Mendoza et al. 2012; Metcalfe 2010; Szelenyi and Goldberg 2011; Ylijoki 2003). The conceptual focus in most of this work is on academic capitalism.

Yet there are still some conceptual limits to the above work, that lead to limitations in our empirical understanding of the extent to which collaboration networks in academe cut across university and external sectors of various kinds, not just of industry. This chapter explores a social network approach to academic ties.

In doing so, it attends to the effects of various salient social structures, including career structures on those patterns of collaboration. Higher education scholars have explored a wide range of market-oriented phenomena taking place in higher education institutions (HEIs) around the world (e.g., Mars 2007; Slaughter and Leslie 1997; Slaughter and Rhoades 2004), technology transfer (e.g., Bercovitz and Feldman 2006; Owen-Smith and Powell 2001), and university contributions to economic development (e.g., Etzkowitz 2002; Geiger 2004). The aim of this chapter is to ground an understanding of the collaborations that emerge out of these and other ties in a social network mapping of linkages, as well as of the structural conditions associated with them.

The network organization is said to be the latest phase of the structural transformation occurring in academia. Some scholars have suggested that universities are increasingly expected to work as partners and interactive players who collaborate closely not only with industry, but also with community, government, and NGOs. Along with these changes it is believed that the discipline/department model of separate silos for creating and transmitting knowledge are being replaced by more fluid and flatter organizations characterized by collective interdisciplinary projects within which academics interact interdependently and work together to achieve their research goals. Such claimed changes have implications for career patterns, with the possibility of boundary-less careers in which academics creatively construct and develop their individual careers (Musselin 2007).

That is the claim. The reality seems to be somewhat different. For example, the distinctive nature of career patterns in academe from one nation to another have inhibited the extent to which even in the European Community new entrants into academe can seamlessly move across national boundaries (Musselin 2005). Moreover, the uncertainty and discontinuity of career paths both in Europe and in the U.S. for junior academics might actually work against the capacity to form ongoing collaborations (Cantwell and Lee 2010). When positions and careers are not securely anchored in university units, it can be difficult for junior members of the academic workforce to form and sustain various sorts of collaborations across various boundaries.

For the above reasons, it makes sense to gather some exploratory data using social network analysis of academics' collaborations. The social network approach allows us to analytically and empirically illuminate key relationships within institutions and hierarchical structures. The ultimate conceptual contribution is to highlight how institutions and social networks (individuals) as major social forces provide the basis for (or inhibit) collaborative actions and consequently, transactions with external actors and with actors outside of academe. Social network analysis (SNA) is the "disciplined inquiry into the patterning of relations among social actors, as well as the patterning of relationships among actors of different levels of analysis (such as persons and groups)" (Breiger 2004, p. 505). We believe that SNA offers a way to create and make sense of macro- and micro-level comparisons across multiple types of social relations, while at the same time

providing a means to explore the underlying structure of external collaborative links.

While network metaphors have long been used by scholars to describe the relationships between social actors, it was not until the second half of the twentieth century that scholars began to develop formal theoretical and methodological approaches to examine central aspects of social structure. As a research paradigm, social network analysis differs from standard social and behavioral research and methods in that it seeks to explain social processes by analyzing the relationships among and between the units in a study. In contrast, much other science, especially in studies of international comparative higher education “standard” social science concentrates on individual actors (e.g., individuals and/or organizations) and their attributes (e.g., gender, educational level, resources).

Despite the established use of SNA to analyze scientific elites and research networks (Lazega et al. 2008), this approach has not been systematically applied to the study of the relations between HEIs, academics, and external actors. In this chapter, we highlight some of the advantages that SNA provides to the study of this phenomenon. Likewise, we strive to expand the scope of research by the inclusion of multiple levels of analysis. One advantage of network thinking and methodology is that it predisposes the researcher to focus on multiple levels of analysis simultaneously. That is, the network researcher is always interested in how the individual is embedded within a structure and how the structure emerges from the micro-relations between individual parts. The ability of specific network methods to map multi-modal relations is, in studies like CINHEKS, an essential step forward in rigor with regard to the complexity we were encountering. At the same time, and as a way of incorporating a structural level of analysis, we also pay much attention to the changing nature of the academic labor market (similarly, there are major changes afoot in Europe—see Kehm and Teichler 2013). Those changes are evident in the fact that increasing proportions of faculty are “teaching without tenure” (Baldwin and Chronister 2001). There is a “new faculty majority” in the U.S. (Kezar 2012), with over two-thirds of the academic workforce being off the tenure track. Most new hires of recent cohorts of faculty are off the tenure track (Schuster and Finkelstein 2008). Such changes in the structure of academic employment are a consideration and issue we explore in examining academic collaboration patterns.

The knowledge-based society has been characterized by the search for new models of organizations and employment in order to cope with rapid technological innovation and change, such as boundaryless organizations and careers (DeFillippi and Arthur 1994; Baruch 2006). As scholars, however, our focus is on searching for what the empirical patterns of collaboration actually are, and on the extent to which they are structured by employment status, institutional type, discipline, geography (i.e., national boundaries and supra national regions like the European Union, EU), and academe (i.e., do they extend beyond academe?)

## 11.2 Institutional Diversity, Collaboration, and the Changing Context of Academic Work

Different universities have different functions and roles, based on various factors, including their resources, governance, and geographical context and orientation (Hatakenaka 2008). Research-intensive universities are likely to have a more national and global orientation than do more teaching-oriented universities. Similarly, with the growing emphasis on technology and knowledge transfer, research universities are perhaps more likely to have networks that extend to the private sector in various types of relationships. At the same time, with the general status seeking behavior of universities, and the heightened pressure to generate new revenues from the private sector, less prestigious and more teaching-intensive universities may be working to establish collaborations and networks that are more national and global in nature and that extend into the private sector. Indeed, the case study data across the CINHEKS project suggests that the teaching oriented higher education institutions across were profiling a more global orientation, in the hopes of fostering actual changes in their image. Whether that has translated into collaborations at the level of individual academics remains to be seen.

Some scholars have suggested that universities are now more interactive players who collaborate closely not only with industry, but with community, government, and NGOs. They are a critical component of what has been called the evolving Emerging Global Model (EGM) of the university (Mohram et al. 2008). Institutions fitting this model are research-intensive, global in mission and scope, and they engage in worldwide competition for students, faculty, staff, and resources (e.g., funding and prestige). At the same time, institutions fitting the EG model typically have a diversified and considerable funding base, much of which relies on increasingly complex relationships with government and industry (Mohrman et al. 2008). Again, it remains to be seen empirically whether this pattern is playing out at the ground level.

In order to further understand the underlying factors of collaborations in academic networks, we consider aspects of academic labor markets and changing academic trajectories that may influence collaborations. The patterns of academic organization are important in understanding the work and the actions of academics. Individuals within these organizational networks are connected by sets of ties (Wasserman and Faust 1994) and are able to gain access to resources through those ties, some of which provide more access to resources than others. Despite the broad literature on the social network organization as a new mode of innovation, we know surprisingly little about the extent to which and how the flow of knowledge in academe across organizational boundaries is intertwined with careers and geographical locations. There are significant gaps in our understanding of the complex relationships between HEIs and external agents. From studies of social networks, we know that the characteristics of network differ, as do the extent to which individuals participate in those networks and the resources that they gain.

In the academic sphere, we are interested in the nature of critical relationships that take the form of collaborative ties.

Collaboration has been found to be instrumental to scholarly productivity, particularly among scholars who sustain a commitment to scholarly research and writing over many years (Austin and Baldwin 1991). What we add in this chapter, however, is a more structural and systemic focus on the conditions related to collaboration. Though many collaborative relationships involve both a personal and professional dimension, the social network part of the CINHEKS project sought to define collaborations in higher education realm as a concept that focuses on the social structure (i.e., characteristics of social relationships, resources and capital embedded in social relationships, and the context in which social relationships occur) underlying the links between HEIs, academics, and external partners. We see this social structure as constituting and constituted by diverse actors at multiple levels, ranging from students, faculty and both university and non-university personnel, to individual academic units, laboratories, and other organizational entities. To this end, it is imperative to focus on not just HEIs' links to the private sector, but to explore both institutional and individual ties or connections being established with private, public, and not-for-profit entities.

While some studies on collaboration address systematic cross-organizational differences using different models (Gittelman 2007; Singh 2006), these still leave open the issue of individual heterogeneity that often exists even within the same organization. Moreover, relatively unconsidered is the extent to which collaboration in our post-industrial, global society continues to be shaped by the so-called "Matthew effect" of the rich and more advantaged institutions and individuals holding privileged places in networks of collaboration (Merton 1968; Wagner and Leydesdorff 2005; Kollasch 2012). In this study, we explored and analytically illuminated empirical relationships at the level of the individual researchers and at the level of the collaborating organizations.

There is only limited research providing an empirical assessment of the extent to which HEIs establish ties to partners with a global reach to the detriment of establishing collaborative relationships with more local, regional, or national alternatives. The research mostly focuses on international research collaboration that is indeed a rapidly growing component of core research activity for some individual researchers (Amey and Brown 2004). Most scholars refer to increases in interdisciplinary collaboration as major shifts in scientific work organization (Beck 1995; Blau 1994; Wenger 1998). But there is limited empirical documentation of the structural contours of individual academics' collaborative networks. That is the focus of our team in CINHEKS and this chapter advances this approach.

Additionally, the changing landscape of university-industry relationships has immediate impact on the changes that are happening within academic labor market. As yet, the effects of changes in academe are relatively unknown in terms of patterns of external collaboration. The changes are already evident within academia, though the impact on collaboration remains relatively unexplored: many part-time or adjunct positions are being offered, 'alternative tenure track' positions are



being established that do not provide the security and continuity of tenure. Universities hire increased numbers of lecturers who carry heavy teaching loads, and increased numbers of postdoctoral scholars who carry a heavier research load than do tenure stream faculty. At the same time, these positions lack the continuity and security that may be necessary to establish and sustain patterns of academic collaboration beyond the employing institution. Consider the reality vividly described and analyzed in the report compiled by Street et al. (2012) entitled *Who is Professor "Staff," and how can this person teach so many classes?* The authors conducted an exploratory survey to find out more about hiring practices and working conditions for contingent faculty. The survey was administered by the New Faculty Majority Foundation in September 2011, and the authors collected data from 500 faculty members in contingent appointments. The major finding was that time of the contingent appointments and the limited availability of instructional resources suppresses the positive experiences of faculty members who work on contingent appointments.

Without better understanding of the emergent structural dynamics that shape collaboration the implications of such last minute and low investment hiring patterns for academic collaboration remain, by definition, unknown. In this chapter, we establish a conceptually-driven, empirically-grounded problematization aimed at this set of questions about collaboration through a distinctive, social network analysis approach to studying and understanding academe through the linkages among academics.

### **11.3 A Proposed Social Network Model of Academic Organization in the U.S.**

One key aspect of the conceptual grounding and empirical contribution of the CINHEKS project is its use of a social network model to examine the linkages of academics across organizational boundaries. Social networks have been the subject of both empirical and theoretical study in the social sciences for at least 50 years (Wasserman and Faust 1994; Scott 2000).

Most network research in higher education internationally concentrates on citation data of academic journal rankings. However, the CINHEKS project adopted a different conceptual lens and empirical focus, one that considers labor market and institutional changes in relation to collaboration patterns among academics. That approach, which we elaborate here, was a social network lens that allowed researchers to examine collaboration patterns, focusing on geographical dispersion, institutional type, status of employee, and field of science.

Adopting a network model involves adoption of a certain framing of relations between industry and university, one of the chief empirical interests of the CINHEKS study of universities in a knowledge society. In some cases and

accounts, the university-industry relationship has been framed as a linear, one-way knowledge flow, from universities to the private sector marketplace, as often evidenced in characterizations of technology transfer and knowledge transfer. In other accounts, often of critics of university-industry relations, the relations are framed in terms of one-way impact of corporate business values and practices on universities (as Slaughter and Rhoades 2004, note, by contrast, academic capitalism is NOT something that is done to universities by business). The social network model foregrounds an interactive model of two-way knowledge exchange between the two sectors. It is a two-way street where the university becomes a key actor in innovation strategies that lead to the development of collaborative structures to engage academics in joint knowledge production.

Moreover, the network model offers distinctive units of analysis. Much of the university-industry literature focuses on organizational relations. That can take the form of triple helixes (Etzkowitz and Leydesdorff 1998), modes of knowledge production (Gibbons et al. 1994), or organizational learning (Powell et al. 1996). In each of these metaphors the referent is organizational and institutional. By contrast, the network model utilized in the research reported here moves to the individual level of analysis. The individual academic is the starting point for understanding ties between organizations and institutions. Ours is an individual, inside- out (from the academic in their particular organizational setting to other settings) approach. At the same time, we also move up the analytical ladder, exploring various structural dimensions of these social networks.

While the creation and expansion of university-industry collaborative relationships represents an instrumental boundary spanning activity that is aimed at the facilitation of scientific knowledge creation and transmission, it is assumed that the individuals within this social structure initiate these connections. Yet, network analysis makes a distinction between network structure and its content. Network structure is about who is connected to whom while network content refers to the substance of actual relations (Burt 2005). While there are many useful concepts and analyses within the social network approach (e.g., positions, roles, structural holes, affiliation networks; blockmodeling) that would allow us to examine collaboration ties among researchers, in this particular study, we focus on the concept of social capital. Indeed, a network approach to social capital (Lin 1999, 2001) offers a unique interpretation to current relationships of universities with other higher education institutions, industry and other entities such as governmental or non-governmental agencies.

The network theory of social capital implies an “investment in social relations with expected returns” (Lin 2001), where social capital symbolizes the fact that one invests in the creation of the capital and its purposeful use. This theory addresses how resources that are embedded in social structures and hierarchies, including the professional employment status of the individual academic (Lin 2001).

## 11.4 Social Network Results: Effect of Network Structure/Collaboration

In this section we present results of the CINHEKS study carried out in the U.S. The social network data analysis was guided by the U.S. team that focused on collaboration patterns among academics and practitioners in four countries: Finland, Portugal, the United Kingdom, and the United States.<sup>1</sup>

The emphasis on relationships in Perkmann and Walsh's typology (2007) is particularly pertinent to our methodology, since social network analysis (SNA) is the "disciplined inquiry into the patterning of relations among social actors, as well as the patterning of relationships among actors of different levels of analysis (such as persons and groups)" (Breiger 2004, p. 505). In the following subsection we describe the methods for data collection and analysis used for this chapter. In SNA the methods are inextricably linked to theoretical propositions, so we also describe the concepts (within SNA) that guided our data analysis.

### 11.4.1 Survey Instrument and Data Collection

Building on the previous two data gathering strategies of the CINHEKS research project, case studies and institutional profiles, the social network survey represented a further source of data for examining the complex relationships between individual academics and higher education institutions and non-university agents. Conceptually, data on academic collaborations at the individual level provides an important tool for considering the nature of collaborative relationships that academics have with other actors within and outside higher education, and within and beyond their country. When gathering such network data on individual collaborations, we needed to consider factors that might explain differences in the nature, scope, and degree of these collaboration patterns.

A sociometric survey was implemented to better understand the collaborative networks of academics in the United States. The survey instrument and approach we adopted offers a useful methodological angle that is distinct from that utilized in most research done on collaboration among academics. In the academic setting, understanding ties between individuals has been mostly addressed through the analysis of co-authorship and citation patterns using bibliometric data (Hicks et al. 2000; Chen and Hicks 2004; Geisler 2005; Li et al. 2007; Larsen 2008). These studies have been important in examining patterns and outcomes related to collaboration and publications, as well as scientific impact. However, such an approach has mostly missed the relational and organizational aspects of collaboration structures. Instead of measuring co-authorship networks, the intent of the

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<sup>1</sup> Due to logistical constraints, Germany did not participate in the social survey dissemination.

CINHEKS sociometric survey was to explore the dimensions of the collaborative networks such as sectoral ties of academic scientists to scientists in other HEIs, as well as to actors in government agencies, NGOs, and industry.

A web-based, sociometric survey instrument was developed to gather data for SNA. The survey instrument consisted of 32 questions divided into three parts. Part I asked respondents about their education and employment history. Part II focused on academic networks: respondents were asked to answer questions about their collaborations, including outside of their own institution. Through the use of sociometric survey questions on academic networks, respondents noted their networks for select collaborative actors and their relations with these external collaborative actors (Burt and Minor 1983). Survey respondents were asked to provide names in each of five name generator questions (i.e. listing of up to 5 institutions, type of institution, main focus of collaboration, relevance of collaboration, and outcome of collaboration). Respondents were then asked a series of name interpreter questions about each of the individuals they had named. Name interpreter questions addressed the type of the collaboration undertaken with the collaborator (government, higher education institution, industry, non-for profit organization, and other); details about the relevance of this collaboration (measured on a 4-point Likert scale from 'not relevant at all' to 'very relevant'); and closeness of research expertise by indicating outcome of the relationship, for instance, scholarly books authored, scholarly books edited, book chapters, patents, grant proposal and a few more. Part III of the survey gathered demographic information from respondents. Thus, the survey captured multiple dimensions of the collaborative networks that are not accessible through existing bibliometric studies, such as data on sectoral and geographical ties.

In the U.S. the survey was sent via email using a web-based form at the end of Fall 2011 to a sample of 1391 academics in three universities. The choice of the universities and the sample of academics was structured by the CINHEKS project's previous choice of institutions for the case studies and institutional profiles, thus to maintain methodological consistency with previously conducted institutional profiles on strategically chosen institutions in the United States, the same three universities were selected to examine collaboration patterns with external actors (all university names are pseudonyms): (1). Midwest University (MU), (2). Midwest Central University (MCU), and (3). Pacific West University (PWU). MU and PWU are internationally renowned universities, more globally oriented, whereas MCU is a considerably less prestigious, regionally oriented university. All three are relatively large universities by U.S. standards, with enrollments ranging between 28,000 and 41,000 students. All were established in roughly the same time period: the two Midwestern universities at the end of the nineteenth century, and PWU in the early twentieth century. Additionally, the three institutions are comprehensive in scope, and represent three types of large research universities—an elite land grant university (PWU), an elite non land grant university (MU), and a regional research university (MCU). Lastly, all three have large and active research centers in life sciences, physical sciences, and engineering fields (STEM) ensuring sufficient population from which to select participants. The project focus was also on

members of the academic workforce (not just tenure stream faculty) in STEM fields. The contact information for the respondents was retrieved from the institutional websites and research units that had been previously selected for the case studies and institutional profiles for the U.S. case.

The U.S. survey yielded 6.3 % response rate. The response rate is quite low even for a web-based survey, thus we are necessarily very cautious in presenting findings, which are far from definitive. However, part of the survey's purpose was to use SNA to explore patterns of relationships, not to make definitive generalizations about these patterns. Thus, the data we provide are suggestive for future studies of academic networks. For instance, although 75.9 % of the respondents indicated a collaborative relation with an external actor, that means nearly one-quarter (24.1 %) did not designate a collaborative tie, raising some interesting questions about the extent to which we can characterize academe in blanket terms as being highly networked.<sup>2</sup>

### 11.4.2 *Network Structure*

Network theory of social capital and social network analysis provide several arguments about what type of networks are source of more relevant and/or conducive to social capital exchanges. In terms of the network structure, certain patterns of relationships are expected to be more beneficial. For instance, Granovetter (1973) stressed the importance of the strength of the ties for information flow among randomly interviewed professional, technical, and managerial job changers living in Boston suburb. He asked those who found a new job through contacts how often they saw the contact around the time that the job information was passed on to them. The main hypothesis was that weaker ties tended to form bridges that linked individuals to other social circles for information not likely to be available in their own circles, and such information should be useful to the individuals. Granovetter (1973) examined the strength of the relationship between individuals, the social tie, which promotes cohesiveness in a group. He found that weak ties are more likely than strong ties to be bridges to socially distant regions of a network and, therefore, to be sources of new information. Granovetter (1973) showed that close or strong ties were involved in the process of finding a job less frequently than were weak ties.

In academia, the nature and strength of collaborative ties considerably varies. For instance, some academics are connected to each other by being in the same laboratory, or being involved on the same team project, while with other collaborators they may only occasionally consult. Thus, the strength of relationships may vary across these types of relationships and may provide different type of social

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<sup>2</sup> Additionally, 13.8 % were female academics and 85.1 % were male academics, while 1.1 % constituted of a missing data.

capital that can be mobilized for different purposes (Kollasch 2012). On the other hand, there is a structural holes argument that suggests that structural holes stress the opportunity side of networks and that researchers have high levels of social capital because they are not part of cohesive, embedded networks (Burt 1992).

The bottom line is that social capital that can be accessed and mobilized through strong and weak ties is additive. Both open and closed network structures are important, for they both allow access to novel information and enable actors to capitalize on that information (Burt 2004; 2005).

### ***11.4.3 Structural Positions: Rank and Institutional Type***

#### **11.4.3.1 Rank**

Different network positions represent different opportunities for an academic to access new knowledge that is critical in developing and expanding innovative ideas. As previously mentioned, certain network positions (structural holes, centrality/power, betweenness) can effect individuals' ability to obtain better positions or rewards in organizations. An individual occupying a central network position can gain competitive advantages because of their unique access to other academics' knowledge and practices. Network positions providing academics with more (degree centrality) or quicker (closeness) access to numerous others are also valuable. Additionally, those positions provide resource control and entrepreneurial advantages that may be important.

The preceding points suggest that researchers should take contextual factors into account when examining the impact of social and structural elements on network-based work activities and outcomes. In other words, while an individual can decide with whom to communicate or how to earn his or her social capital, a person cannot determine his/her own network position through conscious activity since it is often based on thousands of direct or indirect network linkages. For instance, an academic may be able to access certain new knowledge, but not enhance his/her performance or productivity if s/he does not have enough capacity to absorb such knowledge and be constricted by the position s/he holds within the network.

Additionally, the academic environment is a hierarchical environment. Thus, the structural position of an academic, such as being a head of a research laboratory, tenured faculty member, or a principal investigator of a project profoundly influences what resources this person has available. Academics who are richer in industry-relevant resources will probably be more likely to have close industry ties in their collaborative networks. In turn, academics from research-oriented institutions may be more likely to have close collaborative ties with industry since their academics' structural position may provide them with more research related resources. In short, then, the structural position of academics affects what resources this person has available and may predispose them to different collaboration patterns.

By way of background, we start by providing some general information about the respondents. Table 11.1 shows the academic positions that U.S. respondents held in their current institutions. The largest percentage were professors (40 %), followed notably by respondents who held “contingent,” non-tenure track positions (31 %). On the one hand, that is not surprising in that the new faculty majority (roughly two-thirds) in higher education is of non-tenure track members of the academic workforce. On the other hand, it is somewhat surprising in that we are sampling from two elite publics and in STEM fields—contingency has been more identified in the literature, and is more evident in practice in teaching positions in less prestigious institutions of higher education. The distribution of our respondents raises some interesting questions about contingency in STEM fields (an analytical point that one of our graduate student colleagues has pursued in her dissertation on secondary labor markets in STEM fields (see Torres-Olave 2013). It also affords us some chance to offer some initial, tentative insights into the professional networks of tenure stream and non-tenure stream members of the academic workforce, a topic that has been entirely overlooked in the literature.

Also by way of background, we provide in Table 11.2 data on the current scientific field of academic activity of the respondents to our survey. A substantial majority (69 %) of academics came from Natural Sciences, followed by 21 % from Engineering and Technology fields. For the U.S. case, academics who had an affiliation to a research center indicated on institutional websites, were included in the sample. Moreover, respondents had to indicate their main scientific field of their current academic activity, which means that some of the academics who were listed on the website under a particular research unit were not currently pursuing research within the frame of their respective research unit. Even though U.S. academics were sampled from STEM-related research units, for instance,

**Table 11.1** Academic position in current institution (n = 87)

Current position	Percentage (%)
Professor	40
Associate professor	10
Assistant professor	12
Contingent	31
Other	2
Missing	5

**Table 11.2** Main scientific field of current academic activity (n = 87)

Field	Percentage (%)
Natural sciences	69
Engineering/technology	21
Social sciences	8
Medical/health sciences	1
Agricultural sciences	1

some of these academics indicated Social Sciences as the main scientific area of their current academic activity.

### 11.4.3.2 Institutional Type

Academics who are affiliated with research-oriented institutions in the U.S. more frequently collaborate with external partners ( $M = 2.35$ ,  $SD = .737$ ) than those academics who work for teaching-oriented institutions ( $M = 2.07$ ,  $SD = .616$ ). When type of the institution was taken into consideration, 10 % of full-ranked professors at the teaching-oriented institution in our sample indicated collaboration with an external partner. A majority of these collaborations extended to other HEIs whether domestically or internationally. Eight percent of assistant professors indicated collaboration with external partner, mostly HEIs, while 3 % of associate professors in teaching-oriented institutions indicated collaboration with external actor that included HEIs. Only 3 % of contingent faculty indicated their collaboration with an external partner with links to HEIs. Given the disproportionate growth of contingent faculty in academe, the more constrained professional networks of collaboration for such faculty have serious and adverse implications for the extent to which academe as a body is externally networked in the ways defined in this study.

In research-oriented institutions, 35 % of professors indicated collaboration with an external partner mostly a HEI. Nine percent of associate professors indicated collaboration with an external partner with strong links directed to HEIs, and only a few to a governmental agency or industry. Nearly 4 % of assistant professors collaborated with other HEIs. Interestingly, 28 % of faculty in contingent positions in research-oriented institutions collaborated with external actors, mostly with other HEIs (Table 11.3). In this regard, something about the structure and resources of research-oriented institutions seems to counter the effect of contingency.

A majority of collaboration patterns among academics concentrated on collaborations that were initiated from Science, Technology, Engineering, and Mathematics (STEM) disciplines. Overwhelmingly, 29 % of professors and 27 % of contingent faculty who collaborated with external partners come from Natural Sciences disciplines (Table 11.4). 10 % of professors came from Engineering/

**Table 11.3** Collaboration patterns among academics by institutional type

Current position	Percentage (%)	
	Institutional type	
	<i>Research-oriented</i>	<i>Teaching-oriented</i>
Professor	35	10
Associate professor	9	3
Assistant professor	4	8
Contingent	28	3
Other	1	0



**Table 11.4** Collaboration patterns among academics by discipline

Current position	Natural sciences (%)	Engineering/ technology (%)	Medicine/ health sciences (%)	Social sciences (%)	Humanities (%)	Agriculture (%)
Professor	29	10	1	2	0	0
Associate professor	6	0	1	2	0	0
Assistant professor	10	0	0	0	0	0
Contingent	27	0	2	2	0	0
Post-doc	1	0	1	1	0	0

**Table 11.5** Collaboration patterns by rank depending on geographical location

Current position	International (%)	National (%)	Local (%)
Professor	27	29	11
Associate professor	6	10	4
Assistant professor	5	11	6
Contingent	10	13	2
Post-doc	1	1	0

Nanotechnology fields followed by 10 % of contingent appointments from Natural Sciences.

In our study, we were particularly interested in the scope of the academic collaborations among academics. Our working proposition was that a majority of academics would favor international collaborations that could yield better networking and broader knowledge transmission. However, 29 % of professors had national collaborations within the United States compared to 27 % of professors whose collaborations were international (Table 11.5).

All researchers collaborated with higher education institutions either domestically or internationally. In addition, many professors and associate professors collaborated with government agencies and industry. By contrast, only a few assistant professors and academics at the rank of instructor or researcher in our sample indicated having any collaboration with NGOs. None of the assistant professors or post-docs in the sample indicated that they had collaboration with industry. It may be that early-career academics do not possess either enough social capital or other resources to establish strong ties with industry partners (Kollasch 2012). Young researchers may not have a strong foundation in their discipline, thereby limiting opportunities to foster collaboration between early-career researchers and industry. However, one study of this question in international research projects has found that with the help of senior faculty, early career professionals can start collaborating early on in their professional lives—even then, they need to be cautious about the scope of the collaborative project in which they would like to be involved (Kollasch 2012).

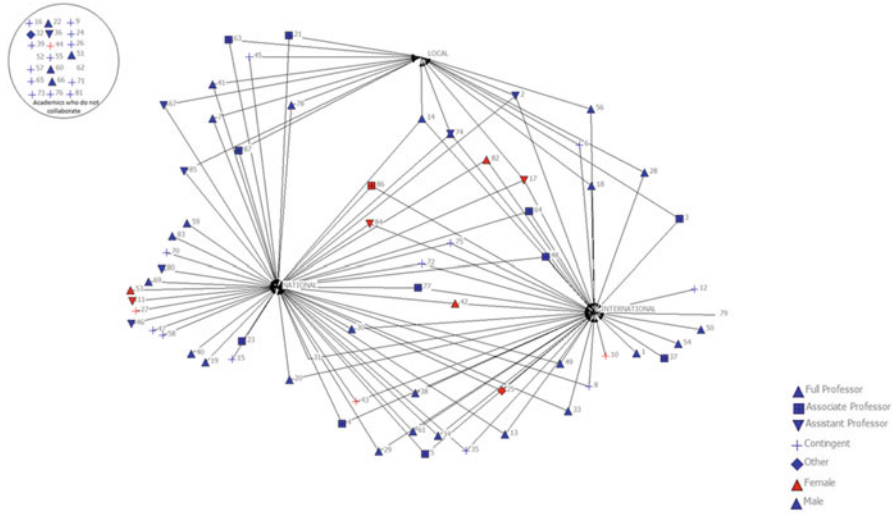
Furthermore, data from the name generators were compiled into a 2-mode binary matrix, that is, a rectangular data matrix of academics (columns) by sector types or by geographical location (rows). In essence, this array contained information regarding the sector affiliation (industry, government, NGO or HEI) and geographical scope of that affiliation of each of the academics in the sample. A value of 1 indicated that an academic indicated collaboration in a particular sector and in a particular geographical location; while a value of 0 indicated that the academic was not associated with a particular sector and a particular geographical location. This allowed the input of the data into UCINET (Borgatti et al. 2002) and permitted use of the program NetDraw (Borgatti 2002) to display collaborative networks in a way that was visually meaningful. Additionally, some network measures were used to further understand the collaboration patterns.

For instance, a density measure was used to describe the general level of cohesion in a sociogram. The density of a binary network is simply the proportion of all possible ties that are actually present. For a valued network, density is defined as the sum of the ties divided by the number of possible ties (i.e. the ratio of all tie strength that is actually present to the number of possible ties). The density of a network may give insights into such phenomena as the speed at which information diffuses among collaborators, and the extent to which collaborators have high levels of social capital and/or social constraint. The density of the collaborative ties matrix at the national, international, and local levels was .441, meaning that 44 % of all the possible ties were present.

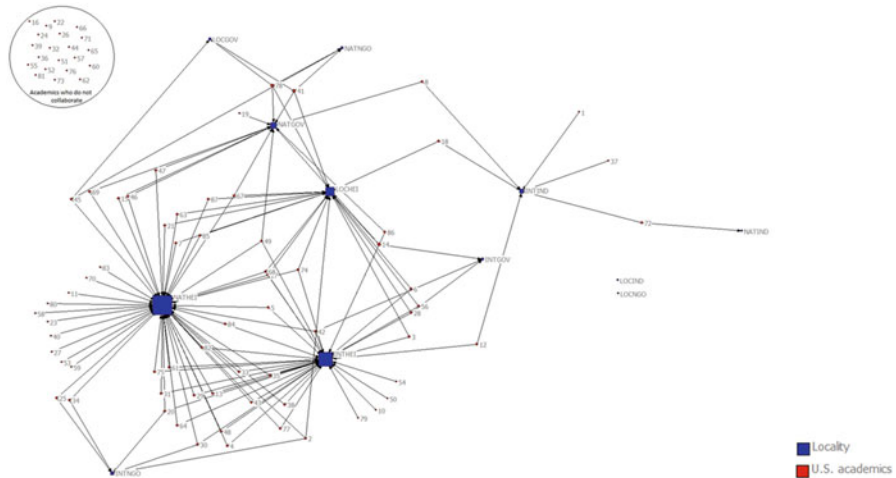
We also used a centrality measure as one network property that frequently has been used to study actors or events in affiliation networks (Bonacich 1972, 1991) to show which geographical scope of collaboration received the most ties from academics. The degree centrality in an affiliation network stressed the importance of actors because of their level of activity or the number of contacts (thus, collaboration ties) that they have (Faust 1997). The degree centrality of a node is defined as the number of edges incident upon that node. Applied to our data, this means that the degree of an academic is the number of collaborations s/he indicated, and the degree of collaboration is the number of academics who indicated it. Thus, degree has a clear and simple interpretation in the 2-mode case. The degree centrality indices showed that national scope of collaborations was the most central .621, followed by international scope .483, and local .218.

Figure 11.1 presents a visualization of collaboration patterns among U.S. academics at international, national, and local levels with specification of academic ranks. As both density and centrality measures indicated, academics mostly collaborate at the national level.

We also wanted to know the sector affiliation (whether industry, government, NGO or HEI) of the collaborations. Figure 11.2 presents a visualization of collaboration patterns among U.S. academics with industry, government, NGO, and HEI. It was found that most academics collaborated with HEIs. Therefore, combining both Figs. 11.1 and 11.2, we concluded that U.S. academics collaborated most frequently with HEIs at the national level. For that we used a degree centrality



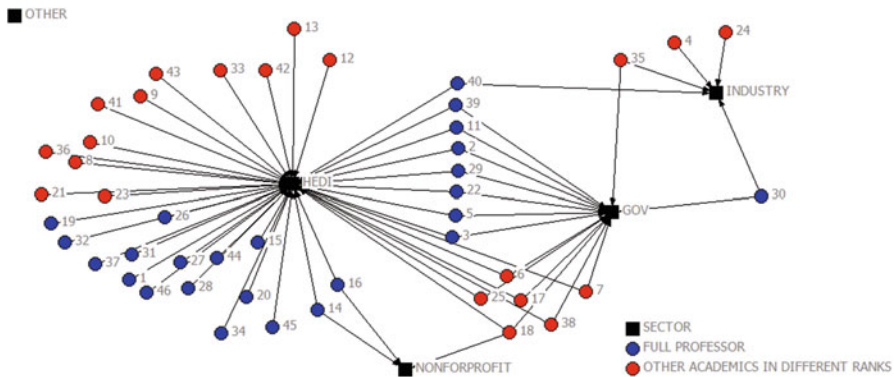
**Fig. 11.1** A social network of collaboration patterns among U.S. academics at international, national, and local levels



**Fig. 11.2** A social network collaboration patterns among U.S. academics by sector and locality according to degree centrality measure

measure to determine the degree of collaboration as the number of academics who indicated collaboration.

Additionally, the collaboration patterns varied among different academic careers depending on *the type of institution*. The network analysis of U.S academics revealed that most academics at the rank of a full professor who were affiliated



**Fig. 11.3** A social network of collaboration patterns among U.S. academics by sector in research-oriented institutions in the United States

with research-oriented institutions collaborated intensively with other HEIs, and to lesser extent with government (Fig. 11.3).

In this chapter, we drew on the literature on structural holes (Burt 1992), the strength of weak ties (Granovetter 1973), and social capital (Lin 1999, 2001), which suggests that some network features are beneficial in terms of access to information whereas others are more effective in terms of social resources. Our empirical measures of the theoretical concepts were density and centrality.

The collaboration networks of academics at the national, international, and local levels were not very dense, and academics tended to collaborate with institutions/organizations that are geographically close, namely other HEIs in the United States. In a sense, these networks have significant advantages in terms of access to information because each individual brings information from their university which may not be directly connected to the others by any other routes. However, in dense networks many ties are redundant, which may suggest that some academics specifically from research-oriented institutions may get a wider spectrum of collaborations than academics from teaching-oriented institutions. Many academics who work for research-oriented institutions may be able to collaborate more widely throughout the system than those in teaching-oriented institutions. Importantly, not only were the collaboration networks among U.S. academics more central at the national level compared to international or local levels, but professors occupied central positions in these networks. That means professors play an important role in the diffusion of resources within the wider structure of their profession.

These patterns of collaboration in the United States may well depend on many factors that affect academics' ability to collaborate in the first place. In the U.S. case, the federal government has been pushing scientists to collaborate with each other to use the funding and other means to ensure higher level of scientific productivity. Additionally, the U.S. research universities included in the study are also part of the state government, thus highly depended on the state policies and regulations. Of course, we can conceptualize that this type of network is typical for the career development paths of academics. While most may follow a traditional

path, this may not be the case for all academic scientists. For some, an academic career may be preceded by full-time employment in industry or government depending on the disciplinary field. For example, in engineering or technology fields, the academics quite frequently start their careers by accepting a full-time employment with industry.

In fact, having diverse ties with different sectors builds and strengthens academics' social capital. For instance, some studies found that there is a positive association between academics' previous work in private firms and networking later in their career (van Rijnsoever et al. 2008). In early career stages, the academics collaborate with other academics within the field and university to further establish significant ties, while later in their career they start increasingly collaborate with industry partners. This prior engagement with other academics fosters collaborative relationships that may continue to grow through their later academic career. Possibly, those academics who have industry relevant expertise are more likely to have industry collaborators in their network.

However, our analysis of the U.S. collaborative ties showed, to the contrary, that professors or contingent faculty still exercise primarily cross-university rather than industry-based collaborations. This finding suggests that academics are continuing to collaborate with nationally located HEIs, perhaps because these connections are critical for moving through the academic career structure.

## 11.5 Conclusion

### 11.5.1 *Glocalization of Academic Networks*

The main aim of the CINHEKS project was to analyze how higher education institutions are networked within and between distinct knowledge societies, the roles they play in such societies, and how the changing features of the societies play out in higher education institutions. This chapter presented empirical findings on the nature of collaborative relationships between academics and external partners. These relationships are highly structured by the employment status of the academic, the type of institution in which they work, and the academic field in which they work. They are also geographically structured in terms of being internationally, nationally, or locally situated. And they are structured by the types of organizations that most commonly linked in the collaborations. The patterns that we found in this exploratory study offer some useful leads in conceptualizing collaborative knowledge exchange between U.S. academics and their external partners.

Academic networks have social and spatial dimensions. Networking was found in this analysis to be greater for senior and more secure members of the academic workforce than for junior, less secure members (i.e., for assistant professors and non-tenure-track faculty). The almost nonexistent extent of collaborations is perhaps most striking in the case of postdocs. Given the significant growth of

contingent faculty over the past four decades in academe, and the recent growth of postdocs, this does not augur well for collaboration. Ironically, as we have moved towards a networked, knowledge-based society in some dimensions of the economy, the labor force has become increasingly contingent and isolated from one another in terms of collaborations.

At the same time, the effect of employment status was mediated by the type of institution in which academics worked. The pattern noted above held most in the teaching-oriented institution. By contrast, in the research-oriented institutions contingent faculty were far more likely than were assistant or associate professors to have external collaborations. The nature of knowledge linkages, then, appears to be shaped by the type of knowledge activity—whether it is teaching or research.

The provisional findings also speak to the influence of field of work. The natural sciences accounted for almost all of the external collaborations. Partly this is no doubt due to the nature of the sample: indeed the sample of respondents is so limited as to call for much caution in interpreting the results. But building on classic studies that have found key differences among fields in terms of patterns of interaction and work among people in the field (Becher and Trowler 2001), it would make sense that collaboration networks would vary among fields as well.

One of the principal interests of the CINHEKS project as well as of the study reported in this chapter is in patterns of collaboration geographically. The opportunity for networking often depends on geographic proximity. Thus, classic studies of social networks indicated that neighbors are more likely to become friends (Festinger et al. 1950), and workers interact more frequently with colleagues who are spatially proximate (Baker 1984). But we found a somewhat different pattern among the academics in our study. On the one hand, the most prominent collaborations consisted of national networks. Although there were some local linkages, most of the collaborative ties were national in nature. On the other hand, there were somewhat fewer international ties, running counter to what we might have expected to find, particularly in the case of academics in the natural sciences, who accounted for such a high proportion of the linkages. In short, collaboration networks continue to be more national and local than global, despite the talk of an increasingly globalized world in which boundaries of time and space are being overcome by technology.

Another striking finding is that academic collaborations tended to cluster around academics collaborating with other higher education institutions rather than with industry or NGOs. This clustering facilitates the continuation of communities of practice and formation of strategic collaborations mostly between domestic higher education institutions rather than international collaborations. The strength of these collaborations lies in the fact that to obtain valuable information, tacit academic knowledge, and capital, it takes strong and local ties that enable trust and communication.

To be sure, not all academic networks are bound to national and local boundaries. Spatial propinquity is neither sufficient nor necessary to social connectivity, and local embeddedness among academics does not preclude geographic outreach or better access to resources (Kollasch 2012). Indeed, our study found that a little

over one-quarter of professors had international collaborations. It is through more geographically dispersed networks that academics can carry the more diverse flow of resources. Rialp-Criado et al. (2002) identified global connections as one of the most important factors that affect organizational internationalization.

However, the results of this study indicated that academic networks are simultaneously rooted in locality and globality. They are nationally and locally rooted, but globally redistributed: they are national and local because they consist of social ties with intensive local knowledge and language, and they are embedded in meetings and connections in specific geographic places within national boundaries. However, they are also global because they bring together academics and their institutions dispersion of knowledge has a global reach. Glocalized networks are bridges of information and knowledge as well as circuits of resources. Thus, the combination of both local and global enables opportunities for academic profession at least in these areas:

- glocalized networks place academics in a unique position to discover and synthesize different perspectives and options in multiple contexts,
- the structural position of both academic and institution enables academics to have access to diverse information and tacit knowledge through glocalized networks. Most academics seek insider information about the current state of the field in their home countries from colleagues there,
- interpretation of research outcomes is conducted with consideration of the local context and usually mediated by hierarchical position of the institution at the state and/or national levels.

Given the above, we might have expected a larger preponderance of international collaborations. A key to understanding the findings may lie in part in the stratified structure of the academic profession. Thus, the most senior and secure academics, full professors, are really the only ones with international collaborations. They are the ones with the resources, it would seem to form and maintain such ties. By contrast, the growing contingent sector of the academic labor force, whether contingent faculty or postdocs, has quite limited ties internationally.

### ***11.5.2 A Boundaryless and Glocalized Academic Structure Model?***

One might infer from much of the public policy discourse about the transformation of academic structures that we are seeing a trend towards more boundaryless collaboration networks in academia. One might expect to find that there is much collaboration across organizational boundaries, with academics (and their institutions) collaborating with many people and entities outside of higher education institutions and across national boundaries. So, too, some literature would suggest that although organizations matter in higher education spectrum, boundaryless

organizations (Ashkenas et al. 1995) and boundaryless careers (DeFillippi and Arthur 1994) have emerged in the academy, as, for instance, careers have become transitional, flexible, and multidirectional rather than linear, strict, and hierarchical.

Findings from the institutional profiles of CINHEKS indicated that U.S. universities form communities of practice with vague boundaries. They undertake a multidisciplinary approach to research that may suggest that universities are trying to meet social demands and needs rather than trying to prove their prestige and ranking. Applied knowledge production was evident that was clearly bound together by networks of communication. These networks extend beyond national boundaries, even if they are firmly embedded in the local political and social processes. That is what was inferred from documents and from the ways in which the universities presented themselves.

However, a social network analysis showed that academics collaborate mostly nationally with HEIs within the U.S. Even though the disciplinary boundaries may be disappearing as our institutional profiling indicated, the power of these structures continues in terms of collaborations that are still mostly embedded in national contexts and with HEIs rather than with industry or government agencies. Moreover, to a considerable degree, academic collaborations still depend on the discipline, hierarchical position of the institution and the funding resources making a boundaryless career suggestion doubtful in higher education.

The peculiarities that academics face within their own HEIs are to a large extent determined by their relations with the labor market. This interaction between organizational and occupational (career) boundaries in terms of academic career trajectories and academic collaboration patterns is pivotal to further investigate.

If, there is indeed a transformation of the academic structures into more boundaryless, glocalized networks, then the model will have to be highly interactive and based on high clustering and existence of community structure. The initial results of the SNA analysis showed that academics form most of their collaborations within the academia—with other HEIs in the U.S.

Our findings point to the significance of the social networks concept. That concept serves as an important theoretical framework for exploring patterns of collaboration for academics in countries that participated in the CINHEKS project. It offered an important empirical counterweight to the official and public representations of the institutions embedded in documents and interviews in the case studies. The network model takes us beyond previous cross-national studies, which pay too little empirical attention to local/national/global networks and patterns of interaction (Marginson and Rhoades 2002).

Indeed, the SNA analysis partially answered the main question postulated by the CINHEKS project: how are higher education institutions networked within and between distinct knowledge societies? Given the prevailing public discourse and much academic literature, the SNA yielded some unexpected and counterintuitive findings. We found that the collaborations of academics are patterned by important social structures. The professional stratification structure of the academic labor force augurs ill for substantially enhanced and global patterns of collaboration, for the academics most likely to have national and global collaboration networks are



full professors, who are the most senior and secure members of the academic workforce, and who also are declining as a proportion of that workforce. We also found that for all the efforts and claims of all universities to be globally networked, the actual collaboration patterns of academics are structured by institutional type, with those working in teaching-oriented institutions being less likely to have collaboration networks. Moreover, for all the talk of interdisciplinarity, collaboration patterns are profoundly shaped by field of academic work. Further, the level of collaboration is less than would have been expected, and more defined by local and especially national collaboration networks than by global linkages that would have been expected in an increasingly globalized world. Finally, we found that most linkages for academics are with academics in other higher education organizations, not with individuals in organizations and entities outside academe.

Social network theory combined with our understandings of academic labor markets and division of academic work gives us a better, though provisional picture of how place and structural position in the world of academic matter, a lot.

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# Chapter 12

## The CINHEKS Comparative Survey: Emerging Design, Findings, and the Art of Mending Fractured Vessels

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### 12.1 The Role of Kintsugi in Mixed-Methods Sequential Research

The need for negotiation and adaptation required in any systematic research endeavor is multiplied exponentially in the case of large-scale comparative collaborative projects like CINHEKS. In a mixed-methods design, these issues are further compounded when working within a dynamic, sequential framework, in which each research step determines the direction of each successive stage of data collection and analysis. Under such complex conditions, it is not surprising that setbacks at early stages of data collection can have a rippling effect with the potential to derail an entire project. As detailed in Chaps. 3 and 6, the CINHEKS team experienced such a worst-case scenario as we prepared to transition from the institutional profile

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stage to the case studies stage. Unsurprisingly, the events that took place at these points had a significant impact both on the organization of the CINHEKS teams and in the emerging design and implementation of the third and last stage of the study, the comparative survey.

In writing this chapter, we faced a curious challenge in determining the best way to “tell the story” of how the final comparative survey came to be, as a necessary background against which to discuss some of its main findings. As the third and final stage of a sequential mixed-methods study, the large-scale international survey was inextricably linked to prior stages of data collection. With this in mind, early drafts of this chapter relied heavily on a *chronicling* organization principle, as we attempted to reconstruct the process of designing and implementing the survey as it happened over time.<sup>1</sup> At first this task seemed relatively straightforward, given that the project remained true to the logical order of research stages outlined in the CINHEKS matrix. However, as we tried to recount the events leading up to the survey, we kept coming across little shards of fact and memory that did not fit well into the smooth narrative premised in a chronicles approach. The problem, it seemed, was that the metaphor tended to privilege the elements of continuity in the process, but obscured the “jaggedness” which defined much of the survey’s development. In practice, elements of continuity and disruption played equal roles in the design and implementation of the survey, as in shaping its innovative empirical findings.

Our colleagues in Chap. 3 have commented on what some may see as a monomaniacal fixation with process and method among CINHEKS researchers. Yet this preoccupation is largely linked to the many ruptures in the original design, which forced the different teams to pick up, salvage, and mend as circumstances required, all while trying to preserve the essential elements of the sequential mixed-methods design. This effort had much in common with *kintsugi* (or *kintsukuroi*), the Japanese art of fixing broken pottery with lacquer resin and then dusted with powdered gold or other precious substances. The philosophy of *kintsugi* is that when an object breaks, the act of mending it not only becomes part of its history but increases its value. The intention of repairing is not to disguise the damage, but rather to use the injury as “the central element for the metamorphosis into an object imbued with new characteristics” (Iten 2008).

This idea runs counter to common practice in academic publishing. The negotiation and adaptation processes inherent in executing any empirical study is rarely acknowledged in the requisite methods section of most manuscripts; even less often is the exploration of this issue a focal point and goal of a publication. The realities and struggles of data collection and analysis – missing data, participant non-response, institutional barriers, competing views of researchers about questions and data, among many others – and how researchers deal with them on a day-to-day basis are too often ignored in the interest of fitting page and word limits, or from a reluctance to reveal a seemingly unprofessional yet all-too-human lack of methodological omniscience.

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<sup>1</sup> Also, “The CINHEKS Chronicles” had an epic ring to it that resonated with the vicissitudes we faced in the course of implementing the study.

## 12.2 Purpose and Organization of the Chapter

In this chapter, we adhere to the CINHEKS premise that there is much to be learned from how researchers negotiate methodological and conceptual challenges, and how this struggle translates into findings. Consequently, our intent in this chapter is twofold. First, we reconstruct the process through which the survey design and implementation evolved, retracing the developments from earlier research stages that had a significant impact on the final survey instrument. This narrative is done primarily from the viewpoint of the Portuguese and US teams, who were responsible for conducting the survey stage. This part of the chapter is organized around the fracture points along the sequential design that played a significant part in the survey design and implementation. We highlight the ways in which these fractures severely disrupted the day-to-day reality of carrying out the project. At the same time, as our teams found creative ways of mending them, the fractures transformed our understanding of the survey stage, of its many constraints in a highly variegated context, and of its potential to reveal novel insights about academic labor and networks.

Second, we present the results of the survey, including a descriptive exploratory analysis of what they convey, along with the overarching implications for international comparative studies which adopt a similar approach. The mending process mentioned above did not occur in a vacuum, as the tensions inherent in a project bringing together researchers at different career stages illustrates. Significantly, career stages emerged as one of the most interesting features in the analysis of the survey data, and consequently the findings section focuses primarily on this feature. In the interest of readers who wish to focus primarily on survey results, we have organized this section so that it can be read either as part of this chapter, or as a stand-alone analysis complementary to the discussion of the findings for the U.S. (Chap. 12). We conclude the chapter with a reflection on lessons learned and recommendations for future large-scale survey and mixed-methods projects. We hope that this combined approach may be useful for researchers contemplating similar high-risk, international research initiatives.

### 12.2.1 *Fracture 1: CHERI's Dissolution and the Portuguese Response*

To recapitulate, the CINHEKS matrix stipulated that a survey for widespread distribution amongst faculty in institutions in the partner countries would be developed based on the findings of a series of country-specific institutional profiles (stage 1) and case studies (stage 2). As the IP for the case studies, the UK team (IP4) would develop a master interview protocol to be implemented at selected institutions in each country. However, the plan suffered a severe setback when the Centre for Higher Education Research and Information (CHERI), the academic unit to

which members of the UK team belonged, was closed down in the summer of 2010 as part of the drastic austerity measures taking place in British universities.

As a contingent measure to manage the difficulties presented by the UK team's situation, in November of 2010 an ad hoc committee of team members from Finland, Portugal, and the US began to flesh out for a pilot protocol for the case study interviews. However, this process advanced slowly, partly because of the difficulty of coordinating the work and schedules of team members across three countries, and partly because of the complexity of designing an instrument that could be implemented in different national contexts. The delay in producing a finalized interview protocol posed a significant challenge to all the country teams. Besides introducing the need for logistical and methodological adaptations (see Chap. 6), a particularly pressing type of challenge involved each team's need to "ride out" the delay in data collection against the very real pressure to produce research outputs. The circumstances of the Portuguese and U.S. teams are a case in point.

At the time the ad hoc interview protocol committee was formed, the Portuguese team was comprised of a mid-career PI and an early-career postdoc. As a Portuguese citizen, the PI was much more familiarized with the national higher education system than the postdoc, an Italian national. In this situation, the Portuguese PI's input was crucial to identifying potential interviewees as well as for developing context-relevant questions for different types of participants. However, at this stage of the project, the PI also held a policymaking position with the Portuguese government which limited his availability to phone contact and weekend meetings.

The delay in the design and implementation of a harmonized interview protocol created a difficult situation for the Portuguese team. The postdoc, hired on a temporary basis, was under great pressure to publish outputs from the project to be competitive in academic job searches. Similarly, the PI of the Portuguese team was also at a career stage where the need to publish is paramount, and was conscious of the need for the early-career researchers to publish to boost future job opportunities in academia. The amount of time required to craft, revise, and submit a manuscript to international peer review journals demanded that data collection and analysis took place as soon as possible. Although participating in an international project such as CINHEKS constituted an important element of a CV, a lack of related publications could damage the postdoc's chances to secure an academic position in Italy, where she eventually hoped to establish her career. At the same time, because of the sequential design of the study, any delays in the implementation of the case studies meant putting other research activities on hold – an undesirable condition for a young and dynamic team.

To maintain the project's momentum, the Portuguese team decided to launch a pilot interview protocol which would allow them to generate some usable data while providing all CINHEKS partners with some empirical-based evidence in preparation for the survey stage of the project. Although related to the key issues and themes of CINHEKS, this pilot protocol leaned towards a more science policy approach than a higher education approach, due in part to the shared background and interests of the Portuguese team. At the suggestion of the postdoc, an ex-ante



survey was implemented to gather additional participant information on some key themes for the project.<sup>2</sup> This pre-survey generated a rich batch of information both in terms of the interview's content and the structure; this information became invaluable in refining the final interview protocol. The ex-ante survey (pre-survey) had two main purposes. The first purpose was gathering complementary information of the interviewees before the interview proper took place, avoiding the need to ask questions that could be asked more effectively by a – quick and to the point – survey format. The second purpose was to help in the preparation of the interview itself. The surveyed to be interviewed would supply career related data of interest, including current position, type of contract, years in the career, alma mater, job mobility, work spell at the current university, and other job experiences before working in academia. The ex-ante survey also asked information on scholarly engagement in through ticking boxes about several themes, including research (e.g. engagement in field work), teaching (e.g. laboratory tutorship), faculty development (e.g. workshop attendance), evaluation (e.g. participation in peer-review committees), management (e.g. project management), administration (e.g. fundraising), services (e.g. consultancy), and public understanding of science activities (e.g. participation in public debates). Finally, preference for teaching and research interests, quantification of specific academic outputs, and perceptions on the strengths and weaknesses of the current university were disclosed.

This amount of information allowed the team to approach the interviews in a more focused way, making unnecessary to ask certain questions and pressing for more information regarding issues of relevance that were highlighted by a previous analysis of the ex-ante survey results. The implementation of the ex-ante survey was considered by the Portuguese team as highly successful from a methodological and analytical point of view. Moreover, it fostered a proactive participation of the interviewees: All of them accepted to fill the ex-ante survey before the interviews, and many of them got a better understanding of the type of information that was more valuable to the interviewers, thus bringing in some cases documents that they considered both relevant and helpful to the research that was being carried out. From combining the data from the ex-ante survey with the interview analysis, several associations were distinguished by type of university, field of knowledge, and perceptions on internationalization for example.

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<sup>2</sup> It is worthwhile noting that when the Portuguese IP proposed this idea to be implemented by all IPs, this proposal was declined. This was certainly understandable as certain practices do not work as well in some cultures and institutions as they might work on others (which in itself are a quite relevant result of this project).

### ***12.2.2 Fracture 2: Institutional Barriers and the Very Long Delay***

In the fall of 2010 each team completed the institutional profiles, as well as brief reports of preliminary findings. By December 2010, the UK team resumed its leadership role and began the analysis of the institutional profiles, as well as further refining the interview protocol. Then, in January 2011, the UK team distributed a preliminary interview protocol to all partners. This protocol underwent many revisions, as the UK team tried to maintain a reasonable balance between the clarity and standardization necessary for comparison, and the flexibility to accommodate local circumstances, including the differing resources available to the different research teams (See Chaps. 3 and 6).

At this point, it became evident that these revisions – necessary to CINHEKS’ design and objectives – posed a logistical challenge for the US team. Prior to any data collection and unlike the other country teams, the US team was required to submit the research proposal to the University of Arizona’s Institutional Review Board (IRB), the regulatory entity in charge of evaluating, approving, and monitoring all university-initiated research involving human subjects. Because the interview protocol was a work in progress, and because the review board took several weeks to process the application, waiting for a finalized interview protocol further delayed obtaining permission to conduct the US case studies. As a solution, the US team submitted an IRB application indicating that the interview protocol would likely change. This application was approved in March 2011. Once the finalized protocol was agreed upon, the US team submitted it as an amendment to the ethics application. However, by the time the amendment was cleared by IRB, the spring academic session had ended. This situation presented an additional challenge for participant recruitment, since many of the target interviewees were away from their institutions for the summer. Whereas data collection was well underway in Europe early in the summer, the process was delayed in the US to late August 2011 in an attempt to increase the number of interviews. This was a logistically necessary decision that bore fruit, but which also contributed to another fracture, as discussed below.

### ***12.2.3 Fracture 3: A Pragmatic Disconnect in Between Research Stages***

For the early-career members of the US team, the long delay in the implementation of the case study interviews left an uncomfortable vacuum in their activities. The two highly motivated doctoral students felt uneasy after submitting the institutional profiles to the UK team in the fall of 2010. From their perspective, there was much uncertainty regarding how long it would take for a final interview protocol to be crafted, revised, and approved, and what their roles should be in the interim. At the

same time, these researchers sensed a lost opportunity in being asked to wait for the profiles to be transmuted into case study protocols, rather than seeing the former as raw data to be analyzed as it emerged. As detailed in Chap. 3, the inclusion of the institutional profiles as a cornerstone of the CINHEKS matrix was itself an emergent measure to bridge, conceptually and empirically, what at the time seemed irreconcilable differences in the definition of a case study across and even within different country teams. Eventually, it would become evident that the institutional profiles were in fact a methodological innovation with full potential for stand-alone analysis, as evidenced in Chap. 6. However, at the time this was not necessarily apparent to individual researchers, as was the case with the US team.

In the spring of 2011, the early-stage researchers in the U.S. team volunteered to enroll in both a short-term workshop and a formal seminar on Social Network Analysis (SNA) offered at the University of Arizona. Knowing that both the case studies and survey stages would feature a prominent focus on networks, the researchers wished to develop some background knowledge of terminology and techniques for approaching the latter. This was also a pragmatic strategy to “while away” the hiatus between the end of the institutional profile stage and the beginning of the case study surveys.

To apply the know-how developed during this training, the US team undertook an SNA analysis of the academic units on which the case studies would concentrate. The intent in this focused analysis was to explore the spatial dimension of the external ties maintained by each of the six centers under consideration. For example, would the geographic scope of the partners differ depending on whether an institution self-identifies primarily as “global” or “regional”? Building on the analysis of the institutional profiles, the US team wanted to move away from a narrow definition of “partnerships” and focus instead on the relationships or linkages established between higher education institutions and external actors, including industry, government, non-governmental organizations, and other HEIs. As in the case of the Portuguese team’s pilot interview, which became a valuable resource in shaping the interview protocol, the US SNA survey began as a contingent measure which eventually influenced the design of the third stage of data collection: the comparative survey.

#### ***12.2.4 Fracture 4: The Perils of Implementation Across Academic and National Contexts***

After several iterations, the case study interview protocol was finalized, and called for two separate interview cycles. Phase 1 focused on the institutional level (president/rectorate) and any relevant functional units at that level (e.g. research schools, liaison offices) where the researchers could brief participants about the CINHEKS objectives and areas of interest. As well as collecting interesting qualitative data, the purpose of this phase was to identify a small number of

organizational units for detailed analysis in phase 2. The protocol assumed a minimum of two institutional cases, 20–30 interviews, and 3 focus groups per country.

It quickly became apparent that the proposed interview strategy favoured a data collection strategy that might work well in the UK and European contexts, but would prove challenging in the US. For example, the European partners anticipated (and eventually did) carry out face-to-face interviews with most participants, and in some cases conducted follow-up interviews. This plan was feasible because of the relative ease of mobility within and across each country, and because the European teams were able to rely on pre-existing connections with top-level administrators and faculty at each of the institutions of interest to contact potential participants.

However, in the US, the logistics of conducting face-to-face interviews and focus groups were more complicated. The US institutions were selected based on two main criteria. First, because of the highly decentralized nature of US higher education, state university systems vary greatly in terms of policies and organizational structures. The US team purposely concentrated on institutions located in two states whose postsecondary systems have had a disproportionate influence in the rest of the country (i.e., California and Michigan). Second, in keeping with the selection criteria outlined for the institutional profiles, institutions that differed in terms of mission, prestige, teaching/research focus, and regional versus global orientation were selected. Although this strategy yielded a sample of institutions with an interesting range of characteristics, it presented a problem in terms of participant selection and recruitment. In comparison to the other country teams, securing interviews with university presidents/rectors proved to be very difficult due to a lack of preexisting relationships with such high-level administrators. Likewise, travel to and from each institution – especially to conduct case studies – would have required an extended stay at each site, which presented severe time and resource challenges.

Several compromises were sought to work around these time and resource constraints. First, the US team selected the organizational units for case study analysis by relying on the information already collected through the institutional profiles, rather than through interviews with institutional leaders. Second, instead of face-to-face interviews, the US team conducted phone interviews, and no focus groups. As such, it was imperative to adapt the interview instrument to collect the most relevant information working within a limited amount of time and resources.

### ***12.2.5 Fracture 5: Seizing the Opportunity to Incorporate Innovative Methods in the Survey Design***

The delays introduced by the dismantling of the UK team, along with issues faced by individual country teams, had a severe effect on sustaining coordination not only across teams but across research stages. The impact of these difficulties became

more pronounced as we looked forward to the third and last stage of the sequential studies. It became evident that, as the country teams scrambled to coordinate and implement the institutional case studies, we were unable to develop a concurrent, comparative strategy to ensure that the survey stage was congruent with the changes made to the study's design in prior stages. This concern was underlined by the need to pursue a mixed-methods perspective and not a multi-methods analytical perspective, which the conditions seemed to be favoring. Once again time was running out and a critical element for decisions to be taken and the implementation to take place. There was a concern that a too late start-up of the survey exercise would spell disaster.

In the summer of 2011, a general project meeting convened in Reykjavik, Iceland, to discuss project progress, the transition to the survey stage, and the harmonization of data across the three stages of the mixed methods design. In the original CINHEKS design, a traditional survey was proposed as the primary instrument in the third stage of data collection. Prior to the Reykjavik meeting there had been some discussion to introduce a Social Network Analysis component to the general survey. A survey with an SNA component promised the great advantage of translating the idea of "network" into empirically workable research questions. Network metaphors have long been used by scholars to connote the relationships between social actors, from the interpersonal level to the international. Yet while the network metaphor has been instrumental in reshaping the direction of social theory, transforming it into empirical studies can be problematic. The challenge (which became pressingly clear during the Reykjavik sessions) was how to reach concise, pragmatic definitions that could yield empirical data on at least some central elements of change and social structure that characterized HEIs' relationships with external entities.

One of the US senior researchers had significant experience applying SNA to higher education issues. With this in mind, the project PIs invited her to provide an intensive workshop during the Reykjavik meeting. The idea was to determine the applicability of SNA as a component of the general survey, as well as to gauge interest in this methodology among team members. The response to the workshop was overwhelmingly positive – so much, in fact, that the PIs for the various teams began discussing the possibility of using SNA as the main data collection strategy for the survey stage. By this time there was a reasonable suggestion that SNA-type questions could glean valuable comparable data for the purposes of the CINHEKS project. As mentioned earlier, during the interview protocol delay the US team tested the use of SNA on institutional profile data; preliminary results from this sub-project were disseminated during the general meeting (See Chap. 12). The availability of this preliminary study prior to the implementation of the survey stage was encouraging.

Based on the discussion of the relationship between the profiles, case studies and possible survey focal points, a decision was taken to implement a social network survey as the main data collection strategy in the third and last phase of the study. The survey would be implemented by the Portuguese team, and analyzed collaboratively by the US and Portuguese teams. Because of the recruitment difficulties

faced by the US team, it was also decided that in the US, the SNA-type questions would be included as part of the case study interviews. The rest of the teams would implement the SNA questions as part of an online survey to be managed by the Portuguese team.

### ***12.2.6 Fracture 6: What Happens in Reykjavik (Is More Complicated After You Leave)***

This set of decisions led to two major changes in the survey assignment, concerning division of labor and the survey's format and content. First, although the Portuguese team had extensive experience with traditional surveys, their knowledge of SNA was more limited. For this reason, the Portuguese and US teams would now share responsibility for designing, implementing, and managing the survey. In itself this was not problematic, due to the pre-existing rapport amongst all team members, which allowed them to develop a cooperative work relationship that lessened the stress of restructuring the survey's design and content under tight deadlines.

Nonetheless, this effort entailed significant adjustments for both teams. For example, as mentioned earlier, prior to the Reykjavik meeting the Portuguese team had devoted considerable effort to developing a preliminary survey instrument. This tentative survey focused primarily on aspects of "change" rather than "networks," both of which were important aspects of the CINHEKS framework, and which were each given greater or lesser emphasis at different points of the study by different teams and individual researchers. However, the SNA approach called for a very different format, and would not work well with an emphasis on change; thus the introduction of the SNA framework constituted an overnight paradigm shift for this team. In turn, for the US team the shift to an SNA-type instrument meant having to assume a set of unanticipated and demanding responsibilities.

The need to significantly alter the survey's content and format brought about a period of intense negotiation between the US and Portuguese teams. At first, the joint team tried to negotiate a combination of elements from the traditional survey and the SNA component that would suit the needs of all parties, but for pragmatic reasons the focus on change took a background position. The US team took the lead in designing a set of questions that would maximize the potential of SNA to reveal specific types of relationship between higher education and other entities; at the same time, the Portuguese team made a strong argument for including traditional survey items about academic mobility, internationalization, and the respondents' professional background.

### ***12.2.7 Fracture 7: Pragmatic Constrains and the Need for Asynchronous Survey Implementation***

A number of pragmatic constraints framed the final shape of the survey. For example, based on the Portuguese team's expertise conducting surveys, we expected that any attempt to collect data in academic settings would be subject to low response rates. This problem could be particularly acute in Europe, where faculty had recently experienced an oversaturation of surveys, and a similar response was expected in the US. For the purposes of CINHEKS, a low response rate was undesirable but not catastrophic, since our main objective was not to obtain sample representativeness but rather to collect data that would complement the findings of the previous research stages. In other words, the results yielded by analysis of the survey data would only make sense in relation to the findings from the institutional profiles and institutional case studies. Nonetheless, a maximum number of responses was necessary to satisfy statistical power requirements, and so minimizing attrition was an important consideration. Thus it was important to create as concise and straightforward a survey as possible, without sacrificing the high level of detail and respondent effort required by SNA-type questions.

Once the teams agreed on a survey template, they distributed to the other country teams to obtain feedback, especially in terms of its comparative applicability. This proved to be a challenging step, since each team had different expectations of the survey, including those deriving from personal research agendas. An additional issue was that, in some countries, the survey needed to be implemented before the end of 2011. Time was running short and there was concern that the survey would not be ready by then. Yet integrating comparative insights into the final instrument was crucial not only to ensure the integrity of the mixed-methods structure of the project, but also to reinforce the general commitment to it. The US and Portuguese teams had to remain firm about the need to keep the instrument as concise as possible. However, they also saw the need to make a survey instrument with a degree of flexibility to suit the needs of the different teams. In the end, the teams agreed on dividing the survey into two main sections. First, a set of "core" questions was mandatory and would be applied in all countries. The second set of questions was optional, and each country team could decide whether they wanted to apply it or not.

At a pragmatic level, partner feedback provided a way of embedding each country team's case study experience and unique knowledge of their respective postsecondary national systems. Similarly, the comparative consultation helped determine the terminology to be used in each country where the survey was implemented. This was an important consideration, since certain words and expressions could have a different meaning or be interpreted differently from one country to another. In the US and the UK, the survey was implemented in English. However, in Finland, Portugal, and Germany, two versions of the survey were available to respondents: one in the national language, and one in English. The

cover letters were also translated to the national languages and edited to better conform to the characteristics and survey traditions of each country.

A further division of labor took place at this point. Each country team was responsible for providing an adequate translation of the instrument prior to launching the survey. Likewise, each country team was responsible for determining the target population for their respective institutions and providing their contact information to the Portuguese team, which was in charge of launching the survey online. Each country team's knowledge of their postsecondary system allowed them to determine the best strategies for contacting potential respondents. This local knowledge also determined the sampling strategy in each country. Some teams chose to target the same academic units as the case studies, while others decided to include a larger pool of academic units or even institutions. In this way, the survey was customized to suit the needs of different teams.

The Portuguese and the German IPs undertook an online search for potential respondents, gathering most of their target respondents from institutional websites. Others, such as the Finnish IP, contacted the targeted higher education institutions directly and through more formal means, and requested lists of names and contacts of faculty and administrative personnel. These were given under strict conditions of confidentiality that were duly respected and followed by both the Finnish and Portuguese IPs.

The implementation of the survey in the UK represented a completely different challenge. The UK IP did not have anyone available to search for names and e-mails of potential targeted respondents. The UK IP thus proposed an original idea that speaks volumes on how important the capacity to improvise and find solutions can matter in apparently difficult to impossible spots. The UK IP suggested the University and College Union (UCU), a Labor Union in the UK, to help the project and support the implementation of the survey in the targeted universities. The contact person at UCU was Mr. Stephen Court, whose support and help to the implementation of the survey in the UK was as inexhaustible as it was critical. UCU provided lists of names and e-mails of UCU members at the targeted case study universities, and advertised in advance in the newsletter of UCU that the CINHEKS survey would be implemented in the near future.

The different dynamics and constraints of the various IPs meant that the survey could not start at the very same time for all of the IPs. Since implementation in Portugal and the US was feasible, these two IPs made the strategic decision to launch the surveys ahead of the other IPs. Also, the fact that the Portuguese IP at the time of the implementation was limited to a single researcher<sup>3</sup> suggested the need to take one step at a time in order to avoid potential errors. The survey was implemented online in Portugal on the 13th of December, followed by its implementation in the US on the 27th of December. The rest of the surveys followed gradually in 2012: Finland (25th of January 2012), Germany (30th of January 2012), and UK (9th of February 2012). All the surveys had three waves of

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<sup>3</sup> A postdoc.



reminders to boost response rates and were available to be responded online by a period of up to 3 months.

### 12.3 Comparative Findings of the Hybrid SNA Survey

As mentioned in the introduction, part of our intent in the findings section is to highlight both the potential and limitations of using SNA data (as collected in this study) at a comparative level. Chap. 12 provides a detailed description of SNA as a research paradigm, its historical evolution, and methodological characteristics, which we will not repeat here. Because the same specifications apply for the data we use in this chapter, we avoid much of the technical details and focus instead on the comparative analysis of the data. Chapter 12 also provides an in-depth description of how the survey items were operationalized, coded, transformed, and analyzed using specialized software. The same type of procedures were used for the comparative analysis. However, the comparative analysis took place under more restrictive conditions given the need to use only truly comparable data – a daunting task, given the many fractures in survey design and implementation which we have described in this chapter. One of the main strengths of the completed CINHEKS matrix is that it provides rich, layered data at the country, institution, institutional type, and department levels. The combined use of some or all of these layers of data allows for in-depth comparisons across institutions in participating countries. For most of the target institutions, it is possible to carry out analyses relying on data from the institutional profiles, case study interviews, and hybrid-SNA survey. Significantly, it is also possible to contextualize such findings by turning to the historical and policy context profiles available at the country level.

However, comparative analyses based *exclusively* on survey-level data (as is the goal in this chapter) face a number of limitations directly related to the cumulative impact of the fractures detailed in the first part of the chapter. For example, the overall response rate to the survey was relatively low, around 13.4 %. As mentioned above, this was expected by the US and the Portugal IPs based on prior experience implementing surveys in these contexts. In fact, within the parameters of prior international surveys, the 1300 observations collected across all contexts are a considerable achievement. At the same time, the response rates by country varied substantially by country, ranging between 6.3 % in the US and 19.3 % in Finland, as well as varying by institution. In practice, this means that we had rich survey data for some institutions in some countries, but much sparser data for others. Further, because country teams were given the option of incorporating different sections of the survey, the final dataset contains fully comparable data (i.e. across all countries and all institutions) only for the variables in the “core” section of the survey. For the purposes of this chapter, which seeks to highlight findings at the survey levels exclusively, we had to be selective about the units of analysis on which it would be based.

The comparative analysis focused on exploring the web of relationships that respondents in academic positions had with other organizational entities, namely industry, governmental agencies, non-governmental organizations (NGOs), and other HEIs. After all data was collected, cleaned, and recoded as necessary, we began the process of mining the data in search of broad comparative patterns. The analysis below is based on data from four of the target countries: Finland, Portugal, the UK, and the US. In the case of Germany, there were some issues of missing and corrupted data in some of the variables of interest, and for that reason we exclude it from this analysis.

## 12.4 Building a Sample: Structural Challenges and Emerging Opportunities

As expected by the US and the Portuguese teams, the overall response rate was relatively low, around 13.4 %. The response rates by country varied substantially between 6.3 % in the US and 19.3 % in Finland. The database containing responses from the US, UK, Portugal and Finland yielded 1234 observations. However, because we were interested in respondents employed in academic positions, 204 - non-academic respondents were dropped from the final analysis, for a total of 1031 observations. Table 12.1 shows the total responses by country, along with the corresponding percentages by academic rank.

As Table 12.1 shows, there was wide variation in the total number of responses by country, ranging from 81 in the US, to 554 in Finland. Moreover, there was also a wide variation in the academic rank of the respondents, as can be more clearly seen in Fig. 12.1.

The vast difference in total responses and the type of respondent is directly linked to the different sampling strategies chosen by the different country teams to

**Table 12.1** Response distribution by country and academic rank

Country	Academic rank				Total
	Full or equivalent	Associate or equivalent	Assistant or equivalent	Adjunct, postdoc, or similar	
USA	35	9	10	27	81
	43 %	11 %	12 %	33 %	100 %
UK	32	28	3	146	209
	15 %	13 %	1 %	70 %	100 %
Portugal	48	27	87	25	187
	26 %	14 %	47 %	13 %	100 %
Finland	69	0	4	481	554
	13 %	0 %	1 %	87 %	100 %
<i>Total</i>	184	64	104	679	1031
	18 %	6 %	10 %	66 %	100 %

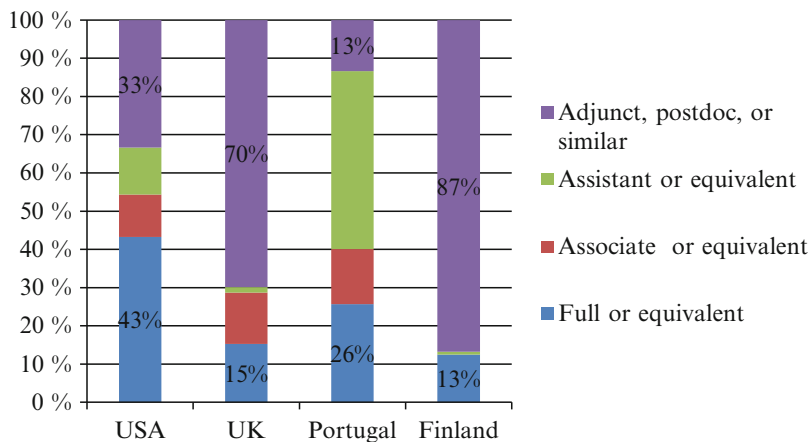


Fig. 12.1 Percentage of total country responses by rank

suit their particular needs or circumstances at the time of the survey. Recall that some teams decided to expand their recruitment pool by sending invitations to more academic units or even institutions than those targeted by the case studies. The Finnish team in particular was successful in recruiting a large number of respondents, including a sizable proportion of doctoral students. An important characteristic of the respondents' composition is the large percentage in adjunct, postdoc, or similar contractual positions; we have termed this group of participants "early-career respondents" (ECRs). Across all four countries, 66 % of respondents were in this type of employment position. While Portugal had a relatively small percentage (13 %) of ECRs, in the other three countries the ratio varied between 1 out of 3 (US) to almost 9 out of 10 (Finland) of all respondents in their respective country.

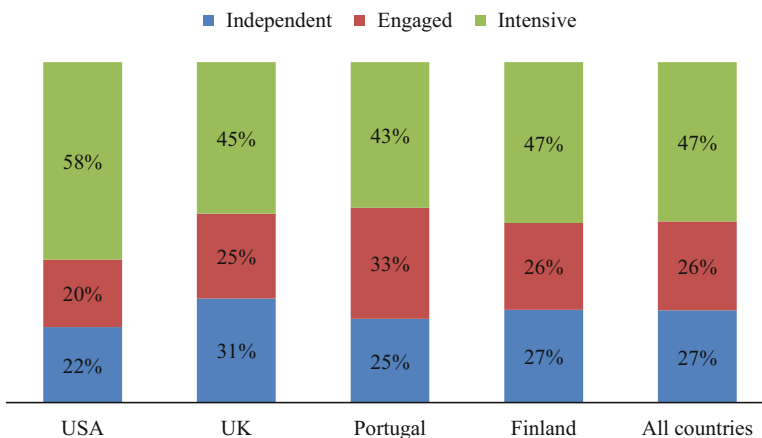
This situation provided a unique opportunity to explore the characteristics of the partnerships in which these ECRs were engaged. A substantial amount of scholarship has addressed multidimensional aspects of growing interaction of industry-academia relations (Gibbons et al. 1994; Etzkowitz and Leydesdorff 2000; Slaughter and Leslie 1997; Slaughter and Rhoades 2004; Gumpert 2005; Slaughter et al. 2002; Mendoza and Berger 2008; Chakrabarti and Santoro 2004; Mendoza et al. 2012). When approached from the viewpoint of the actors involved in these relations, the default unit of analysis tends to be the individual faculty member, or more specifically, the tenure-track faculty member. In general, whenever early-career academics (as defined here) are mentioned it is within the context of student or scientific socialization, or of the ethics surrounding industry sponsorship and the ownership of collaboration outcomes (e.g., Gluck 1987; Behrens and Gray 2001; Slaughter et al. 2002, 2004; Mendoza 2007; Louis et al. 2007). However, early-career academics are rarely if ever the main unit of analysis when analyzing university partnerships with external entities.

The nature of our hybrid survey and the unique composition of the respondent pool opened up such an opportunity. Our results identify ECRs as surprisingly active in establishing partnerships with external organizations. In the following section we begin by contextualizing the type and intensity of collaborations by the respondents' country and career stage. We then illustrate some of the main characteristics of ERCs' collaborative patterns using SNA tools.

## 12.5 Collaboration Patterns: How Many and by Whom?

In the SNA questionnaire, the respondents were asked to identify up to five academic or professional collaborations they held in the past 3 years. Among the characteristics of each collaboration, respondents were asked to identify the type of organization involved in the partnership (government, HEI, industry, not-for-profit, or other). The maximum number of collaborations reported by any respondent was four. This could well be because no respondents had a fifth collaboration to report at the time of the survey. It is important to consider, however, that the phenomenon may be related to respondent fatigue, a common problem in information-intensive SNA type questionnaires.

Based on the maximum number of reported collaborations, we classified the participants into three categories: (1) an "independent" category, comprising academics with no collaborations to report within the 3-year period; (2) an "engaged" collaborator category, who reported working on 1–2 collaborations within the 3-year period; and (3) an "intensive" collaborator category, who reported 3–4 collaborations within the 3-year period. Figure 12.2 shows the distribution of academics in each category by country.



**Fig. 12.2** Collaboration categories, by respondents' country

The most striking characteristic of Fig. 12.2 concerns the “intensive” collaborator category, which ranged between 43 % (Portugal) to 58 % (US) across all four countries. The high proportion of “intensive” collaborators in Finland (47 %) and the UK (45 %) is noteworthy, given the total number of respondents for those countries. Across all four countries, intensive collaborators constituted the category with the highest percentage of respondents, while the proportion of “independent” and “engaged” collaborators varied from one country to another. For example, the UK had the highest proportion of respondents in the independent category (31 %), a percentage somewhat higher than that across all countries (27 %).

We were interested in examining the distribution of independent, engaged, and intensive collaborators in each of the four target countries when we considered the respondents’ career stage. We expected to see the intensive category populated primarily by advanced-career academics (defined as individuals at the full-professor level or equivalent), whose level of seniority and expertise would place them as “collaborative hubs” between their own HEI and external partners. It was more difficult to make a prediction concerning mid-career academics, which we defined as those in positions equivalent to associate and assistant professor categories in the North American tenure-track system. While collaborative work can certainly augment an individual’s research and publication potential, collaborative work is time and effort intensive, and mid-career academics might therefore enter fewer collaborations at a time as a strategy to balance these contrasting features. Finally, we expected early-career academics to display a modest collaborative pattern, in that establishing partnerships requires a level of autonomy and resources that may not be readily available to many of them.

As shown in Fig. 12.3, our initial assumptions were only partly correct, in that the “intense” collaboration category was very high among *both* advanced- and

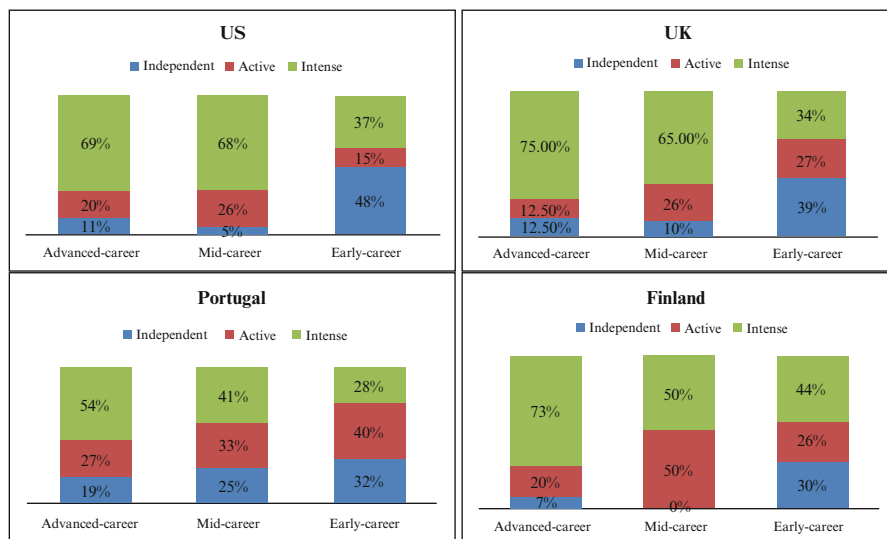


Fig. 12.3 Collaboration categories, by respondents’ rank and country

mid-career respondents across all four countries. In the US, for example, 69 % of advanced-career and 68 % of mid-career respondents reported intense collaboration levels. Similarly, a majority of UK advanced- and mid-career respondents place in the intense collaboration category (75 % and 65 %, respectively). Significantly, this means that a mere 5 % of mid-career respondents from the US and 10 % of their UK counterparts self-reported as non-collaborators at the time of the survey. This common pattern would suggest that collaborative work is an integral part of the day-to-day of mid-career academics in the institutions and departments sampled. This would be in keeping with prior research indicating that collaboration is instrumental to scholarly productivity, particularly among scholars with a strong research orientation (Austin and Baldwin 1991). Collaboration continues to be important at later career stages, with only about 1 in 10 late-career US and UK academics not engaging in collaborative work.

The pattern for advanced-career respondents in Finland is essentially the same as in the UK and the US. However, the percentages for mid-career respondents should be approached cautiously, since they are based on only 4 observations from a country sample of 554 total respondents. The pattern for advanced- and mid-career respondents in Portugal does seem significantly different, however. The proportion of respondents engaged in intense collaboration activities is lower than in the other countries at both the advanced-career (54 %) and mid-career (41 %) stages. Likewise, the proportion of respondents in the “independent” category is the highest of all four countries, with about 1 in 5 advanced-career and 1 in 4 mid-career respondents not participating in any collaborations.

The early-career group, however, emerges as the dark horse of collaborators in our samples. For example, at first glance, the early-career respondents in the US appear as a generally non-collaborative group, with 48 % of them in the “independent” classification. However, this means that a full 52 % of respondents in this group do participate in collaborations. Moreover, slightly over 1 in 3 are classified as intense collaborators. The proportion of early-career respondents reporting collaborations is even more striking the UK (61 %), Portugal (68 %), and Finland (70 %). The proportion of ECRs in the “intense” collaboration category ranges from 28 % in Portugal to 44 % in Finland.

This is a remarkable achievement considering the precarious work conditions that these academics often face, and the fact that establishing and sustaining collaborations is both time- and effort-intensive. A possible factor working “in favor” of these ECRs who are able to establish and sustain collaborations is their age. Contrary to what we might expect from the term “early-career,” the majority of ECRs who reported being engaged in collaborations are in fact a mature population, as shown in Table 12.2. As the country where sampling included a large number of doctoral students, Finland sets the lowest minimum age threshold for all countries, yet the mean and median values for all countries reflect a fairly middle-aged group.

These figures invite discussion regarding the appropriateness of the term “early-career” to describe this group of academics. Yet we believe it is no misnomer, since the term is meant to reflect their position along the academic career ladder, regardless of their age. On the contrary, we see this phenomenon as evidence of

**Table 12.2** Age distribution of ECRs who participated in collaborations, by country

	US	UK	Portugal	Finland	All
$\bar{x}$	42.14	47.28	45	42.28	43.35
Mdn	34.5	49	43	41	42
SD	14.748	10.315	7.649	10.701	10.825
Minimum	28	27	35	24	24
Maximum	76	67	59	66	76

the challenging rules and conventions governing academic staff’s terms of appointment internationally, in which “very specific (and rare) conditions have to be met.... for a permanent or quasi permanent recruitment” (Musselin 2004, p. 72). One partial explanation of this finding is that, as young scholars face the legal, cultural, and contractual minefield of long-term, secure appointments (see Rhoades and Torres-Olave 2015), they must continue to build a solid track record of academic activity. Building partnerships appears to be an integral part of such a profile, as suggested by the level of collaborative activity among mid-career respondents discussed earlier in the chapter.

## 12.6 ECR collaboration Patterns with Different Sectors

We now turn to SNA tools to examine more in detail the sectors with which the ECRs in our sample tended to collaborate. The sectors were classified into five categories created to examine whether ECRs tended to engage in partnerships exclusively with one sector, or whether ECRs engaged in partnerships with multiple sectors. The sector categories are as follows: (1) HEI-only; (2) Industry-only; (3) NGO only; (4) Government-only; and (5) Partnerships across sectors (“mixed”).

As in Chap. 12, we find degree centrality a clear and simple measure of the relative importance that the different sectors have in the collaboration activities of ECRs in our country samples. Degree centrality is defined as the number of edges (i.e. collaborations) incident upon a node (i.e., an organizational sector). Applied to our data, the degree of a sector node (e.g., “HEI,” or “industry”) is determined by the number of ECRs who indicated that their collaboration took place with an organization in that sector (or, in the case of the “mixed partnership” category, with a variety of sectors). Table 12.3 summarizes the degree centrality indices for each of the sector categories, by the ECRs’ base country.

While it is clear that the highest indices correspond to the “mixed collaborations” and “HEI-only” categories, these figures need to be contextualized in terms of the network density; that is, the total number of respondents were in each country sample. We illustrate this point by creating network diagrams using UCINET’s NetDraw 4.14 program. The graphs have three main components: each of the small circles with a number attached to it represents an individual ECR. The squares indicate the broad sector categories (industry, government, NGO, HEI, or mixed

**Table 12.3** Sector degree centrality, by country

	Mixed	HEI-only	Industry-only	NGO-only	Government-only
US	0.250	0.179	0.036	0.036	0.000
UK	0.157	0.287	0.011	0.045	0.000
Portugal	0.206	0.294	0.000	0.000	0.000
Finland	0.228	0.215	0.006	0.027	0.024

partnerships) to which the partner organizations belonged. Finally, the lines indicate a reported tie between the ERC and a given sector category. In all cases, the size of the sector squares is scaled to reflect their calculated centrality in the network.

As shown on Table 12.3, there were only 27 ECRs from the US; consequently the network diagram for those who participated in collaborations is sparse. The cases in the far left of Fig. 12.4 indicate the ECRs who did not report any collaborations. The node for “government” is also shown in isolation, indicating that none of the US-based ECRs reported collaborations with government agencies (node centrality = 0.000). Next, only two ERCs indicated exclusive collaborations with industry and NGOs, (node centrality = 0.036, respectively). In contrast, five ECRs indicated collaborating exclusively with other HEIs (node centrality = 0.179), and seven ECRs indicated having collaborated with partners from different sectors (node centrality = 0.250).

As with the US data, the diagram for Portugal is sparsely populated due to the low number of ERCs the completed the survey. However, in Fig. 12.5 we again see a predominance of exclusive collaborations with HEIs and mixed-typed partnerships (node centrality = 0.294 and 0.206, respectively).

Because of the larger number of ECRs in the UK and Finland samples, assertions based on the centrality indices for these countries are more robust. Remarkably, the pattern is still very similar, with HEI-only and mixed-type partnerships showing the highest degree centrality (0.287 and 0.157, respectively). Something significant among UK ERC partnerships was also the high number of collaborations with NGOs or similar types of organizations (0.045) relative to collaborations with industry (0.011) (Fig. 12.6).

Not surprisingly, as the country with the highest number of ECRs, Finland had the densest network visualization, as shown in Fig. 12.7. Once again, collaborations exclusively with HEIs (0.215) and mixed-sector collaborations (0.228) dominate the partnership landscape for ECRs. Finnish ERCs, like their UK counterparts, also maintained a substantial amount of partnerships with NGOs (0.027). Significantly, Finnish ECRs were also the only ones in the four countries to report a substantial number of exclusive collaborations with government or government agencies (0.024). As with the ECRs in the other three countries collaborations exclusively with industry were unusual for this group (0.006).



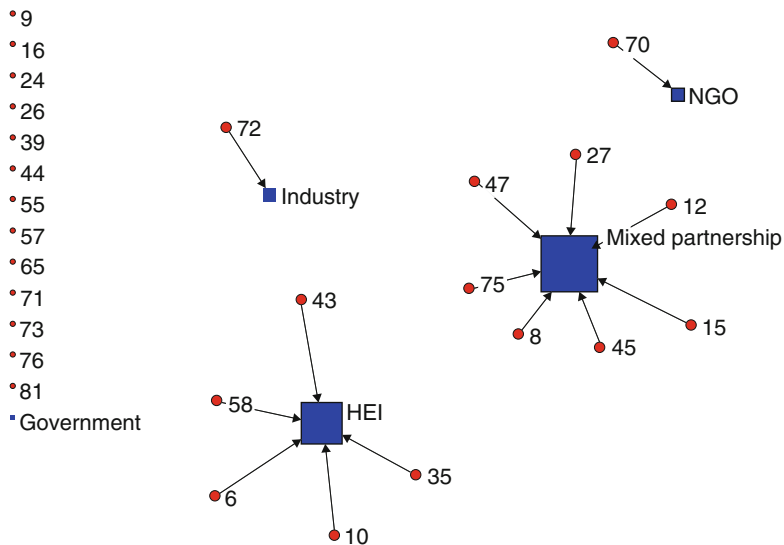


Fig. 12.4 US ECRs collaborations by partner sector and partner degree

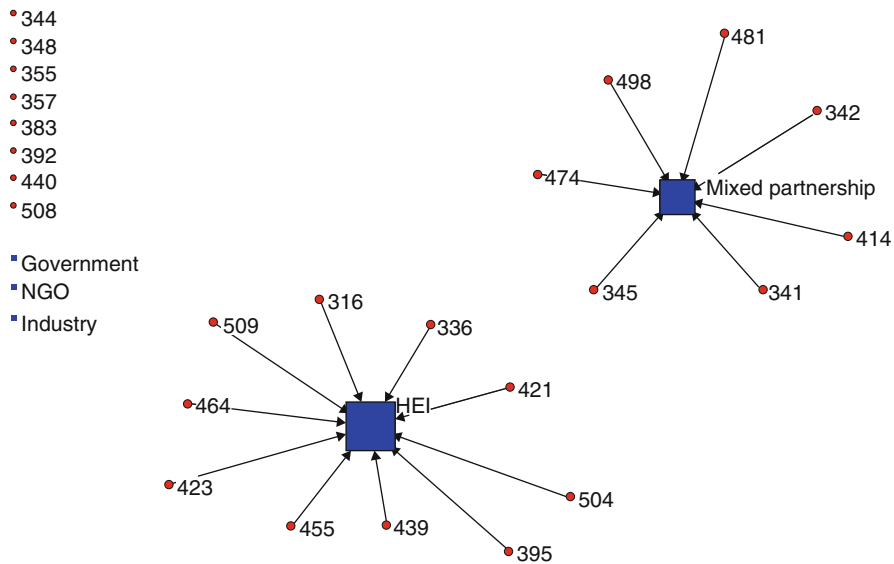


Fig. 12.5 Portugal ECRs collaborations by partner sector and partner degree

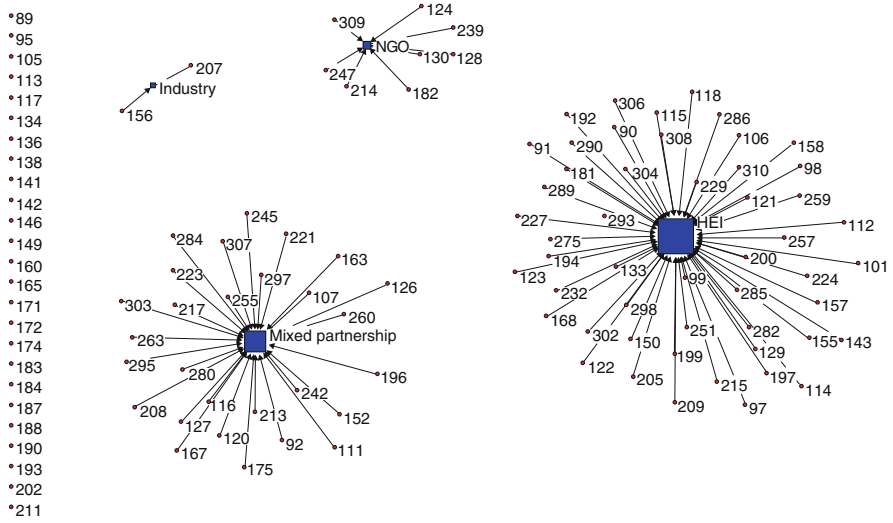


Fig. 12.6 UK ECRs collaborations by partner sector and partner degree

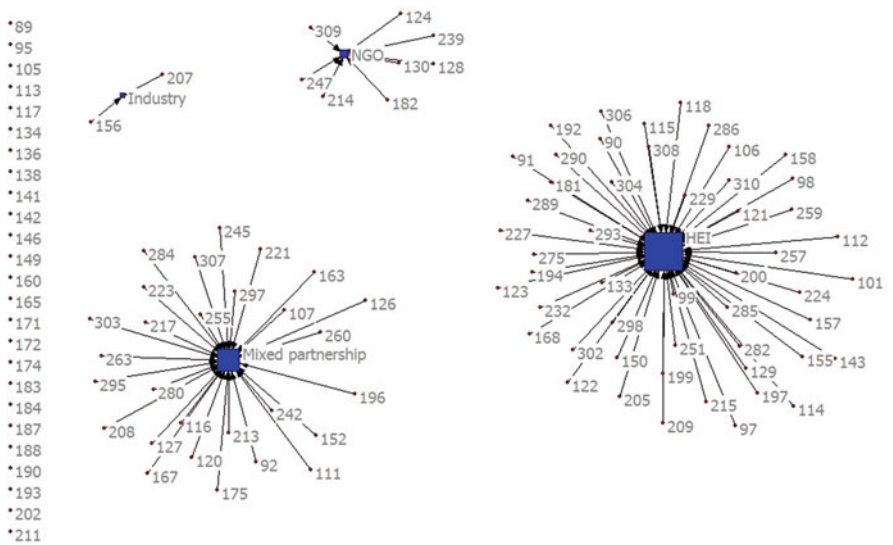


Fig. 12.7 Finland ECRs collaborations by partner sector and partner degree

## 12.7 Discussion of the Findings

As with comparative research generally, the main benefit of conducting the SNA hybrid survey was the potential advantage of questioning assumed understandings and raising unconsidered patterns and possibilities in the phenomena at hand. The

approach presented here helped make what seemed familiar strange, and enabled us to probe beneath what seemed quite different to find common patterns. The comparative analysis helped reveal the “bridge-function” played by ECRs in each of the four countries. This bridge function entails serving as brokers in creating or sustaining partnerships with external entities, a type of work not usually associated with early-career academics such as postdocs, adjuncts, and other academics in contractual positions.

Our colleagues in Chap. 12 discuss how the uncertainty and discontinuity of career paths for junior academics might hinder their capacity to form ongoing collaborations, especially with industry and at an international dimension. The findings of our comparative analysis partly support this notion. While we did not analyze the geographical scope of the partnerships reported by ECRs, it was very clear that for these respondents collaborations with industry were very rare in all four countries. In this respect, it is possible that early-career academics do not possess the resources (social or otherwise) to establish strong ties with industry partners (Kollasch 2012).

However, the comparative perspective allows us to see beyond the constraints experienced by early-career academics. When positions and careers are not secure, sustaining certain types of collaborations can be difficult for early-career academics. However, it would be a mistake to assume that the latter are helpless or passive actors in the partnership field. As the second part of our analysis revealed, ECRs were in fact highly active collaborators. ECR collaborations with other HEIs dominate virtually across the four countries. In light of these findings and those from Chap. 12, it seems that even though linkages with industry in Mode II fashion are hailed as the holy grail of university partnerships, collaborative work remains deeply grounded in inter-university relationships.

Although more sparse, collaborations with NGOs and government were also present, especially in Finland. This is a very different pattern than that shown for the US in Chap. 12, where early-career academics (in their case including assistant professors) had few linkages to NGOs and government agencies. This phenomenon could have something to do with the composition of the country samples. By design, in the US the natural sciences and engineering dominated the recruitment pool across all ranks. In contrast, in Finland, the ECRs who participated in collaborations had a very different field of study profile: 28.6 % natural sciences, 21 % engineering, 26.2 % social sciences, 12.7 % humanities, and 11.4 % medical and health sciences. The relatively high proportion of respondents from the social sciences and medical sciences could partly account for many of the linkages to NGOs and government agencies, given that these parts of these sectors may rely on specialized knowledge and skills from these fields.

Finally, one the most striking feature across all four countries is the number of ECRs who maintained collaborations with multiple partners across sectors. This too could be partly related to the field of study of respondents. Finnish ECRs from engineering fields, medical and health sciences, and social sciences were overrepresented in the “mixed” collaborator category relative to their proportion in the entire country sample (25.5 %, 12.4 %, and 30 %, respectively). These are all

applied fields with perhaps greater flexibility in establishing working relationships across different sectors (e.g., a postdoc in public health may be well positioned to establish connections in government, private and public hospitals, and local NGOs dedicated to adult or child care).

There remain many important questions which cannot be answered with our SNA data, including the extent to which the bridge-building work of early-career academics is rewarded, encouraged, or even acknowledged by institutions. The importance of external connections established by early-career academics can be considerable, yet in some cases non-tenure-track faculty get little or no credit for this important work, either by the institution or by tenure stream peers (Lee et al. 2014). Yet this bridge-building function speaks volumes of the changing nature of academic work worldwide, where contractual and temporary staff may now be invisibly becoming responsible for much of the partnering work usually associated with tenure-track or equivalent faculty.

## 12.8 Concluding Thoughts and Suggestions for Future Teams

We close this chapter with a reflection on the fracture-mending nexus which we hope might benefit researchers embarking on cross-national collaborative endeavors. In retrospect, we see that some of the stress on the “CINHEKS vessel” arose from a disconnect between the long-term vision of the more senior researchers and the immediate needs of early- and mid- researchers. A comparison of the independent circumstances of the US and Portuguese teams illustrates this point.

In both teams, it was mid- and early-career researchers – employed in various types of temporary arrangements – who took on the bulk of the research design and implementation.<sup>4</sup> Both teams developed creative ways of mending some of the most significant fractures that took place in the transition from one research stage to another. Yet the circumstances under which they had to do so were vastly different. From the onset, the US team took the position that the more junior scholars should have considerable ownership of both the research process and outputs. As graduate students whose tuition and stipends were secured by the project’s 3-year funding, the junior researchers had room to experiment with theory, data collection strategies, and data analysis frameworks. The result was that, when fractures occurred, they had the know-how to respond effectively, as well as the freedom bestowed on them by secure appointments and an encouraging supervisory environment.

The situation for the Portuguese team was not as rosy. Unlike their US counterparts, the Portuguese team had to confront fractures under uncertain employment

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<sup>4</sup>In the US team, the senior scholars served primarily in advisory roles and as the point people when meeting with other country teams.

conditions at their host institution (especially the case for the postdoc), and with mounting pressure to publish to remain competitive in a cutthroat labor market once their short-term contracts ended. Under these circumstances, any and all delays in securing usable data across research stages were cause for great anxiety. A cynical reading of their experience might suggest that the uncertain environment stimulated the team to respond creatively, and is therefore not to be dwelt upon or regretted. They fought, rather than flee; they swam, rather than sink. The situation might have been different for a less capable team, who would have crushed under the strain. If all's well that ends well, then what's the problem?

To put it bluntly, the problem is that, as researchers on temporary appointments, the Portuguese team had reason to fear for their short- and medium-term career prospects as time went by and there were no substantive data to shape into publications. Their experience is a reminder that, for researchers in precarious employment situations, there is an added strain to produce deliverables even when faced with structural barriers to data collection within and across research stages. As mentioned in Chap. 3, during CINHEKS, various team members engaged in a series of opportunistic studies directly related to research team dynamics (e.g., Hoffman et al. 2013) and novel data analysis strategies (e.g., Torres-Olave et al. 2011). The studies were primarily curiosity-driven and aimed at advancing the state-of-the-art in comparative and international higher education. However, it is essential to acknowledge that these “on the side” studies *also* satisfied the more mundane function of publishing and participating in conferences to further employment prospects in the short term. To paraphrase Frederick Buechner, in these opportunistic studies our deep gladness met our deep need.

Is this a problem that could have been anticipated? Hindsight bias could attribute neglect on the part of more senior, well-established team members, who were in a position to weather delays without as severe an impact on career trajectories and were therefore blind to the trouble brewing among the younger folk. Yet this is a simplistic proposition that assigns blame on colleagues whom we know acted in good faith (as would many others in their position), and which is patronizing to the early- and mid-career researchers. A more productive perspective is to think in terms of a structural invisibility stemming from the normalization of contingent employment in academia, in which the position of researchers in precarious employment conditions is taken for granted (even by themselves) and is therefore not accounted for in the design of long-term empirical projects like CINHEKS.

As is clear from the reflexive thread in this volume, we learned much about the stochastic nature of long-term, large-scale, collaborative research initiatives, and about the related truths that much that can be anticipated, isn't; and that some that can be anticipated, shouldn't, lest it leads to rigid, inadequate responses to problems requiring subtle or innovative answers. That being said, the discrepancies between the needs of more and less established research partners strike us as the type of rupture that can, and should, be anticipated to the general benefit. There is no prescription that will suit all cases, but based on our experience, a staggered approach to deliverables in the original research design might have provided an

outlet for junior researchers to use emerging data for the purposes of publication and conference participation.

Comparative higher education research studies conducted by international teams of researchers are complex and challenging undertakings. These projects usually bring together – in a loose, highly contingent manner – researchers who differ in terms of academic training and backgrounds, career stages, research experiences and resources, as well as nationally situated understandings of research, terminology, and collaboration. Likewise, these scholars bring their own interpretation of the study's goals based on personal, professional, and institutional imperatives. The complexity of personnel composition can thus contribute to the brittleness of a comparative collaborative projects, especially where large differentials in terms of power or level of security exist. However, and this is critical, the diversity in personnel composition also entails a tremendous potential for coming up with creative ways of mending methodological, conceptual, and logistical disruptions when they occur (as no doubt they will). Teams that take account of this duality and learn how to balance it will be in a good position to repair fractures in a transformative, constructive way.

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**Part III**  
**Comparative Findings**



# Chapter 13

## Main Findings and Discussion

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### 13.1 Outcomes of the CINHEKS Comparative Study

This chapter draws together the main theoretical, conceptual, empirical and methodological outcomes of the CINHEKS study and relates these to both contemporary higher education research practice and policy. The starting point for this project, to which this chapter returns full circle, is changes in knowledge production, storage, transmission and transfer in universities within networked knowledge societies. The question we began with in 2009 seemed deceptively straightforward: *What is at the core of understanding the work of higher education institutions within and between contemporary societies?* Three starting points for theoretically, conceptually and empirically engaging the answer to this question are evident. Firstly, networks have fundamentally changed the way information is being produced, transformed, transmitted and organized, in universities. Secondly, the realm of

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specialist knowledge is clearly no longer limited to the physical spaces of the university; whether departments, the professor's office, classrooms, laboratories, libraries or the international conferences/seminars academics attend. In *networked knowledge societies*, knowledge is daily being continuously co-created in digital space within networks in both research and teaching e.g., in on-line classes within higher education institutions and a plethora of settings outside higher education. Thirdly, institutional boundaries have become far more porous in the countries studied, as a result of the growth of scholarly networks and societies, collaborative professional arrangements and inter-institutional consortia that extend far beyond the traditional boundaries of universities.

As these overarching features of higher education became clear, over the course of the study, the question for the CINHEKS team became refined and anything but straightforward: *How to substantively frame, empirically illuminate, conceptualize and better explain the changes in universities and at the same time to recognise the continuities that persist amidst these changes?*

In Chap. 5 of this volume the authors discuss the concept of a “network university” as suggested by Barnett (2013). That can be a useful conceptualization in characterizing the nature of emerging institutional forms of higher education, because universities are taking networks seriously as the cross-case analysis of our HEI profiles clearly indicates (see Chap. 5). However, the concept does not fully capture the complex tensions that bear on change and continuity in higher education institutions that emerged from our overarching analysis of this volume's empirical work. A focus on a single facet of change, for example networks, is not sufficient when explaining the tension between change and continuity within and between higher education institutions in networked knowledge societies.

In order to holistically advance the contributions of the CINHEKS research project, we present the following sections that firstly outline our main theoretical and conceptual findings; secondly, articulate our central empirical results; thirdly, summarize our methodological advances.

The policy implications of our findings, results and advances are interwoven within these sections. This is because the contrasts between policies and outcomes in higher education are amongst the most important empirical outcomes which studies like CINHEKS allow us to consider.

## 13.2 Theoretical and Conceptual Findings

The main advantage of the CINHEKS design, in theoretical terms, was the point of departure we took with regard to broader theoretical and conceptual problematisation. Specifically, rather than rely too heavily on established theory, we sought a more meaningful articulation of theory that allowed us to engage our topic, knowing that one way in which this could be done entailed iterative, critical analyses of empirical data from field studies. While actually doing that is much less straightforward than the previous sentence implies, as is more fully explained

in Chaps. 3, 5 and 12, the results of this approach were twofold. The first is the analytical synthesis of three key strands of inquiry necessary to fully engage, explain and elaborate our topic. Specifically, our articulation, in Chap. 2 of *networked knowledge societies*. The second is the conceptual problematisation of *univertstasis*, empirically grounded in Chaps. 5, 9 and 10, which transcends normative framing, in terms of getting traction on the *conceptual equivalence* needed to articulate new knowledge based on an international comparative study. In the following two sections, these theoretical and conceptual results are explained in more detail.

### ***13.2.1 Theoretical Contributions to the Field of Higher Education Research: Networked Knowledge Societies***

Higher education studies is a field of research where the majority of research published is related to pragmatically-framed topics and current policy concerns either in higher education institutions or at the national system level of higher education. While these – normally empirical – studies are needed for the development of the body of knowledge on higher education, this pattern tends to neglect the theoretical development of our field, with all too few exceptions. This is often because many empirical studies are tied to short-term policy agendas, which in turn implies short term funding. The resulting empirical studies tend to have a limited self life, reflecting the national policy agendas of the day, rather than ensuring a steady stream of ground breaking findings with relevance within and beyond our often narrow specialization. This does not mean that the majority of higher education research studies do not incorporate theory, quite the contrary. Many scholars apply a theory or theories developed in other disciplines or fields of studies to work on topics within the field of higher education research.

This said, we assert that theorizing and conceptual development regarding higher education can aim at several levels of abstraction, including theorizing aimed not only at the nature of higher education, but also at fundamental relationships that better explain how higher education shapes – *and is shaped by* – the changing societies in which it is situated. One approach to explaining the relationships between higher education and society considers *society* as the point of departure, posing the normative question: how does social change manifest in higher education institutions? This approach does not fully problematize social change, but rather assumes it and further assumes social change places demands upon higher education institutions, which are then required to absorb, adapt and respond to what have been articulated as ‘external’ changes. Our point of departure, like Bourdieu’s (2004), is relational and emphasizes that societal transformation often signals the ideal time to gauge the extent to which these transformations *manifest both in society and her higher education institutions* (Bourdieu 1988, 2004). However, going one step further than many in our field, we assert that studies can be initiated with the express intention of comparatively viable

theoretical and conceptual development. This aim is exceptional in higher education studies. In this respect, the CINHEKS study was distinctive from the outset.

The direct result of our efforts as advanced by Välimaa Papatsiba & Hoffman in Chap. 2, is the analytical synthesis *networked knowledge society*: an empirically-grounded perspective which better affords the potential for explaining the most salient relationships within and between higher education and contemporary society. The synthesis was necessary, in the case of CINHEKS, as both contemporary societies and higher education institutions are transforming *and being transformed* by the coexistence of networks as a social formation, knowledge as a social force, and information and communication technology which is the nexus of both, in the form of radically interactive, high-speed media for new forms of continuously evolving production, diffusion and consumption of new knowledge. As the CINHEKS study progressed, it became increasingly clear that the need for an analytical synthesis of the three strands of inquiry we engage in Chap. 2 was necessary to complete our efforts because together they explain much more than each could hope to account for if considered separately. Like all theoretical advances, whether or not our efforts impact our field remains to be seen.

### ***13.2.2 Conceptual Problematisation: Beyond Normative Framing***

Articulating meaningful comparative findings is frequently a challenging task as is discussed in Chap. 3 and was empirically encountered by CINHEKS teams in the field (see Chaps. 5, 6, 7, 8, 9, 10, 11, and 12). This is especially the case when using terms grounded in normative assumptions, policy discourse or national/local framing that do not lend themselves readily to conceptualization and, by definition, conceptual problematisation. This problem is often solved by using established theory and concepts, which, in turn can be used to operationalise a topic, in a way that allows analysis. However, the challenge in a comparative study is sometimes the identification of phenomena that are readily observed, but which do not seem to be readily approachable in terms of established theory or concepts.

For these reasons, this section features two sets of conceptual problematisations, both empirically grounded in the CINHEKS study. The reason why it is important to highlight these types of outcomes is because they allowed us to break the tension of assumptions found in normative framing, challenge the jargon bandied about in policy discussion (often erroneously labelled as ‘concepts’), and dodge the bullet of methodological nationalism which currently complicates higher education studies (Shahjahan and Kezar 2013).

### 13.2.3 Universtasis as *'The Perfect Node'*

We began the CINHEKS research project with the aim of comparatively explaining how higher education institutions are networked within their societies. By the end of this research journey we have seen the need to more fully illuminate the changing but resilient nature of the university *as a social institution* because it is evident that we cannot explain the relationship between higher education institutions and societies without reflecting on the tensions between the innovative yet enduring nature of universities. One of the most traditional questions in our field is: *What is the idea of a university?* It is a question that has been answered in terms of various perspectives and characterizations, from Wilhelm von Humboldt and Cardinal Newman (see e.g. Nybom 2003; Barnett 2011; Collini 2012) to Clark Kerr (1963) and the “multiversity.” In recent years, there have been several efforts to characterize contemporary universities, in terms of “a new mode of production” (Gibbons et al. 1994), a “triple helix of university-industry-government” intersection and innovation (Etzkowitz 2003), of “entrepreneurial” universities (Clark 1998), “academic capitalism” (Slaughter and Leslie 1997; Slaughter and Rhoades 2004) or recently in terms of World Class Universities as a normative model.

All this said, many of these studies and ideal type characterisations have not fully illuminated the combination of tensions between embedded, highly situated social structure and rapidly emergent networked sets of relationships that intersect within and define university work within basic academic (operational) units (Becher and Kogan 1992), which the CINHEKS teams took as their starting point in this project (see Chaps. 6, 7, 8, 9, 10, and 11).

Higher education institutions continuously operate amidst the changes they are experiencing, are organized in considerable measure around disciplinary and multi-disciplinary traditions. They continue their professional and graduate school work; nurture a medieval apprenticeship models in PhD training, even as that very model may be breaking down in terms of ensuring secure academic careers. They continue to shepherd the traditional training of the “liberal professions” and in Europe of civil servants, sticking in significant ways to the old medieval guild name, *universitas*, even as the forms of producing those professionals are changing.

Simultaneously, universities are vital actors across a vast number of networks, academic and otherwise, without which there would be no intellectual life in universities. Seen from this perspective, the question remains as to the extent to which these networks are more accurately characterized in terms of national or international relationships, whether the relationships connect academics to academics, industry, government, and not-for-profit sectors of society, or all of these; and to what end? As our empirical studies have illuminated, all of these potential combinations and the situatedness of a single HEI, department, group or individual is highly interesting and dynamic in terms of potentials and constraints. This is because of an underlying set of logics that does not appear on hierarchical ‘organization charts’ of higher education institutions. Specifically, these are rhizomatic-like networks that empirically illuminate the *potential* for action, resistance and

cooperation, amidst the constraints of organizational hierarchies. In this sense universities are, conceptually speaking, central nodes of many activities in societies because they have both the material and intellectual resources to initiate, participate, support or ignore networks, amidst established hierarchical relationships, in a *both/and* set of logics.

For all these reasons, based on the empirical work done in Chaps. 5, 9 and 10, it became clear that it was possible to conceptually problematize the nature of higher education institutions as *spaces* not merely *places*. It is within this conceptually problematized space that *emergent* networked activities are continuously mediated within *established* yet evolving social structure, in a distinctive set of highly nuanced social dynamics. We advance the conceptual problematisation *universtasis*, conceived by Hoffman, Nokkala and Välimaa in Chap. 10, to describe contemporary globally active universities that empirically embed and situate continuity amidst change, in a manner that can be empirically observed.

We articulated the term *universtasis* to conceptually illuminate our empirical research findings which can, in turn, be used to explain the way contemporary higher education institutions account for multiple, simultaneous and often conflicting social, political, economic, cultural and scholarly expectations. We problematize the normative ‘balance’, or an idealized ‘stasis’, which may be empirically explored and interrogated for a wide variety of purposes. We use this term to problematize our empirical findings, especially with regard to the ever-increasing list of responsibilities and expectations contemporary higher education institutions are expected to recognize. This recognition finds form in policy debate. Higher education institutions need to take into account multiple, simultaneous and often conflicting social, economic, cultural and academic expectations, viewed from a wide variety of perspectives. *Universtasis* spotlights both the traditions of universities (*universitas*, *Latin*) as academic communities and their contemporary aims to achieve organizational stability (*stasis*, *Greek*).

The practical utility of our conceptual problematisation of *universtasis* is that there are two clear applications. The first is as *an empirically-grounded conceptual point of departure*. Specifically, this implies a *set of analytical propositions related to domain, mission and power* that lend themselves to curiosity-driven further study of phenomena which is, by definition, up to the analyst. The most obvious of these, as came up in most of the CINHEKS field studies is the contrast between what higher education actors *say* they are doing and what they *actually* are doing.

The second clear application is *universtasis* as an ideal type. Specifically, the implication here is for a set of ideas which policy makers or organizational theorists can use to approach the challenges entailed in framing and pursuing organizational means and ends with regard to specific rationale and resources. While these different points of departure are distinct because of their *purpose*, they are interesting because they are not mutually exclusive. Like all policy-relevant ideas grounded in scientific work, there is a potential for the term to be used in ways that have no connection to the original studies in which the ideas arose. Examples of this include the ways terms like ‘postmodernism’, ‘multiculturalism’ or ‘agency’ appear in contemporary studies and organizational efforts in ways that would be

scarcely recognizable to the scholars who originally advanced the ideas around which entire discourses arose. On the other hand, it is clear the term could be used in policy framing and organizational intervention in a way that could clearly rest on a solid foundation of the studies that make the term viable in research *and* development.

### 13.2.3.1 Universtasis as a Set of Analytical Propositions

The symmetrical utility of *universtasis* is inherent in its basis, which references tensions, regarding distinct dimensions. This allows for the conceptual and empirical illumination of *patterns* of extremes amidst normative idealizations of ‘balance’. These extremes can include the idealized emancipation of the creative cultures (Florida and Tingali 2005), the grim reproduction hypothesis of education (Bourdieu 1990) and everything in between. Universtasis does not *prescribe* nor imply an idealized ‘balance’, ‘preferred set of outcomes’, ‘best practices’ or ‘optimal’ form, in a normative sense. Rather, the conceptual problematisation of *universtasis* illuminates the empirical actualities encountered by the CINHEKS teams, as well as the bounded potentials that we found in higher education institutions, *across the scope of our analysis*. This scope, conceptually speaking, is the nexus of situated higher education institutions, which are outwardly very distinct and are part of networks that operate *in spite of*, or because of, but always *with respect to* that very situatedness.

For all these reasons, *universtasis* is the perfect node in a networked knowledge society because it spotlights a unique social constellation of people of all ages, a wealth of ideas and resources, interests, but mainly because of the inherent *potential* that runs within and between societies, in part because of these very nodes for which there is no substitute. This potential, far more similar than the higher education institutions the CINHEKS teams visited in our fieldwork, is one of the most significant results of this study. It comes into view and, organizationally speaking, maps on to a university’s primary focus, in terms of missions on knowledge production, transmission and transfer and can be used to build explanations that cut across comparative scopes of analysis.

The conceptual space illuminated by *universtasis* finds its importance from its rhizome-like *potential*, with respect to action, participation, innovation and the initiation of activities which potentially involve colleagues inside or outside higher education, inside or outside one’s local, regional, national location and aimed at anything from straightforward reproduction to fundamental scientific transformation. Within *universtasis* is the potential to initiate, strengthen or ignore the nexus of intellectual and social action. Conceptually speaking, *universtasis* is a potential platform for different kinds of activities because it draws people preoccupied with ideas, study, the development of and establishing their identities and defining their livelihoods. Most crucially, *universtasis* illuminates the potential of ‘both/and’ balance, even synergy and implies the dynamic context in which different kinds of people and activities can just as easily stress one pole of a dimension, with

respect to the other or attend to the tension. As the extremes of the dimensions indicate, it is equally possible that patterning emerges that result in stress on one set of extremes, with respect to or at the expense of the opposite end of the spectrum.

### 13.2.3.2 *Universtasis as an Ideal Type*

Organizationally speaking, higher education institutions are grounded in historical circumstances and complex cultural, economic and political influences that result in what outwardly appear as social structure with material and administrative techno-structure. In a Weberian sense *Universtasis* can be thought of as an ideal type. In this sense, the importance of *universtasis* grows from its capacity to act, its capacity to participate, innovate and initiate activities which may involve colleagues and/or organisational contacts in local, national and global contexts. A *Universtasis* may also join in the streams of intellectual and social actions when they are seen important or it may also slow down to reflect on its own role in society when needed. A *Universtasis* can also serve as a platform for different kinds of activities because they gather people and groups to study and transform, establish their relationships and find forms of meaningful participation in society. Crucial is that a *Universtasis* is a dynamic constellation with the potential to balance of different kinds of people and activities. However, action within *Universtasis*, by definition, holds the potential for exclusion and reproduction of inequities, should stasis be lost. Therefore, the dynamic tension implied by the extreme ends of the dimensions may have considerable utility when balancing interests and conflicting social expectations. Finally, *Universtasis* is a process as much as a structure and its nature is the potential linked to creating new social realities. It is both a space and place in which competing interests can be worked out and which itself plays out its own interests.

### 13.2.4 *The Competitive Horizons Heuristic*

The development of the competitive horizons heuristic is explained in Chaps. 9 and 10. Briefly, the heuristic allows explanation-building with regard to the global division of scholarly labor and the ways in which this manifests within different scopes of analysis, based on unique sets of demands, which are grounded in the tension between transformation and reproduction in higher education. The empirically-grounded heuristic was developed in a series of studies carried out in Finland, mainly focused on academic work, mobility and the internationalization of higher education (See Chaps. 9 and 10). The overarching conceptual-level result, made possible because of the use of this heuristic in CINHEKS is for two principle reasons.

Firstly, CINHEKS was the first international comparative higher education study that successfully incorporated this heuristic into the design of field studies used in



two locations. This is important because it underlines the possibility of potentially interesting conceptual-level work that results in fairly modest, small-scale research.

Secondly, CINHEKS team members advance analyses that go beyond the limitations of normative framing that obscures the nuanced analysis of phenomena by the uncritical usage of geographically-based ‘global, national, regional and local’ framing (in the case of Germany); and allowed the above-mentioned articulation of *universtasis*, in the case of Finland. In both instances, the conceptual-level ‘step forward’ rested on the analyst’s preoccupation with *conceptualizing an analysis that eluded the limitations of previous conventional approaches to international comparative higher education*. We acknowledge the importance of place, traditions, situatedness and the development of authentic stories that will be recognizable within the higher education institutions in which CINHEKS teams carried out their fieldwork, throughout the chapters of this book. That said, it is conceptual problematisation that allows comparison at a higher level of abstraction, across countries.

The iterative relationship between theoretical and conceptual-level work and our field studies resulted in their final articulation we present (above). We now turn to the overarching empirical results of our studies in the following section.

### 13.3 Central Empirical Results

#### 13.3.1 *Place Matters: Location, Higher Education Traditions and Academic Fields*

Place matters. It matters in terms of historical tradition and recent patterns of practice. It matters in terms of physical and geographical space, which involves differentially balanced and intersecting global, national, regional (as in the meaning of states or provinces) and local place. And it matters in terms of social space, of social stratification, intended or otherwise within which universities are situated and to which they contribute.

When drawing together the empirical findings of the CINHEKS study, we can find a number of similar phenomena that help to explain both similarities and differences across the scope of our analysis. Here we pay more attention to similarities than differences, in order to see what common themes were important across several countries. While we cannot claim that these findings can be generalized to all higher education systems and institutions, our analytical generalizations suggest avenues forward in further study. This is important because thematic similarities normally translate into empirically observable differences in institutional activities and structural patterns. This is a probable explanation of the dramatic differences between countries regarding patterns of communication within and across the whole spectrum of higher education institutions in terms of local, regional national and international networks, and the degree to which this is

structured with regard to competitive horizons. In this sense, higher education institutions are influenced by an overarching understanding of the purposes of higher education within particular national contexts.

### **13.3.1.1 Traditions**

The first similarity that will be clear when looking into the detail of Chaps. 6, 7, 8, 9, 10, and 11 is the importance of historical traditions not only at the ideological level (consider the Humboldtian, Napoleonic and Anglo-Saxon traditions) but also at the level of individual higher education institutions. While a long history is frequently associated with high status, the origins of an institution are frequently also used as a guide to more functional forms of differentiation. Closely related, traditions often combine with history and geography to manifest and shape the characteristics and reputation of an institution. ‘Capital city institutions’ are frequently identified but there are also features of an institution which are inherited from its location: remote, prosperous, rural, urban, industrial, or in a location of declining socioeconomic importance. And all of these relate to social hierarchy, which is related to but not coterminous with historical tradition and the physical location.

In Portugal, Horta and Blasi argue that one of the main reasons for increasing doctoral education was the low number of Ph.Ds. in Portugal (see Chap. 6). This argument illuminates the fact that science and higher education policies are always made in relation to the history and present situation of higher education in a given country. This is equally clear in the Russian case, as Smolentseva shows, where Soviet legacies have shaped and framed the structures of and topics open to argumentation, with regard to federal level policies. In addition, these historical legacies are continuities to felt strongly within higher education institutions even today (see Chap. 7). Little, Abbas and Singh also emphasise the importance of historical, geographical and socio-economic factors that continue to shape institutions’ missions and strategies for the future of higher education in the British case (see Chap. 8). The situatedness of place is integral to the skeptical approach taken by Kosmützky and Ewen to the normative framing they went well beyond, in the case of Germany, in Chap. 9 and formed the basis for the analytical contrast by Hoffman, Nokkala & Välimaa, in Chap. 10’s focus on a change in Finnish society that vividly comes to life, depending which type of higher education institution one focuses.

### **13.3.1.2 Academic Fields**

With regard to academic fields, the ‘rise and fall’ of the importance of some academic fields is exemplified in the stress placed on the hard-applied sciences and ‘pragmatic and practical’ disciplines and fields of study, in particular science, technology, engineering and mathematics. This was analyzed in terms of place, whether a region, in the Russian Federation (Chap. 7), or spatially, in Finland’s

foray into the global arena of world class universities (Chap. 10). In both cases, the flux in the range of and stress on particular types of academic disciplines and fields of study, over time, remains highly interesting. This is mainly the case because whether or not the current ‘formulas’ or formats adopted will deliver on the very high expectations of the network knowledge societies brought into focus in these chapters *remains an interesting, open question*.

### ***13.3.2 The Tensions Between Policy Slogans and Actual Scholarly Practice***

As interesting as the importance of tradition is the way in which ideas opened up within the world of scholarship and higher education evolve, or sometimes devolve, into malleable policy-making slogans. This is a theme that cannot be missed, when looking across the CINHEKS study. Terms like the *knowledge society*, *knowledge economy*, *globalization*, *internationalisation*, *excellence* and *world class* currently form a ‘hit parade’, actively used by policy makers to promote different courses of action in their various spheres of responsibility, as is explained in the comparative analysis of policy discourse by Terhi Nokkala in Chap. 4. One of the general observations made across several CINHEKS teams is that the framing categories of ‘locally oriented’ and ‘globally oriented’ higher education institutions, which are often used by policy-makers, do not manage to describe, nor illuminate the complex realities of contemporary higher education institutions (see Chaps. 8, 9, and 10). It seems, rather, that these categories make it *more difficult* to understand the fact that HEIs in general need to and in actuality have ties to local and regional communities, to national policy-makers and to global and international academic communities. This is because all these different spatial and mental contexts are sources of different kinds of resources (or capitals: reputation, fiscal, networks) which all are needed to be a successful university. As Kosmützky and Ewen have underlined, universities may be more accurately conceptualised as having cellular structures regarding their relationship with society, local communities and international research and reputational fields (see Chap. 9). It is also clear that historical continuities have a strong impact on understanding the goals and purposes of higher education in every country. The importance of policy discourse was accounted for in the CINHEKS design (see Chap. 3) and its importance was born out in the place policy needed to be accounted for in the CINHEKS case studies, in order to make sense of the tension between established and emergent empirical realities (see Chaps. 6, 7, 8, 9, 10, and 11).

Examples of the ways in which the tension between overarching policy discourse in Chap. 4, the profiling of HEIs (see Chap. 5) and on the grounded realities of institutional life and academic work, come to life vividly within Chaps. 6, 7, 8, 9, 10, and 11. Consider the example from US higher education where according to public discourse universities are seen as trending towards boundary-less

collaboration networks (see Chaps. 4 and 11) in internationalized higher education. Despite such policy discourse, the empirical evidence from social network analysis by Kollasch, Rios-Aguilar, Torres-Olave and Rhoades indicates that academic networks in the cases studied continue to have social and spatial implications in the United States that are far more local and national than they are global. Networking was found to be more pronounced for senior and more secure members of the academic workforce than for junior, less secure members. Networking also depended on discipline and space, in other words, the geographical location of the higher education institution. US academics collaborated more with national than with international colleagues and more with other higher education institutions than with NGOs, industry or business. The US study also found out that:

academic networks are simultaneously rooted in locality and globally. They are nationally and locally rooted, but globally redistributed: they are national and local because they consist of social ties with intensive local knowledge and language, and they are embedded in meetings and connections in specific geographic places within national boundaries.

These empirical findings are helpful because they reveal the importance of spatial ties and academic traditions which we noted in other countries of the CINHEKS study even though the relationships between these ties vary considerably between countries, as is shown in the comparative SNA analysis advanced in Chap. 12 by Torres-Olave, Horta, Kollasch, Lee and Rhoades. These studies illuminate the potentials of network logic, which can transcend hierarchical organizational logic and might give pause to uncritically taking many sorts of rankings at face value.

### ***13.3.3 Profiling Universtasis: The Imperative and Limitations of Glonacal Framing***

Another important issue emerging from the institutional case studies is the importance of normative framing, as used by and with respect to higher education institutions. As Kosmützky and Ewen show through their German case studies, many higher education institutions have local (sometimes called regional in the German case), national and global dimensions to their activities (see Chap. 9). This type of framing arose with regard to every higher education institution in every county in which the CINHEKS studies were carried out. However, what was different with each institution, was the scope and importance that regional framing actually entailed, within the CINHEKS institutional case studies. In more regionally focused higher education institutions, the regional aspect is taken very seriously as a structuring and framing principle for most of their activities. At the same time all HEIs profiled or made references to different kinds of international or global activity, whether international cooperation in research or in teaching or international study programs. Global-facing higher education institutions, in turn,

foreground their global status, reputation, international cooperation, but simultaneously take their local and national environments quite seriously.

These empirical tensions can be understood as ‘natural’ within narrowly framed analysis, as is shown in our cross-case analysis of HEI profiles (Chap. 5). It is only cross-case analysis that reveals the difference between ‘natural’ assumption, actual policy choices and action. Because of this, it is impossible to ignore the power inherent in normative framing. In other words, all higher education institutions need to account for the fact that they are physically located in geographical place, in a way that can be communicated to people within that space. That said, spatially, networks *transcend* many types of geographic, disciplinary, cultural, national and temporal constraints. And this empirical reality explains key differences in the extent to which universities take advantage of this, whether or not they can convincingly articulate their principal focus regarding actual activities and if either is reflected in observable outcomes. It is particularly networks illuminated in the social network analyses of Chaps. 11 and 12, that analytically illuminate the tension between potentials and differential outcomes in the global division of scholarship and the significant limitations of framing this activity in ‘global’, ‘national’, ‘regional’ or ‘local’ terms.

At the most basic level, it is of practical importance to take care of local relationships because constructing new buildings, planning campuses and managing a HEIs is often a local activity and grounded in time, physical and administrative place. It is also true that local and regional competition between HEIs within a region can be more challenging in some respects, like competing for shrinking numbers of local students, as was evidenced in Chaps. 7 and 10, in regions under stress. In these circumstances, collaboration with distant partners, even in other countries on different continents, may be easier than cooperating with scholars in one’s own institution.

The national dimension – no matter how this is thought about in different countries – remains important because the majority of funding of higher education still comes from national governments despite diversified funding sources, like tuition fees and private sources. Higher education institutions cannot neglect their biggest funder. HEIs also rely on the national legislative context, which creates stable juridical conditions for their functioning

The global, or international, dimension is increasingly important in many locations because it is an importance source of reputation for many HEIs. A crucial challenge, therefore, is how these different layers – local, national and global – are combined with each other. This is a challenge for institutional management, but it also challenges individual academics and academic basic operational units, as these tensions are simultaneously the source of dynamism in HEIs.

In the field of higher education, reputation is strongly related to research funding and to international cooperation relationships, but it has importance also for local and national dimensions because good academic reputation translates into social status and prestige in these contexts. These are important as they translate into resources. Widely acknowledged status and reputation can be instrumental in attracting good students and the best available local and international academic

personnel, funding and key partners from across a wide variety of domains. All of these issues play into the potentials illuminated by *universtasis* and are a significant challenge for many of the normative labels scholars and stakeholders continue to struggle with, when attempting to profile their policy, activity and outcomes, particularly in global, national, regional and local terms. Our point is that *without understanding the nuanced relationships network logic has to normative framing and acknowledging the very real purposes normative framing accomplishes, fully engaging the both/and potentials inherent in networked knowledge societies can remain elusive to those within, or with expectations of higher education.*

### ***13.3.4 Empirically Engaging Networks in a Comparative Study in Order to Better Understand Stratification***

Networks are easy to define in an everyday, metaphorical sense but quite challenging to study empirically, especially when used in a comparative study (see Chaps. 11 and 12). In the CINHEKS study, we used social network analysis as one of the analytical approaches to investigate and explore how academics are linked with other academics, people and organizations outside of the academic world and to what end. On the basis of the comparative study, it is evident that the most networked academics are *mid-career professors* – no matter whether we look at academic or societal networking. The explanation is grounded in the career stage, when thought about as a developmental process (Baldwin and Blackburn 1981) in which quite structural and cyclical opportunities and constraints present themselves across the scope of the CINHEKS analysis, despite the considerable variations that govern the situated nature of career trajectory within the HEIs (Bourdieu 1988) in which CINHEKS case studies were carried out. The key questions then become, as demonstrated by the US team in Chap. 11 and the comparative survey team in Chap. 12: *What is the structural nature of higher education? Who is networked with who? In which type of disciplines and institutions? And – as is illuminated in Chaps. 9 and 10: At which competitive horizons?* While it might be tempting to guess that powerful networks are somehow made easier with the help of high social and academic status because this translates into more resources and power to start to implement projects, the potential *explanations* of the structural nature of higher education are more intriguing. Torres-Olave, Horta, Kollasch, Lee and Rhoades emphasize that the early-career academics emerge as the dark horse of collaborators in the statistical sample because of the number of collaborations with industry, business, government and NGOs range between 52 and 70 % in this group (see Chap. 12). As the authors emphasize “this is a remarkable achievement considering the precarious work conditions that these academics often face, and the fact that establishing and sustaining collaborations is both time- and effort-intensive.” The authors suggest that “one partial explanation of this finding is that, as young scholars face the legal, cultural, and contractual minefield of long-term, secure

appointments, they must continue to build a solid track record of academic activity.”

In the US context of higher education, the most important matter of fact -which also influences both national policies and research design – is the sheer size of the field of North American higher education, both geographically and concerning the number of higher education institutions. The same holds true with the Russian system of higher education. Steep stratification of higher education institutions is also taken as a natural matter of fact in most higher education system outside the Nordic countries. That said, the analysis of Hoffman, Nokkala and Välimaa in Chap. 10 signals a change in policy and practice regarding the exceptionalism of Finland regarding stratification. As in the US analysis, Kollasch, Lee, Rhoades and Torres-Olave, in Chap. 11 note:

research-intensive universities are likely to have a more national and global orientation than do more teaching-oriented universities. Similarly, with the growing emphasis on technology and knowledge transfer, research universities are more likely to have networks that extend to the private sector in various types of relationships. At the same time, with the general status seeking behavior of universities, and the heightened pressure to generate new revenues from the private sector, less prestigious and more teaching-intensive universities may be working to establish collaborations and networks that are more national and global in nature and that extend into the private sector.

What is really clear in this argumentation is the contrast between bold discourse about the knowledge economy and globalization, and the accountability policies that frame higher education in terms of cost, job preparation, and austerity, contributing to harsh working conditions of academics. Amidst high-minded global discourse is a set of governmental policies framed by disinvestment, austerity and demands for increased efficiency, patterns that are not unique to the U.S. The US cases also suggested that inequality is growing in the US universities organizationally in terms of stratification and in the structure of academic staffing, because there is a “new faculty majority” with over two-thirds of the academic workforce being off the tenure track. The CINHEKS teams found similar challenges in Europe, where large portions of junior academics are working on soft money rather than in secure academic career tracks.

When thinking about stratification, in an international, comparative perspective, it is clear that some UK and German and Finnish universities have strong and creative national, regional and local ties and that many academics are networked with people in many types of local organisations, including businesses, schools, hospitals, local government and NGOs. Even though these organizations might not be assumed to have the same prestige as global networking, this sort of collaboration arguably may result in impact and importance within the communities in which higher education institutions are embedded. As Chaps. 9, 10 and 11 clearly indicate, the global division of scholarly labor and the resulting stratification means that the oversimplified normative framing of ‘global’ ‘national’ and ‘local’ do not really capture the nuances of increasingly complex higher education networks, in which multiple needs at three distinct competitive horizons are continuously reproduced and transformed *on the same campus*.

### 13.3.5 *Whose Values?*

The UK case is helpful in using the lens of *values* to spotlight conflicts and contradictions between national goals, institutional policies and academic practice, especially the way in which academic freedom manifests or is constrained. Little, Abbas and Singh (in Chap. 8), assert “notions of universities producing knowledge that is powering economic growth and transforming societies, does exist but mainly at a national and institutional level” whereas academics’ interests were more grounded in the systems of discipline based academic values or in fields of research. The academic world is not, however, a monolithic one, only influenced by disciplines and academic fields, as is sometimes projected in country-specific case studies. Little, Abbas and Singh point out that:

some academics saw research that complied with the framings provided by national policy as distinct from the research they valued. Others saw their knowledge exchange research as producing knowledge that was representative of a wider set of interests: this was the case with the translational research described by one of our units. Others still were engaged in knowledge production with economic value and saw producing articles for the Research Evaluation Framework (REF) as taking them away from their more important work. In addition, academics did not see the classifications provided by the REF as representing the way they valued knowledge and research.

The Chap. 8 analysis confirms the findings of the comparative analysis of institutional profiles (in Chap. 5). Specifically, it is clear that the profiled HEIs “have become highly interconnected, independently of what many might regard as fundamental characteristics and features such as mission statement, size, geographical location and finally research or teaching orientation.” Furthermore, in institutional self-descriptions, HEIs explicitly aim “to break with the image of the self-referential ‘ivory tower’ or has otherwise simply moved on from more ‘inward-looking’ modes of operation. Its connections are not only presented as a matter of fact but they are value-laden. Further, the connections are often represented to be beneficial for all involved.”

The Chap. 10 analysis by Hoffman, Nokkala and Välimaa, further underlines the tensions and contradictions between the values of the academy, the values of the society in which HEIs are situated and the values operationalised in the international agenda setting encountered in the Finnish empirical studies. This analysis spotlights what has been thought of – in the past – as a strong Nordic social democracy, whose population eschewed social stratification and sought to ‘level the playing field’ for the general population, aiming for equality in education. However, that previously professed value now sits uneasily alongside new values, firmly grounded within the ideology of the neoliberal transnational academic capitalism, which now legally frames Finland’s higher education system and which has been operationalized to evaluate and steer the actions of scholarly personnel. What is equally clear is that many scholars may not yet fully appreciate the extent to which their place in the global division of scholarly labour is now



fixed, in terms of values entirely different than those which defined the education system of previous generations.

### ***13.3.6 Methodological Advances: Iteration and the CINHEKS Design***

The most common reaction to the design of the CINHEKS study at the outset was a general acknowledgement that the study constituted a high-risk/high-gain undertaking. Hoffman and Horta, in Chap. 3, confirm it was both, but go well beyond writing the perfunctory ‘methodology chapter’ and analyze the nuanced interconnections between the challenges and opportunities inherent in the ambitious research design and complexities of execution. This is important because comparative studies like CINHEKS these yield not only theoretical, conceptual and empirical advances. The dividends are methodological, as well. In our concluding chapter we stress the claim of Chap. 3 that, following Teichler, higher education studies can be much more than short term reactions, in the form of even shorter-term projects, to the even shorter attention-span of policymakers. In our studies, we can *advance new practices*, use *new modes of inquiry* not typical in higher education studies, even *advance new methods*. “Comparative research design, at its best, in an international project focused on a complex topic, is a dynamic, iterative and on-going process.” To actually realize the gains linked to this potential, we assert that a focus on *process* is key.

### ***13.3.7 A Focus on Process: The Tension Between Challenges and Opportunities in a Comparative Study***

Executing an international comparative study has been analysed in a number of ways (Teichler 2014; Välimaa and Nokkala 2014; Hoffman et al. 2014). However, very few international research projects have set themselves the challenge to reflect critically on the evolution from planning and design to the execution of the plan. The CINHEKS study is an exception in this regard as several of our team members have critically reflected on the nature of what becoming involved in an international comparative research project means, in practice. These views are particularly evident in Chaps. 3, 5 and 12.

The most important thing several of the CINHEKS researchers brought to our project was a keen preoccupation with process issues. This focus thoroughly irritated many colleagues we encountered along the way (See Hoffman et al. 2014), as it drew attention away from conventional focus. That said, what we discovered, while reflecting on ‘why we do what we do – with who – and how we do it’ is worth recapping. This is because our focus on process issues, from early

in the project, led to an insight entirely missed by many focused only on conventional outcomes. Specifically, that several of our most novel moves were a direct result of our most vexing challenges. Understanding and acting on that insight is the topic of Chap. 3 and brought vividly to life that chapter and in Chap. 12. Our point in revisiting these issues in our conclusion is that *without understanding the relationship between the outcomes of our design and the way we executed it, the theoretical gains and empirical results we advance, as well as their policy implications, would have failed to materialize in a manner that allowed experiential learning*. While some might be skeptical of this claim, we would assert that the most novel methodological results of the CINHEKS study, as summarized below, support our claim.

The analysis, in Chap. 3, of the relationship between challenges, opportunities and ‘lessons learned’ is instructive for persons considering attempting studies of this nature or for those who need further convincing. The final word on this particular point is in fact one of the purposes of Chap. 3: a focus such as the one we took is one of the best ways not only to learn from (our) challenges and successes for the next research project, but also to improve the chances of success in high risk/high-gain studies of this nature, while doing them.

### ***13.3.8 The Payoff: Beyond Methodological Nationalism***

The following methodological outcomes of the CINHEKS study are fully explained in within the chapters of this book, but it is worth considering them as a set of distinct outcomes with respect to the methodological development of international comparative higher education studies. As discussed in Chap. 3, the lack of theoretical-level work and development of state-of-the-art topics that push scholarly boundaries, explains many variations of methodological nationalism as Shahjahan and Kezar (2013) use the term. We would point to the methodological outcomes achieved by CINHEKS team members to support our claims as to the importance of this issue.

#### **13.3.8.1 Higher Education Institutional Profiles**

One of the most useful tools developed in the CINHEKS study was an observational protocol, which was dubbed the *Higher Educational Institutional Profile*. The challenges that necessitated the development of this tool and its application and analysis are described in Chaps. 3 and 5, revisited in Chap. 12 and have resulted in Appendix B, as a ready-to-use, open access tool, for the development of future higher research. The utility of tools of this type, especially in comparative studies where several teams need to establish focus and frame their topic cannot be overemphasized. The profile is a tool born of dire circumstances, but one that got our team through a highly challenging period of time, while delivering the first

glimpse of some of our most fundamental empirically-grounded, conceptual-level findings. Specifically, the cross-case analysis in Chap. 5 illuminated the dimensions of domain and mission although CINHEKS teams in the field could not guess at the significance these descriptive-level findings would take on, until much later, when used in conjunction with a cross-case analysis of our case studies, in particular Chaps. 9 and 10 which illuminated the third key dimension of power. Methodologically-speaking the profile filled a gap that none of us saw the need for, in our original planning and is an example of the type of methodological creativity we hope to build on, in future studies.

### 13.3.8.2 The Potential of Social Network Analysis in Comparative Studies

During the original planning stage of CINHEKS, several of the primary grant writers had spotted the potential of social network analysis (SNA) in international comparative studies. While SNA was widely used in several disciplines and fields of study, international comparative higher education researchers had not yet widely incorporated this distinctly relational mode of inquiry into comparative studies.

One of the most fundamental challenges in the CINHEKS design was to use SNA to challenge our thinking on networks. This was a high-risk move, because firstly, it had not been done in the manner we were contemplating, on a topic like ours. Secondly, SNA, if it was to be used, was planned as the last of (what turned out to be) three sequential studies, each occurring at a higher level of abstraction than the previous (see Fig. 1 in Chap. 3).

The set of challenges encountered by the US team, who initially operationalized this novel approach within the US context (see Chap. 11), and the follow-on efforts by the US and Portuguese team in our exploratory hybrid SNA CINHEKS survey (see Chap. 12), were significant, as is detailed in these chapters. The point we would stress is that the empirical and conceptual findings *are* highly interesting. However, *equally* interesting, is putting these findings in a broader perspective. Specifically, in *terms of practice and craft*, the challenges these teams encountered and worked through, while executing a novel analysis of a challenging topic are remarkable in and of themselves. This is easy to miss, as is thinking about some of the more interesting studies we can do, now that colleagues have shown it is possible. Additionally, as with the profiles, while overcoming significant challenges, the teams left a new mode of inquiry and set of tools (See Appendix C) along with their example of professionalism, under pressure, to our field.

### 13.4 Beyond Methodological Nationalism(s) in Comparative Higher Education Studies: Implications for the Relationship Between Policy and Practice

The nation state, or a federal state, is often asserted or assumed as a non-problematic unit of analysis and taken-for-granted as an analytical or empirical focal point of departure. In the CINHEKS project we consciously resisted the idea of using nation state as a taken-for-granted category, but took seriously the possibility that the national context remains important and has important influence on HEIs. This is because, as organizations, HEIs are clearly influenced by their local and national situatedness, as our studies indicated and networks, also spotlighted in our studies. This said, as the CINHEKS team came together for this study, the temptation to slip into relying, even over-relying on taken-for-granted framing that often grounds both ‘understanding’ and ‘explaining’ differences between cases and countries was palpable, as is explained in Chap. 3. This type of path dependency was challenging to break away from and our attempts to do this left us with a new appreciation of Shahjahan and Kezar’s (2013) problematisation of methodological nationalism in higher education studies as an entirely inadequate route to ‘easy solutions to complex problems’.

The real tensions in higher education policy and practice can be found between substantive framing, levels and units of analysis and the potential of theory because the theoretical and conceptual work we have done, and the empirical findings that are related to both, offer a way forward, beyond methodological nationalism and actually allows for explanatory-level (robust) international comparison. One of the burdens policy makers share and create, together with researchers, is struggling with the best substantive framing and focal points that we both use in thinking about the most pressing topics on our minds. This is where both can ‘go wrong’ if we decide to define and frame issues in a sub-optimal way, and go further wrong if moving forward with these concerns in the policy or research process. Nationally-bounded framing, while essential, in many respects (as our studies repeatedly show), is equally fraught with assumptions which our studies also show. The advantage we have over the policy makers is that we know that ‘framing is not an explanation’. Theory, methodology and data are much more likely to give us actual explanations, along with providing the basis for new knowledge and insights, even new framing -like *networked knowledge societies*.

We also found strong evidence of the nationally, regionally and locally framed ways in which higher education is linked to society. But, in addition, we also encountered both a global economic crisis and a strong, global, transnational, hegemonic (neoliberal) policy narrative (ideologically related to that same crisis) that all CINHEKS teams needed to account for as much as the national, regional and local framing and contextualization in their studies. And what we did not find (equally important) were very many compelling *counter narratives*, in terms of policy or practice. The reason we did not find them is not because they do not exist,

but more probably because they do exist, but were outside our geographical scope of analysis or not that prominent, except at the level of individuals in our case study interviews, where they were sometimes vivid and quite articulate. This is the empirically-grounded central tension that the synthesis of networked knowledge societies and our conceptual problematisation brings into view, because both are abstract enough to survive usage in a comparative study, i.e. they can be used to explain our empirical findings and can be further tested and refined in future comparative studies. These tensions are important because engaging them offers alternative ways of thinking about, debating and studying higher education and – by definition – *framing* the most important debates of higher education policy in terms of ‘what is going on’, rather than ‘what used to go on’ or ‘what we wish was going on’. In this sense, our empirically grounded theoretical and conceptual findings can be advanced as analytical synthesis and theory of the middle range, in the way Merton (1968) meant it, and asserted as a promising move forward that can be used in robust, comparative research that frees us from the limitations associated with methodological nationalism(s), while allowing for nuanced comparative analyses that gives researchers an approach that can account for the fundamental importance of context, grounded in place.

### ***13.4.1 Challenges for Higher Education Research in Networked Knowledge Societies***

Perhaps one of the main conclusions to be reached by the CINHEKS project concerns the increasing crossing and blurring of boundaries across higher education – boundaries between institutions, between academic disciplines, between countries – and, alongside these trends, changing and evolving relationships between higher education and other parts of society. What is important with these increasingly complex relationships between higher education institutions and networked knowledge societies is the nature of the social dynamics driving these crossings and blurrings of boundaries and the re-becomings of higher education institutions with respect to *universtasis* through networks and ICT. Higher education institutions, within their surrounding societies, are increasingly interconnected and linked with each other both locally, nationally and globally. However, in these globalized and interconnected social contexts, we have identified both similarities and differences in the way these phenomena manifest in different higher education institutions and countries. One of the most obvious implications of our analysis, as a whole, is the limitations of analysing higher education institutions, as such. The *higher education ‘institution’*, as much as we might love to profile, rank or analyze them, in other respects is not always the best unit of analysis, especially when thinking about the work of the *social institution of higher education* because of the multiple dimensions inherent in networks within these two fundamentally different uses of the term ‘institution’. So much of the activities of higher education and academics take place

across institutional (and increasingly national) boundaries. The institutional focal point, as CINHEKS has shown, is just one, *amongst many* needed to understand and explain higher education in networked knowledge societies. This said, as an institutional and organizational focal point, *universtasis* takes form, structures and is structured within higher education institutions and this is where the logic and power inherent in networks becomes increasingly central. It is within this space, where the metaphorical tree-like logic of organizational hierarchy and the mushroom-like logic of academic networks, as rhizomes meet.

In this context it is interesting to reflect that the often bemoaned growth and emphasis given to ever-increasing managerialism within higher education may actually be being subverted, distorted and resisted within *universtasis*, in cross-institutional networks and collaborations.

New questions, for policy makers, academics and stakeholders alike include; *Where does power really lie in higher education these days, how and why is it manifesting as it is? Will the use of increasingly sophisticated network analysis illuminate academics, policy makers and stakeholders using the emancipatory potential posited by the most optimistic accounts of network theory? Or will we find a 'dark side' of networked stratification, new modes of exclusion and other unanticipated consequences? Is there still something recognizable as 'academic freedom' in higher education and what – if anything – is being achieved with it? Or is academic freedom far more situated and circumscribed than what we once imagined, an increasingly scarce resource, surrendered without a struggle in some places, fiercely guarded in others? What are the convergences and divergences in current developments and do the realities of history and geography constrain them to the degree we imagine?*

Building on the work we present in this volume, we underline that the questions and issues above involve just some of the topics future research on the changing role of higher education within networked knowledge societies can address. It is our hope that the CINHEKS contributions to the field of higher education research goes some distance towards making critically-framed, comparatively-viable and empirically-grounded research on these types of topics easier than it was prior to this study.

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# Appendices

## Appendix A

### *CINHEKS Higher Education Institutional Profile Template*<sup>1</sup>

#### Context

The main aim of CINHEKS is to analyse how higher education institutions are networked within and between distinct knowledge societies, the roles they play in such societies and how the changing features of the societies impact upon the higher education institutions. Within CINHEKS, the individual project (IP) 4 aims to test, through a series of institutional profiles and case studies, some generalised assumptions in higher education about the dimensions of the knowledge society: in respect of knowledge production and dissemination; graduate outputs and destinations; networks and relationships with government, industry and civil society. The IP4 project will examine the extent to which these dimensions are common in global and regional universities as well as across universities in different regional settings.

IP4 consists of three phases: institutional profiling; case studies; comparative data collation and preliminary analysis.

In relation to institutional profiling, it has been agreed that:

- Four to six profiles will be completed by each CINHEKS partner to capture the diversity of higher education institutions (e.g. research-intensive; teaching intensive; research-teaching mix; global reach; regional/local reach; ‘narrow’/specialist institution). Where private sector institutions play a significant role in a country’s higher education sector, they could be included in the selection for

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<sup>1</sup>The template has been developed from the original project proposal, subsequent discussions among CINHEKS partners including meetings in February 2010, London, and June 2010, Oslo and Kassel, and review of draft profiles undertaken by the CHERI team responsible for IP4 work package of CINHEKS.



profiling. But ‘methodological nationalism’ should be avoided in the sense that partners are not selecting profiles to be representative of a particular national HE system, rather interesting examples to illustrate different knowledge society propositions (for example, academic entrepreneurialism) should be chosen.<sup>2</sup>

- Data for profiles should be drawn primarily from institutional web-sites and other data in the public domain. Institutions should however be informed of this work and their assistance requested in providing data not available on web-sites. Where necessary, a visit to the institution to clarify, confirm and complete any gaps in data should be undertaken. In communicating with institutions, partners should make clear to the institution that for the purposes of any final reporting, profiles will be anonymised. [However, at this stage of the research underpinning IP4 actual names of institutions should be used.]
- Essential data comprises institutional discourses (strategic plans, mission statements, policies); data on structures and activities (organisational structures for research, teaching and service functions; staff data); data on outcomes or impact (student data, including ‘where’ from, and ‘where’ they go to – if possible, current networks for research, teaching and service functions, evidence of impact); data on audiences (academic or other) for outcomes/impact.
- Profiles need to be constructed in a way that organises basic empirical data in a common format, to ease preliminary comparative analysis. In presenting data, the *source* of such data needs to be clear. This is particularly important in relation to reporting an institution’s ‘own’ (possibly aspirational) statements about missions and impacts.

## The Template

The profiles will comprise 4–6 pages plus supporting appendices. The data should be presented in a way that illuminates key dimensions of knowledge societies and networks, as viewed from the perspective of knowledge management within the higher education institution, namely knowledge organisation; knowledge production; knowledge transmission; knowledge transfer. It is accepted that this profiling phase of IP4 will be largely descriptive. More detailed exploration of an institution’s underlying rationales and explanations for knowledge management *vis a vis* their actual practices will be undertaken in the case study phase of IP4.

For each profile, partners will need to draw on the ‘raw’ institutional data to present a short commentary under each of the following sections. Whilst descriptive in nature, partners should bear in mind the main dimensions/salient issues underlying knowledge society concepts: actors; interactions/networks; rationales; mana-

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<sup>2</sup>For example, Portugal should choose a polytechnic to be profiled precisely because UK does not have any polytechnics.

gerial logic which could act as ‘prompts’ within the commentary – to be followed up in more detail in a case study.<sup>3</sup>

### Section 1 – Institutional Context and Mission

Short description of institution’s origins, geographical location and current status including mission and key institutional strategies

[‘raw’ data could include student and staff numbers, comprehensive or selective subject spread]

### Section 2 – Knowledge Organisation

Description of how knowledge is organised in academic units (e.g. faculties, schools, departments, research centres) with some initial commentary on extent to which such organisation demonstrates aspects of ‘open/closed’ (soft/hard boundaries between units); and extent of teaching and research organisation in terms of disciplinary/interdisciplinary, specialist/generalist dimensions. Note also whether research and teaching organisation follow similar or different organisational features.

Basic data on staffing and students to be included (if possible, by organisational structures)

[‘raw’ data including lists of schools, departments etc to be included in appendices]

### Section 3 – Knowledge Production

Description of the institution’s research function with some initial commentary on extent to which research is emphasised; what are the main fields, and are they inter/multi disciplinary, pure/applied,; what are the indicators of success (e.g. level and source of research grants, publication outcomes, outcomes of research assessment exercises – internal and/or external); evidence of partnerships (e.g. local, national, international; with business/community organisations) and of extent to which research function is ‘managed’ within institution.

[‘raw’ data including lists of research centres, research incomes, partnerships etc to be included in appendices]

### Section 4 – Knowledge Transmission

Description of the institution’s teaching function with some initial commentary on: proportion of students in different curriculum fields, broadly defined<sup>4</sup> + % ‘initial’ HE and % ‘continuing’ HE; proportion of students who are local/national/international; proportion of students who have internships; proportion

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<sup>3</sup> Ulrich Teichler’s paper ‘The notions and the rationales as regards higher education and knowledge society’ 8 June 2010 discussed at CINHEKS meetings at CHER conference/Oslo, and EuroHESC workshop/Kassel provides further background.

<sup>4</sup> If possible, use ISCED field of study: Education; Humanities and Arts; Social Sciences, business and law; Science; Engineering, manufacturing and construction; Agriculture and Veterinary; Health and Welfare; Services.

of students who are employment-based (e.g. on bespoke programmes for employers); graduation rates and graduate destinations, in broad economic sectors, if possible

[‘raw’ data might be included in appendices but likely to be in main body of profile]

#### Section 5 – Knowledge Transfer (3rd Stream or Service/Development/Application Function)

Description of institution’s 3rd stream function with some initial commentary on: how much it is emphasised; what are the main fields and are they inter/multi-disciplinary; what are the indicators of success; evidence of partnerships (e.g. local, regional, national, international . . .and with whom)

[‘raw’ data to be included in appendices]

## Appendix B

### *CINHEKS Interview Protocol*

#### Notes for Researchers

1. Having completed a number of institutional profiles, we are now aiming to test how/whether notions like the knowledge society, knowledge economy, networks and networked knowledge societies become visible in the activities, perceptions, experiences and artefacts of individuals, groups, organizations and processes within and between different levels of analysis concerning the contextual scope of this stage of the study: HEIs.
2. The case studies build directly on the institutional profiles, as the texts, documents and observations in the profiles are commonly used data in case studies. Triangulating the profile data with interviews will now allow us to follow-up interesting developments already identified within the profiles and country reports. In addition, the data – in totality – will implicate networks outside the HEIs, by illuminating network elements inside HEIs.
3. Each case study will have two phases reflecting different institutional levels. In Phase 1 we will interview senior institutional leaders and managers; in Phase 2 we will aim to follow-up in more detail interesting developments already identified within the profiles (and/or via the Phase 1 interviews) through interviews with individuals and groups (academics, researchers, support staff and managers in basic units) located in different functional units across the institution.
4. The interview protocols have been thematically structured in terms of the concepts and terminology used in the HEI profile templates. Because the themes are abstract, they may need to be ‘translated’ into words linked to the phenomena **as they are perceived or understood by the interview participants.**

Specifically, words/phrases which are more familiar within their own local contexts and cultures may need to be used.

5. The interview protocols are presented under the main themes to be covered during the interviews in Phases 1 and 2. Within those themes, we have identified the ‘core’ questions we are interested in and included some additional ‘prompt’ questions that researchers might use to probe issues in more depth (as appropriate to the local context). You should try and cover all the core questions in the time available. But not all prompts need to be used – just those that seem most relevant to the person or group you are talking to.
6. Prior to the interviews, participants should be provided with a very brief outline of the project and of the broad themes to be covered, together with an indication of how long the interview will last (we suggest not more than 45 min–1 h). At the start of the interview, the researcher should ascertain that the interviewee agrees with the researcher taking notes/and/or recording the interview, and is assured that the record of the discussions will be anonymised. The researcher should also re-iterate the main themes that will be covered during the interview, and establish the interviewee’s name, current position within the institution, and their main responsibilities. Notes of each interview should be compiled (either verbatim or summary covering main discussion points) and interviewees given the opportunity to check the notes for accuracy (if they so wish).<sup>5</sup>

## Phase 1

### Purpose

The main purpose of interviews in Phase 1 is to obtain data concerning the perceptions and experiences of HEI personnel who have institution-wide responsibility for leading or managing the university. This may enable us to judge whether, and why (or if), the HEI views itself (corporately) as a key actor in various national, regional and international networks; and also how, or if, this is given expression in what interviewees perceive as their core functions. We want to illuminate the tension between continuity and change, what factors play a part in this tension, the time-frames the interviewees link to these and if there has been any impact on the university’s mission and operational structures/partnerships/position in ranking systems/teaching, research and engagement activities, etc. We also want to find out about future plans and new directions at the university.

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<sup>5</sup> Researchers may wish to use a standard ‘consent’ form, specifying that the interview will be recorded on standard recording equipment, notes will be taken, the identity and privacy of interviewees will be protected, a draft of the analysis will be made available to interviewees for comment/clarification or for addressing privacy concerns, and specifying the manner in which the data will be used and stored.

A secondary purpose is to obtain suggestions about interesting developments within the institution at different levels, i.e. unit or sub-unit level that could usefully be explored in more detail in Phase 2 (to supplement those that the researchers will already have identified through the institutional profiles).

## Methods

Interviews should be undertaken with senior leaders and managers (for example president/rectorate, senior academic staff responsible for teaching/learning, research, external relations, innovations) and particularly those with institutional responsibility for key central services that are outward facing (for example, technology transfer, commercialisation, community liaison). If there are important partnerships or alliances at the institutional level, it would be desirable for a few representatives of the partnership to be interviewed as well. In total, we envisage six–eight (or more) institutional level interviews being undertaken in Phase 1.

The interviews will be informed by documents/materials already gathered in the institutional profile or requested prior to interview, for example, mission and strategy statements, partnership agreements, knowledge production, dissemination and transfer contracts, other documents.

Themes to be addressed in Phase 1 are detailed in the following section. Please try and cover all core issues; additional prompts can be used selectively, depending on interviewee and context.

## Theme 1: Changes in HEI Strategy and Identity

### Core and Prompts

**Core 1** – What are the main factors that have impacted on the university’s mission, goals and activities in recent years?

*Prompt Do you see your university primarily as a global or regional or national player – or is there a better way to frame what you do?*

*Prompt Please give some examples of your institutional involvements at these different levels. What types of institutions/organisations do you see as your peers and partners?*

**Core 2** – What are the most important organizations, agencies, individuals or processes that affect all this? (whatever it is that they’ve been talking about)

*Prompt Have your relationships with (whatever they’re talking about) had a visible effect on the HEI, in what way? made you more distinctive or more competitive with similar institutions in the national system, or globally?*

*Prompt In your activities, what is the mix between something the university has initiated, and being responsive to external stakeholder pressures or invitations/requests from other stakeholders or entities?*

**Core 3** – Has the way in which knowledge is produced, organised, transferred and managed within the university changed significantly in recent times?

*Prompt (if Yes) Can you elaborate on this (e.g. schools being merged; a more centralised or decentralised model of governance and management )? What kind of time-frames are we talking about? Is it clear what prompted such changes?*

*Prompt (if No) What are the most important reasons for the stability in your HEI?*

**Core 4** – What future plans are being considered at the HEI regarding external stakeholders, agencies and other types of organizations?

*Prompt Are you planning to initiate new (whatever it is they're talking about)? If so, why? If not, why not?*

*Prompt Are you planning to move 'out' of any existing arrangements? If so, why?*

## **Theme 2: Knowledge Partners/Clients, Services and Structures**

### Core and Prompts

**Core 1** – Are the services of the HEI sought out? By whom? What kinds of services are they seeking and what have you provided?

*Prompt Which stakeholder/s needs are you most oriented towards (government, employers, the market, civil society, the economically disadvantaged)? And why?*

**Core 2** – How do you measure your HEI's success in these types of services?

*Prompt How do others see success?( e.g. income generation, improved position in ranking systems, service provider to external stakeholders, knowledge transfer, making the university's products more accessible to society)?*

**Core 3** – Are there structures, functions and dedicated personnel at the university which/who are the more involved in these types of (whatever it is they're talking about) than others? Or do all personnel play a part? Or is there a better way to frame what's going on? e.g. technology transfer offices, senior academic staff responsible for partnerships, innovation, etc.?

*Prompt What has been the trend with respect to (whatever it is they're talking about)?*

*Prompt What's driving this? Or are trends discernable? (If yes) Can you put a time frame on this?*

### **Theme 3: Impact on Research, Teaching, Staff and Students**

#### Core and Prompts

**Core 1** – Are the above developments linked to institution-wide changes with respect to what you regard to be your core missions? Have the ‘core’ functions remained more or less the same?

*Prompt Does the importance of any of the missions seem to be growing or shrinking in proportion to the others? (If yes or no) Why is that?*

*Prompt Has there been any impact on the role of the HEI regarding relationships with other organizations, agencies, processes, individuals or groups linked to (whatever they have identified as core mission)? (If yes) What kind of impact?*

**Core 2** – Are there noticeable changes to traditional disciplinary boundaries in teaching and research, or not?

*Prompt Are there some of examples of changes in curricula and research themes -more multidisciplinary, applied, etc.?*

**Core 3** – Do you see the HEI’s involvement in (whatever words they have been using) as a central concern or ‘core’ element for all staff involved in teaching and research, or is this a distinct or peripheral element concerning only some personnel? (If yes) Who?

*Prompt Are individual academics or researchers free to pursue their own defined interests?*

*Prompt Does the university offer training/orientation opportunities/other forms of support/incentives for staff who want to become involved in external activities?*

**Core 4** – Has the university sought access to external organisations or initiatives that would benefit its students and graduates? If so what? For what purposes? (if not obvious)

*Prompt Have these worked? What has been the success of such strategies (for example, increased placement opportunities, increases in applied research training opportunities) for your students?*

**Finally, there are two other issues we would like to pick-up during this Phase of our fieldwork**

**Issue 1: Interesting/innovative developments at sub-unit level within the institution**

*Having completed a profile for your institution, we have identified xxx units (name the units) as possibly being ones we could usefully explore further.*

*Do you think these would be good examples of innovative collaborative work (within and outside the institution)? Can you suggest some others?*

**Issue 2: What have we missed?**

*Considering the types of issues we've been talking about, is there something – from your perspective – that we should have talked about, or didn't touch on? Or that's perhaps more interesting than what we've been talking about?*

**Phase 2**

**Purpose**

In Phase 2, the aim is to test-out the relationship between institutional statements about goals and strategies and actual on-the-ground realities by exploring the perceptions and experiences of key individuals and groups working at different operational levels within the institution.

Phase 2 is concerned with operational practice in four (or more) sub-units in the institution, and will aim to examine changes that have occurred in relationships both within and beyond the institution, as well as what things have remained the same.

**Method**

We suggest the four sub-units comprise two subject/disciplinary focused areas (selected from different hard/soft disciplinary groupings) with primarily knowledge production and knowledge transmission functions (and which may be interdisciplinary), plus two sub-units with a more overt knowledge transfer function (e.g. business start-up unit, community engagement) which may be staffed by people who do not see themselves as primarily academics/researchers. Two multidisciplinary/umbrella or network units and one hard pure and soft pure unit (each) would be a good aim in purposeful selection.

The fieldwork will entail interviews with both the leader(s) of each of the selected units, a focus group of staff members (augmented where possible with a few individual staff interviews), plus interviews with representative members of networks (up to three such interviews?) to which the unit belongs or is associated. It is not the intention to interview all relevant staff (we assume IP5 will be aiming to capture the views of large numbers of staff) – rather the purpose is to capture the views of a sub-set of staff. In total, for each sub-unit chosen for detailed analysis, there should be at least six interviews undertaken plus a focus group with staff (however the numbers of interviews could vary depending on the resources available to the individual CINHEKS research teams).

Where possible, the questions set-out below should be asked in each setting though tailored to the sub-unit's specific functions and contexts, and the individual



interviewee's role in the sub-unit (eg head of unit, business development officer, course leader).

Themes to be addressed in Phase 2 are detailed in the following section. Please try and cover all core issues; additional prompts can be used selectively, depending on interviewee and context.

### **Theme 1: Relationship to the Institution**

#### Core and Prompts

#### **Core 1** – How do you see your (unit's) relationship to the institution?

*Prompt Do you see your activities as central to or linked to the wider purpose and functions of the institution?*

*Prompt Can you elaborate on this? (If they are articulate re. strategies, missions nuances, etc.) Which kinds of strategies and for what functions (for example, knowledge production/research; knowledge transmission/teaching; knowledge transfer/whatever they call this)) and in what ways? If not (central or linked to wider purpose), why not?*

#### **Core 2** – Who determines your (unit's) agenda?

*Prompt To what extent does the unit determine for itself the nature and shape of the activities it undertakes, or are the activities undertaken mainly in response to overarching institutional aims and objectives? Please can you give some examples*

#### **Core 3** – How is the unit funded?

*Prompt Does most of your funding come via 'core' institutional, or are you heavily reliant on bringing in external monies? If so, from which sources?*

### **Theme 2: Notions of Clients, Audiences and Users**

#### Core and Prompts

#### **Core 1** – Who are the main recipients/beneficiaries of your activities?

*Prompt ( to be tailored to unit/interviewee) Students, the research community, other sub-units within the institution, stakeholder groups beyond the academic community (eg employers, professional groups, public sector organisations, civic society?)*

#### **Core 2** – Are the beneficiaries of your own choosing or are there institutional pressures/incentives to orient your work towards particular ones?

#### **Core 3** – Who has the power in the relationship with your clients/users?

**Core 4** – To what extent do you think you have already changed your offerings to respond to their needs?

Prompt *Has this benefitted your (academic) work or hindered it?*

Prompt *Is there scope for changing what you provide to reflect what the recipients/beneficiaries want? Or is the relationship a more autonomous and knowledge led one?*

**Theme 3: Notions of Networks, Partners and Collaborators (researcher to tailor questions to particular unit/interviewee where necessary – eg research, teaching, knowledge transfer)**

Core and Prompts

**Core 1** – Do you work alone or in conjunction with others? e.g. Other units, agencies, organizations? What form does this work take? e.g. processes like assessments, evaluations, networks, organizations, accreditation, etc.

Prompt *If you are working with partners, who are they, and where are they based (for example, in same department, in another department in same ‘school’, in another part of this institution, in another institution/organisation, nationally and/or internationally)?*

Prompt *What are the outcomes of this? (e.g., joint publications, research applications).*

**Core 2** (if course leader/senior teaching personnel) – is the course team drawn solely from within the department?

Prompt *If not, where else from, and why? (another department in same ‘school’, another part of the institution?)*

Prompt *If from outside the institution, why, and what type of organisation (e.g. employers? Specialists from industry?)*

**Core 3** (if working with others) – can you tell me a bit more about the nature of the work?

Prompt *How was the relationship established? (for example, a pre-existing institutional network, personal contacts?)*

Prompt *What is the nature of the relationship (e.g. based within established disciplinary framework? Explicitly inter-disciplinary?)*

Prompt *How do you all communicate with each other? (and how regularly does this happen?) What is the ‘reach’ of the partnership (eg local, regional, national, global?) Can you give some examples and the names of two or three other main players in this effort?*

Prompt *Does this type of work require any explicit resource/funding? e.g., how is the effort funded, and by whom? What, if any, conditions are attached to the funding?*

## Theme 4: Notions of Competition and Collaboration

### Core and Prompts

**Core 1** – Who do you see as your main competitors and collaborators? Are these persons, groups, organizations or entities the same, different, overlapping – or is there a better way to frame this?

Prompt *Have these sorts of relationships changed recently?*

Prompt *If present – probe and link to teaching, and research, and knowledge transfer.*

Prompt *Establish if primarily within the institution, or outside the institution. If 'outside' are they local, regional, national, global), If recent changes, why is this? Time-frame? If stable, why?*

**Core 2** – Do you think your institution encourages its academics and academic/research units to be more collaborative or more competitive?

**Core 3** – In these sorts of efforts, with whom do you communicate the most? What is the scope of and intensity of the communication?

**Core 4** – Have these sort of things changed recently? In what ways? Can you link the change to specific events or time frames?

## Theme 5: Specific Set of Questions About the Teaching Function

### Core and Prompts

**Core 1** – How would you describe the nature of current curricula on offer?

Prompt *Probe for knowledge oriented v. competence-oriented, academic v. practice/professional-oriented)?*

Prompt *Do such orientations vary by level of programme, and/or by specific subject of study?*

**Core 2** – To what extent is the curriculum geared towards different types of learners, and/or other types of demand, e.g. labour market, occupational sector, employer interests?

Prompt *If employer-driven, who sets the curriculum (employer or HEI)?*

**Core 3** – What are the demographics of students? (e.g. young students seeking pre-career study? Older people looking for second-chance study? Professional updating, client-specific cohorts?)

Prompt *Has this changed in recent years? If so, why do think this is the case (for example, student demand, specific institutional initiatives, demographic shifts in population structure)?*

**Core 4** – Is the ‘offer’ aligned to institutional or other policies or are you able to ‘do your own thing’?

Prompt *Can you choose to focus on ‘just’ pre-career study? Or does every school have to think about older students returning to study, or work-based learning, etc*

**Core 5** – Do you see any particular staffing issues relating to different types of course provision?

Prompt *Do staff need credible work/industry experience? If so, how is this managed – for example, does the institution encourage staff to take-on secondments outside of academia? Is there a policy of employing staff from industry on a part-time basis?*

## **Theme 6: Relationship Between Teaching, Research and Knowledge Transfer**

### Core and Prompts

**Core 1** – Do you think this unit has a role to play in the institution’s ‘third’ mission over and above teaching and research? How is this defined currently? Has it changed?

Prompt *If specific examples, what might these be (e.g., public understanding of science, responses to societal needs? Spin-off companies and operations?)*

Prompt *If no recent changes, why not?*

**Core 2** – Are staff expected to engage in all three functions to some extent?

Prompt *If yes – Are certain functions seen as a ‘core’ part of staff duties, and other functions seen as more peripheral or ‘good to have’? Who determines the balance between these activities for individual staff members?*

**Core 3** – How do staff see themselves with respect to all this? Have there been changes in their career histories? Are they happy to take on multiple roles?

**Finally, there is one other issue we would like to pick-up during this Phase of our fieldwork – namely “What have we missed?”**

*Considering the types of issues we’ve been talking about, is there something – from your perspective – that we should have talked about, or didn’t touch on? Or that’s perhaps more interesting than what we’ve been talking about?*

## Appendix C

### *CINHEKS Draft Survey Examples (Finland - FI; Germany - DE; Portugal - PT; England - UK; United States - USA)*

#### **CINHEKS\_FI**

There are 33 questions in this survey

#### **A. EDUCATION AND EMPLOYMENT**

**1**

**In how many institutions/organizations do you work?**

**(By institutions/organizations where you work we mean those institutions/organizations where you perform teaching, research or other professional activities without necessarily implying that these institutions/organizations are your employers.)**

Please write your answer here:

**2**

**Please list the position(s) you currently have and the ones held in the past 5 years providing some information about each one:**

**(Start from the current position where you work)**

	Title of position	Name of institution/organization	From (year)	To (year)
Current position	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Other position (or previous position that you have held)	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Other position (or previous position that you have held)	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Other position (or previous position that you have held)	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Other position (or previous position that you have held)	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

position that you have held)	Title of position	Name of institution/organization	From (year)	To (year)
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### 3 Main scientific field of your current academic activity

Please choose **only one** of the following:

- Mathematics
- Computer and information sciences
- Physical sciences
- Chemical sciences
- Earth and related environmental sciences
- Biological sciences
- Other natural sciences
- Civil engineering
- Electrical engineering, electronic engineering, information engineering
- Mechanical engineering
- Chemical engineering
- Materials engineering
- Medical engineering
- Environmental engineering
- Environmental biotechnology
- Industrial Biotechnology
- Nano-technology
- Other engineering and technologies
- Basic medicine
- Clinical medicine
- Health sciences
- Health biotechnology
- Other medical sciences
- Agriculture, forestry, and fisheries
- Animal and dairy science
- Veterinary science
- Agricultural biotechnology
- Other agricultural sciences
- Psychology
- Economics and business
- Educational sciences
- Sociology
- Law
- Political Science

- Social and economic geography
- Media and communications
- Other social sciences
- History and archaeology
- Languages and literature
- Philosophy, ethics and religion
- Art (arts, history of arts, performing arts, music)
- Other humanities

#### 4 What is the highest degree of education you attained?

Please choose **only one** of the following:

- PhD
- Master's degree
- Bachelor's degree
- Other

#### 5 University / institution where you obtained your highest educational degree:

**Only answer this question if the following conditions are met:**

° Answer was -oth-'PhD' or 'Master's degree' or 'Bachelor's degree' or 'Other' at question '4 [4]' (What is the highest degree of education you attained?) and Answer was A1'PhD' or 'Master's degree' or 'Bachelor's degree' or 'Other' at question '4 [4]' (What is the highest degree of education you attained?) and Answer was A2'PhD' or 'Master's degree' or 'Bachelor's degree' or 'Other' at question '4 [4]' (What is the highest degree of education you attained?) and Answer was A3'PhD' or 'Master's degree' or 'Bachelor's degree' or 'Other' at question '4 [4]' (What is the highest degree of education you attained?)

Please write your answer here:

#### 6 Year of graduation of the highest degree of education you attained:

**Only answer this question if the following conditions are met:**

° Answer was -oth-'Other' or 'PhD' or 'Bachelor's degree' or 'Master's degree' at question '4 [4]' (What is the highest degree of education you attained?) and Answer was A1'Other' or 'PhD' or 'Bachelor's degree' or 'Master's degree' at question '4 [4]' (What is the highest degree of education you attained?) and Answer was A2'Other' or 'PhD' or 'Bachelor's degree' or 'Master's degree' at question '4 [4]' (What is the highest degree of education you attained?) and Answer was A3'Other' or 'PhD' or 'Bachelor's degree' or 'Master's degree' at question '4 [4]' (What is the highest degree of education you attained?)

Please choose **only one** of the following:

- 2011
- 2010
- 2009
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- 1940

**7****Main academic field of your highest degree:**

Please choose **only one** of the following:

- Mathematics
- Computer and information sciences
- Physical sciences
- Chemical sciences
- Earth and related Environmental sciences
- Biological sciences
- Other natural sciences
- Civil engineering
- Electrical engineering, Electronic engineering, Information engineering
- Mechanical engineering
- Chemical engineering
- Materials engineering
- Medical engineering
- Environmental engineering

- Environmental biotechnology
- Industrial biotechnology
- Nano-technology
- Other engineering and technologies
- Basic medicine
- Clinical medicine
- Health sciences
- Health biotechnology
- Other medical sciences
- Agriculture, Forestry, and Fisheries
- Animal and Dairy science
- Veterinary science
- Agricultural biotechnology
- Other agricultural sciences
- Psychology
- Economics and Business
- Educational sciences
- Sociology
- Law
- Political science
- Social and economic geography
- Media and communications
- Other social sciences
- History and Archaeology
- Languages and Literature
- Philosophy, Ethics and Religion
- Arts (arts, history of arts, performing arts, music)
- Other humanities

## B - ACADEMIC AND PROFESSIONAL NETWORKS

**8**

**During the past 3 years, did you have academic or professional collaborations outside your institution? if so please list below the institutions with whom you have collaborated:**

**(Please check and list up to 5 institutions)**

Please choose all that apply and provide a comment:

- Institution 1
- Institution 2
- Institution 3
- Institution 4
- Institution 5

### 9 Type of institution 1:

**Only answer this question if the following conditions are met:**

\* Answer was Y at question '8 [6]' ( During the past 3 years, did you have academic or professional collaborations outside your institution? if so please list below the institutions with whom you have collaborated: (Please check and list up to 5 institutions) )

Please choose **only one** of the following:

- Government
- Higher education institution
- Industry
- Non-for profit organization
- Other

### 10 Main focus of the collaboration with institution 1:

**Only answer this question if the following conditions are met:**

\* Answer was Y at question '8 [6]' ( During the past 3 years, did you have academic or professional collaborations outside your institution? if so please list below the institutions with whom you have collaborated: (Please check and list up to 5 institutions) )

Please choose **only one** of the following:

- Mainly research focused
- Mainly teaching focused
- Mainly service/3rd mission focused

### 11 Collaboration with institution 1:

**Only answer this question if the following conditions are met:**

\* Answer was Y at question '8 [6]' ( During the past 3 years, did you have academic or professional collaborations outside

your institution? if so please list below the institutions with whom you have collaborated: (Please check and list up to 5 institutions) )

Please choose the appropriate response for each item:

	Not relevant at all	Somewhat relevant	Relevant	Very relevant
Relevance of this collaboration for your academic work:	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**12 Outcome of this collaboration with institution 1:**

**Only answer this question if the following conditions are met:**  
° Answer was Y at question '8 [6]' ( During the past 3 years, did you have academic or professional collaborations outside your institution? if so please list below the institutions with whom you have collaborated: (Please check and list up to 5 institutions) )

Please choose **all** that apply:

- Scholarly books (authored)
- Scholarly books (edited)
- Book chapters
- Articles in international peer-review journals
- Articles in national peer-review journals
- Research report written for a funded project
- Conference paper
- Patent or invention
- Software
- Artistic work
- Video or film
- Newspaper/magazine article
- Grant proposal
- Research in progress
- Other:

**13 Type of institution 2:**

**Only answer this question if the following conditions are met:**  
° Answer was Y at question '8 [6]' ( During the past 3 years, did you have academic or professional collaborations outside your institution? if so please list below the institutions with whom you have collaborated: (Please check and list up to 5 institutions) )

Please choose **only one** of the following:

- Government
- Higher education institution
- Industry
- Non-for profit organization
- Other

**14 Main focus of the collaboration with institution 2:**

**Only answer this question if the following conditions are met:**

° Answer was Y at question '8 [6]' ( During the past 3 years, did you have academic or professional collaborations outside your institution? if so please list below the institutions with whom you have collaborated: (Please check and list up to 5 institutions) )

Please choose **only one** of the following:

- Mainly research focused
- Mainly teaching focused
- Mainly service/3rd mission focused

**15 Collaboration with institution 2:**

**Only answer this question if the following conditions are met:**

° Answer was Y at question '8 [6]' ( During the past 3 years, did you have academic or professional collaborations outside your institution? if so please list below the institutions with whom you have collaborated: (Please check and list up to 5 institutions) )

Please choose the appropriate response for each item:

	Not relevant at all	Somewhat relevant	Relevant	Very relevant
Relevance of this collaboration for your academic work:	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**16 Outcome of this collaboration with institution 2:**

**Only answer this question if the following conditions are met:**

° Answer was Y at question '8 [6]' ( During the past 3 years, did you have academic or professional collaborations outside your institution? if so please list below the institutions with whom you have collaborated: (Please check and list up to 5 institutions) )

Please choose **all** that apply:

- Scholarly books (authored)
- Scholarly books (edited)
- Book chapters
- Articles in international peer-review journals
- Articles in national peer-review journals
- Research report written for a funded project
- Conference paper
- Patent or invention
- Software
- Artistic work
- Video or film
- Newspaper/magazine article
- Grant proposal
- Research in progress
- Other:

**17 Type of institution 3:**

**Only answer this question if the following conditions are met:**

° Answer was Y at question '8 [6]' ( During the past 3 years, did you have academic or professional collaborations outside your institution? if so please list below the institutions with whom you have collaborated: (Please check and list up to 5 institutions) )

Please choose **only one** of the following:

- Government
- Higher education institution
- Industry
- Non-for profit organization
- Other

**18 Main focus of the collaboration with institution 3:**

**Only answer this question if the following conditions are met:**

° Answer was Y at question '8 [6]' ( During the past 3 years, did you have academic or professional collaborations outside your institution? if so please list below the institutions with whom you have collaborated: (Please check and list up to 5 institutions) )

Please choose **only one** of the following:

- Mainly research focused

Mainly teaching focused  
 Mainly service/3rd mission focused

**19 Collaboration with institution 3:**

**Only answer this question if the following conditions are met:**  
 ° Answer was Y at question '8 [6]' ( During the past 3 years, did you have academic or professional collaborations outside your institution? if so please list below the institutions with whom you have collaborated: (Please check and list up to 5 institutions) )

Please choose the appropriate response for each item:

	Not relevant at all	Somewhat relevant	Relevant	Very relevant
Relevance of this collaboration for your academic work:	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**20 Outcome of this collaboration with institution 3:**

**Only answer this question if the following conditions are met:**  
 ° Answer was Y at question '8 [6]' ( During the past 3 years, did you have academic or professional collaborations outside your institution? if so please list below the institutions with whom you have collaborated: (Please check and list up to 5 institutions) )

Please choose **all** that apply:

- Scholarly books (authored)
- Scholarly books (edited)
- Book chapters
- Articles in international peer-review journals
- Articles in national peer-review journals
- Research report written for a funded project
- Conference paper
- Patent or invention
- Software
- Artistic work
- Video or film
- Newspaper/magazine article
- Grant proposal
- Research in progress
- Other:

**21 Type of institution 4:**

**Only answer this question if the following conditions are met:**  
 ° Answer was Y at question '8 [6]' ( During the past 3 years, did you have academic or professional collaborations outside your institution? if so please list below the institutions with whom you have collaborated: (Please check and list up to 5 institutions) )

Please choose **only one** of the following:

- Government
- Higher education institution
- Industry
- Non-for profit organization
- Other

**22 Main focus of the collaboration with institution 4:**

**Only answer this question if the following conditions are met:**

° Answer was Y at question '8 [6]' ( During the past 3 years, did you have academic or professional collaborations outside your institution? if so please list below the institutions with whom you have collaborated: (Please check and list up to 5 institutions) )

Please choose **only one** of the following:

- Mainly research focused
- Mainly teaching focused
- Mainly service/3rd mission focused

**23 Collaboration with institution 4:**

**Only answer this question if the following conditions are met:**

° Answer was Y at question '8 [6]' ( During the past 3 years, did you have academic or professional collaborations outside your institution? if so please list below the institutions with whom you have collaborated: (Please check and list up to 5 institutions) )

Please choose the appropriate response for each item:

	Not relevant at all	Somewhat relevant	Relevant	Very relevant
Relevance of this collaboration for your academic work:	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**24 Outcome of this collaboration with institution 4:**

**Only answer this question if the following conditions are met:**

° Answer was Y at question '8 [6]' ( During the past 3 years, did you have academic or professional collaborations outside your institution? if so please list below the institutions with whom you have collaborated: (Please check and list up to 5 institutions) )

Please choose **all** that apply:

- Scholarly books (authored)
- Scholarly books (edited)
- Book chapters
- Articles in international peer-review journals
- Articles in national peer-review journals
- Research report written for a funded project
- Conference paper
- Patent or invention
- Software



Artistic work  
 Video or film  
 Newspaper/magazine article  
 Grant proposal  
 Research in progress  
 Other:

**25 Type of institution 5:**

**Only answer this question if the following conditions are met:**  
 ° Answer was Y at question '8 [6]' ( During the past 3 years, did you have academic or professional collaborations outside your institution? if so please list below the institutions with whom you have collaborated: (Please check and list up to 5 institutions) )

Please choose **only one** of the following:

Government  
 Higher education institution  
 Industry  
 Non-for profit organization  
 Other

**26 Main focus of the collaboration with institution 5:**

**Only answer this question if the following conditions are met:**  
 ° Answer was Y at question '8 [6]' ( During the past 3 years, did you have academic or professional collaborations outside your institution? if so please list below the institutions with whom you have collaborated: (Please check and list up to 5 institutions) )

Please choose **only one** of the following:

Mainly research focused  
 Mainly teaching focused  
 Mainly service/3rd mission focused

**27 Collaboration with institution 5:**

**Only answer this question if the following conditions are met:**  
 ° Answer was Y at question '8 [6]' ( During the past 3 years, did you have academic or professional collaborations outside your institution? if so please list below the institutions with whom you have collaborated: (Please check and list up to 5 institutions) )

Please choose the appropriate response for each item:

	Not relevant at all	Somewhat relevant	Relevant	Very relevant
Relevance of this collaboration for your academic work:	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**28 Outcome of this collaboration with institution 5:**

**Only answer this question if the following conditions are met:**

\* Answer was Y at question '8 [6]' ( During the past 3 years, did you have academic or professional collaborations outside your institution? if so please list below the institutions with whom you have collaborated: (Please check and list up to 5 institutions) )

Please choose **all** that apply:

- Scholarly books (authored)
- Scholarly books (edited)
- Book chapters
- Articles in international peer-review journals
- Articles in national peer-review journals
- Research report written for a funded project
- Conference paper
- Patent or invention
- Software
- Artistic work
- Video or film
- Newspaper/magazine article
- Grant proposal
- Research in progress
- Other:

**C – DEMOGRAPHIC INFORMATION**

**29 Year of birth**

Please write your answer here:

**30 Gender**

Please choose **only one** of the following:

- Female
- Male

**31 Were you born in Finland:**

Please choose **only one** of the following:

- Yes
- No

**32 Do you have Finnish nationality:**

Please choose **only one** of the following:

- Yes
- No

**33**

**Thank you very much for completing the survey.**

**We take this opportunity to ask if you would be willing to be contacted for a very small follow-up survey. If so, please add your e-mail to the box below. Thank you in advance!**

Please write your answer here:

# CINHEKS\_DE

There are 33 questions in this survey

## A. EDUCATION AND EMPLOYMENT

**1**

**In how many institutions/organizations do you work?**

**(by institutions/organizations where you work we mean those institutions/organizations where you perform teaching, research, or other professional activities without necessarily implying that these institutions organizations are your employers.)**

Please write your answer here:

**2 Please list the position(s) you currently have and the ones held in the past 5 years providing some information about each one:**

**(start from the current position where you work)**

	Title of position	Name of institution/organization	From (year)	To (year)
Current position	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Other position (or previous position that you have held)	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Other position (or previous position that you have held)	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Other position (or previous position that you have held)	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Other position (or previous position that you have held)	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

have held)	Title of position	Name of institution/organization	From (year)	To (year)
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**3****Main scientific field of your current academic activity:****(Please choose only one of the following)**

Please choose **only one** of the following:

- Mathematics
- Computer and information sciences
- Physical sciences
- Chemical sciences
- Earth and related environmental sciences
- Biological sciences
- Other natural sciences
- Civil engineering
- Electrical engineering, electronic engineering, information engineering
- Mechanical engineering
- Chemical engineering
- Materials engineering
- Medical engineering
- Environmental engineering
- Environmental biotechnology
- Industrial Biotechnology
- Nano-technology
- Other engineering and technologies
- Basic medicine
- Clinical medicine
- Health sciences
- Health biotechnology
- Other medical sciences
- Agriculture, forestry, and fisheries
- Animal and dairy science
- Veterinary science
- Agricultural biotechnology
- Other agricultural sciences
- Psychology
- Economics and business
- Educational sciences
- Sociology

- Law
- Political Science
- Social and economic geography
- Media and communications
- Other social sciences
- History and archaeology
- Languages and literature
- Philosophy, ethics and religion
- Art (arts, history of arts, performing arts, music)
- Other humanities

**4**

**What is the highest degree of education you attained?**

Please choose **only one** of the following:

- PhD
- Master's degree
- Bachelor's degree
- Other

**5**

**University/Institution where you obtained your highest educational degree:**

**Only answer this question if the following conditions are met:**  
° Answer was -oth-'Bachelor's degree ' or 'PhD' or 'Master's degree' or 'Other' at question '4 [4]' ( What is the highest degree of education you attained? ) and Answer was A1'Bachelor's degree ' or 'PhD' or 'Master's degree' or 'Other' at question '4 [4]' ( What is the highest degree of education you attained? ) and Answer was A2'Bachelor's degree ' or 'PhD' or 'Master's degree' or 'Other' at question '4 [4]' ( What is the highest degree of education you attained? ) and Answer was A3'Bachelor's degree ' or 'PhD' or 'Master's degree' or 'Other' at question '4 [4]' ( What is the highest degree of education you attained? )

Please write your answer here:

**6**

**Year of graduation of the highest degree of education you attained:**

**Only answer this question if the following conditions are met:**  
° Answer was -oth-'PhD' or 'Master's degree' or 'Bachelor's degree ' or 'Other' at question '4 [4]' ( What is the highest degree of education you attained? ) and Answer was A1'PhD' or 'Master's degree' or 'Bachelor's degree ' or 'Other' at question '4 [4]' ( What is the highest degree of education you attained? ) and Answer was A2'PhD' or 'Master's degree' or 'Bachelor's degree ' or 'Other' at question '4 [4]' ( What is the highest degree of education you attained? ) and Answer was A3'PhD' or 'Master's degree' or 'Bachelor's degree ' or 'Other' at question '4 [4]' ( What is the highest degree of education you attained? )

Please choose **only one** of the following:

- 2011
- 2010

<input type="radio"/> 2009
<input type="radio"/> 2008
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- 1943
- 1942
- 1941
- 1940

**7**

**Main academic field of your highest degree:**

Please choose **only one** of the following:

- Mathematics
- Computer and information sciences
- Physical sciences
- Chemical sciences
- Earth and related Environmental sciences
- Biological sciences
- Other natural sciences
- Civil engineering



- Electrical engineering, Electronic engineering, Information engineering
- Mechanical engineering
- Chemical engineering
- Materials engineering
- Medical engineering
- Environmental engineering
- Environmental biotechnology
- Industrial Biotechnology
- Nano-technology
- Other engineering and technologies
- Basic medicine
- Clinical medicine
- Health sciences
- Health biotechnology
- Other medical sciences
- Agriculture, forestry, and fisheries
- Animal and dairy science
- Veterinary science
- Agricultural biotechnology
- Other agricultural sciences
- Psychology
- Economics and business
- Educational sciences
- Sociology
- Law
- Political Science
- Social and economic geography
- Media and communications
- Other social sciences
- History and archaeology
- Languages and literature
- Philosophy, ethics and religion
- Art (arts, history of arts, performing arts, music)
- Other humanities

## B - ACADEMIC AND PROFESSIONAL NETWORKS

**8 During the past 3 years, did you have academic or professional collaborations outside your institution? If so please list below the institutions with whom you have collaborated:**

**(Please check and list up to 5 institutions)**

Please choose all that apply and provide a comment:

- Institution 1
- Institution 2
- Institution 3
- Institution 4
- Institution 5

### 9 Type of institution 1:

**Only answer this question if the following conditions are met:**

° Answer was Y at question '8 [6]' (During the past 3 years, did you have academic or professional collaborations outside your institution? If so please list below the institutions with whom you have collaborated: (Please check and list up to 5 institutions) )

Please choose **only one** of the following:

- Government
- Higher education institution
- Industry
- Non-for profit organization
- Other

### 10

#### Main focus of the collaboration with institution 1:

**Only answer this question if the following conditions are met:**

° Answer was Y at question '8 [6]' (During the past 3 years, did you have academic or professional collaborations outside your institution? If so please list below the institutions with whom you have collaborated: (Please check and list up to 5 institutions) )

Please choose **only one** of the following:

- Mainly research focused
- Mainly teaching focused
- Mainly service/3rd mission focused

### 11

#### Collaboration with institution 1:

**Only answer this question if the following conditions are met:**

° Answer was Y at question '8 [6]' (During the past 3 years, did you have academic or professional collaborations outside your institution? If so please list below the institutions with whom you have collaborated: (Please check and list up to 5 institutions) )

Please choose the appropriate response for each item:

	Not relevant at all	Somewhat relevant	Relevant	Very relevant
Relevance of this collaboration for your academic work:	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

## 12

### Outcome of this collaboration with institution 1:

**Only answer this question if the following conditions are met:**

° Answer was Y at question '8 [6]' (During the past 3 years, did you have academic or professional collaborations outside your institution? If so please list below the institutions with whom you have collaborated: (Please check and list up to 5 institutions) )

Please choose all that apply:

- Scholarly books (authored)
- Scholarly books (edited)
- Book chapters
- Articles in international peer-review journals
- Articles in national peer-review journals
- Research report written for a funded project
- Conference paper
- Patent or invention
- Software
- Artistic work
- Video or film
- Newspaper/magazine article
- Grant proposal
- Research in progress
- Other:

## 13 Type of institution 2:

**Only answer this question if the following conditions are met:**

° Answer was Y at question '8 [6]' (During the past 3 years, did you have academic or professional collaborations outside your institution? If so please list below the institutions with whom you have collaborated: (Please check and list up to 5 institutions) )

Please choose **only one** of the following:

- Government
- Higher education institution
- Industry
- Non-for profit organization

Other

**14**

**Main focus of the collaboration with institution 2:**

**Only answer this question if the following conditions are met:**  
° Answer was Y at question '8 [6]' (During the past 3 years, did you have academic or professional collaborations outside your institution? If so please list below the institutions with whom you have collaborated: (Please check and list up to 5 institutions) )

Please choose **only one** of the following:

Mainly research focused  
 Mainly teaching focused  
 Mainly service/3rd mission focused

**15 Collaboration with institution 2:**

**Only answer this question if the following conditions are met:**  
° Answer was Y at question '8 [6]' (During the past 3 years, did you have academic or professional collaborations outside your institution? If so please list below the institutions with whom you have collaborated: (Please check and list up to 5 institutions) )

Please choose the appropriate response for each item:

	Not relevant at all	Somewhat relevant	Relevant	Very relevant
Relevance of this collaboration for your academic work:	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**16**

**Outcome of this collaboration with institution 2:**

**Only answer this question if the following conditions are met:**  
° Answer was Y at question '8 [6]' (During the past 3 years, did you have academic or professional collaborations outside your institution? If so please list below the institutions with whom you have collaborated: (Please check and list up to 5 institutions) )

Please choose **all** that apply:

- Scholarly books (authored)
- Scholarly books (edited)
- Book chapters
- Articles in international peer-review journals
- Articles in national peer-review journals
- Research report written for a funded project
- Conference paper
- Patent or invention
- Software
- Artistic work
- Video or film

Newspaper/magazine article

Grant proposal

Research in progress

Other:

**17 Type of institution 3:**

**Only answer this question if the following conditions are met:**  
 ° Answer was Y at question '8 [6]' (During the past 3 years, did you have academic or professional collaborations outside your institution? If so please list below the institutions with whom you have collaborated: (Please check and list up to 5 institutions) )

Please choose **only one** of the following:

Government

Higher education institution

Industry

Non-for profit organization

Other

**18**

**Main focus of the collaboration with institution 3:**

**Only answer this question if the following conditions are met:**  
 ° Answer was Y at question '8 [6]' (During the past 3 years, did you have academic or professional collaborations outside your institution? If so please list below the institutions with whom you have collaborated: (Please check and list up to 5 institutions) )

Please choose **only one** of the following:

Mainly research focused

Mainly teaching focused

Mainly service/3rd mission focused

**19 Collaboration with institution 3:**

**Only answer this question if the following conditions are met:**  
 ° Answer was Y at question '8 [6]' (During the past 3 years, did you have academic or professional collaborations outside your institution? If so please list below the institutions with whom you have collaborated: (Please check and list up to 5 institutions) )

Please choose the appropriate response for each item:

	Not relevant at all	Somewhat relevant	Relevant	Very relevant
Relevance of this collaboration for your academic work:	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**20**

**Outcome of this collaboration with institution 3:**

**Only answer this question if the following conditions are met:**  
° Answer was Y at question '8 [6]' (During the past 3 years, did you have academic or professional collaborations outside your institution? If so please list below the institutions with whom you have collaborated: (Please check and list up to 5 institutions) )

Please choose **all** that apply:

- Scholarly books (authored)
- Scholarly books (edited)
- Book chapters
- Articles in international peer-review journals
- Articles in national peer-review journals
- Research report written for a funded project
- Conference paper
- Patent or invention
- Software
- Artistic work
- Video or film
- Newspaper/magazine article
- Grant proposal
- Research in progress
- Other:

**21 Type of institution 4:**

**Only answer this question if the following conditions are met:**  
° Answer was Y at question '8 [6]' (During the past 3 years, did you have academic or professional collaborations outside your institution? If so please list below the institutions with whom you have collaborated: (Please check and list up to 5 institutions) )

Please choose **only one** of the following:

- Government
- Higher education institution
- Industry
- Non-for profit organization
- Other

**22**

**Main focus of the collaboration with institution 4:**

**Only answer this question if the following conditions are met:**  
° Answer was Y at question '8 [6]' (During the past 3 years, did you have academic or professional collaborations outside your institution? If so please list below the institutions with whom you have collaborated: (Please check and list up to 5 institutions) )

Please choose **only one** of the following:

- Mainly research focused
- Mainly teaching focused

Mainly service/3rd mission focused

**23**

**Collaboration with institution 4:**

**Only answer this question if the following conditions are met:**  
 ° Answer was Y at question '8 [6]' (During the past 3 years, did you have academic or professional collaborations outside your institution? If so please list below the institutions with whom you have collaborated: (Please check and list up to 5 institutions) )

Please choose the appropriate response for each item:

	Not relevant at all	Somewhat relevant	Relevant	Very relevant
Relevance of this collaboration for your academic work:	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**24**

**Outcome of this collaboration with institution 4:**

**Only answer this question if the following conditions are met:**  
 ° Answer was Y at question '8 [6]' (During the past 3 years, did you have academic or professional collaborations outside your institution? If so please list below the institutions with whom you have collaborated: (Please check and list up to 5 institutions) )

Please choose **all** that apply:

- Scholarly books (authored)
- Scholarly books (edited)
- Book chapters
- Articles in international peer-review journals
- Articles in national peer-review journals
- Research report written for a funded project
- Conference paper
- Patent or invention
- Software
- Artistic work
- Video or film
- Newspaper/magazine article
- Grant proposal
- Research in progress
- Other:

**25**

**Type of institution 5:**

**Only answer this question if the following conditions are met:**  
 ° Answer was Y at question '8 [6]' (During the past 3 years, did you have academic or professional collaborations outside

your institution? If so please list below the institutions with whom you have collaborated: (Please check and list up to 5 institutions) )

Please choose **only one** of the following:

- Government
- Higher education institution
- Industry
- Non-for profit organization
- Other

**26**

**Main focus of the collaboration with institution 5:**

**Only answer this question if the following conditions are met:**  
° Answer was Y at question '8 [6]' (During the past 3 years, did you have academic or professional collaborations outside your institution? If so please list below the institutions with whom you have collaborated: (Please check and list up to 5 institutions) )

Please choose **only one** of the following:

- Mainly research focused
- Mainly teaching focused
- Mainly service/3rd mission focused

**27 Collaboration with institution 5:**

**Only answer this question if the following conditions are met:**  
° Answer was Y at question '8 [6]' (During the past 3 years, did you have academic or professional collaborations outside your institution? If so please list below the institutions with whom you have collaborated: (Please check and list up to 5 institutions) )

Please choose the appropriate response for each item:

	Not relevant at all	Somewhat relevant	Relevant	Very relevant
Relevance of this collaboration for your academic work:	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**28**

**Outcome of this collaboration with institution 5:**

**Only answer this question if the following conditions are met:**  
° Answer was Y at question '8 [6]' (During the past 3 years, did you have academic or professional collaborations outside your institution? If so please list below the institutions with whom you have collaborated: (Please check and list up to 5 institutions) )

Please choose **all** that apply:

- Scholarly books (authored)
- Scholarly books (edited)
- Book chapters
- Articles in international peer-review journals



- Articles in national peer-review journals
- Research report written for a funded project
- Conference paper
- Patent or invention
- Software
- Artistic work
- Video or film
- Newspaper/magazine article
- Grant proposal
- Research in progress
- Other:

**C – DEMOGRAPHIC INFORMATION**

**29 Year of birth:**

Please write your answer here:

**30 Gender**

Please choose **only one** of the following:

- Female
- Male

**31 Were you born in Portugal:**

Please choose **only one** of the following:

- Yes
- No

**32 Do you have Portuguese nationality?**

Please choose **only one** of the following:

- Yes
- No

**33**

**Thank you very much for completing the survey. We take this opportunity to ask if you would be willing to be contacted for a very small follow-up survey. If so, please add your e-mail to the box below.**

**Thank you in advance!**

Please write your answer here:

# CINHEKS\_PT

There are 33 questions in this survey

## A. EDUCATION AND EMPLOYMENT

**1**

**In how many institutions/organizations do you work?**

**(by institutions/organizations where you work we mean those institutions/organizations where you perform teaching, research, or other professional activities without necessarily implying that these institutions organizations are your employers.)**

Each answer must be between 0 and 9

Please write your answer here:

**2 Please list the position(s) you currently have and the ones held in the past 5 years providing some information about each one:**

**(start from the current position where you work)**

	Title of position	Name of institution/organization	From (year)	To (year)
Current position	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Other position (or previous position that you have held)	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Other position (or previous position that you have held)	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Other position (or previous position that you have held)	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Other position (or previous position that you have held)	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

**3**

**Main scientific field of your current academic activity:**

**(Please choose only one of the following)**

Please choose **only one** of the following:

- Mathematics
- Computer and information sciences
- Physical sciences
- Chemical sciences
- Earth and related environmental sciences
- Biological sciences
- Other natural sciences

- Civil engineering
- Electrical engineering, electronic engineering, information engineering
- Mechanical engineering
- Chemical engineering
- Materials engineering
- Medical engineering
- Environmental engineering
- Environmental biotechnology
- Industrial Biotechnology
- Nano-technology
- Other engineering and technologies
- Basic medicine
- Clinical medicine
- Health sciences
- Health biotechnology
- Other medical sciences
- Agriculture, forestry, and fisheries
- Animal and dairy science
- Veterinary science
- Agricultural biotechnology
- Other agricultural sciences
- Psychology
- Economics and business
- Educational sciences
- Sociology
- Law
- Political Science
- Social and economic geography
- Media and communications
- Other social sciences
- History and archaeology
- Languages and literature
- Philosophy, ethics and religion
- Art (arts, history of arts, performing arts, music)
- Other humanities

**4**

**What is the highest degree of education you attained?**

Please choose **only one** of the following:

- PhD
- Master's degree
- Bachelor's degree
- Other
- Other

**5**

**University/Institution where you obtained your highest educational degree:**

**Only answer this question if the following conditions are met:**  
° ((4.NAOK == "-oth-" or 4.NAOK == "A1" or 4.NAOK == "A2" or 4.NAOK == "A3"))

Please write your answer here:

**6**

**Year of graduation of the highest degree of education you attained:**

**Only answer this question if the following conditions are met:**  
° ((4.NAOK == "-oth-" or 4.NAOK == "A1" or 4.NAOK == "A2" or 4.NAOK == "A3"))

Please choose **only one** of the following:

- 2011
- 2010
- 2009
- 2008
- 2007
- 2006
- 2005
- 2004
- 2003
- 2002
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- 1954

- 1953
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- 1951
- 1950
- 1949
- 1948
- 1947
- 1946
- 1945
- 1944
- 1943
- 1942
- 1941
- 1940

**7****Main academic field of your highest degree:**

Please choose **only one** of the following:

- Mathematics
- Computer and information sciences
- Physical sciences
- Chemical sciences
- Earth and related Environmental sciences
- Biological sciences
- Other natural sciences
- Civil engineering
- Electrical engineering, Electronic engineering, Information engineering
- Mechanical engineering
- Chemical engineering
- Materials engineering
- Medical engineering
- Environmental engineering
- Environmental biotechnology
- Industrial Biotechnology
- Nano-technology
- Other engineering and technologies
- Basic medicine
- Clinical medicine
- Health sciences



- Health biotechnology
- Other medical sciences
- Agriculture, forestry, and fisheries
- Animal and dairy science
- Veterinary science
- Agricultural biotechnology
- Other agricultural sciences
- Psychology
- Economics and business
- Educational sciences
- Sociology
- Law
- Political Science
- Social and economic geography
- Media and communications
- Other social sciences
- History and archaeology
- Languages and literature
- Philosophy, ethics and religion
- Art (arts, history of arts, performing arts, music)
- Other humanities

**B - ACADEMIC AND PROFESSIONAL NETWORKS**

**8 During the past 3 years, did you have academic or professional collaborations outside your institution? If so please list below the institutions with whom you have collaborated:**

**(Please check and list up to 5 institutions)**

Please choose **all** that apply and provide a comment:

<input type="checkbox"/>	Institution	
1		
<input type="checkbox"/>	Institution	
2		
<input type="checkbox"/>	Institution	
3		
<input type="checkbox"/>	Institution	
4		
<input type="checkbox"/>	Institution	
5		

**9 Type of institution 1:**

**Only answer this question if the following conditions are met:**

° ((6\_SQ001.NAOK == "Y"))

Please choose **only one** of the following:

- Government
- Higher education institution
- Industry
- Non-for profit organization
- Other

**10**

**Main focus of the collaboration with institution 1:**

Only answer this question if the following conditions are met:

° ((6\_SQ001.NAOK == "Y"))

Please choose **only one** of the following:

- Mainly research focused
- Mainly teaching focused
- Mainly service/3rd mission focused

**11**

**Collaboration with institution 1:**

Only answer this question if the following conditions are met:

° ((6\_SQ001.NAOK == "Y"))

Please choose the appropriate response for each item:

	Not relevant at all	Somewhat relevant	Relevant	Very relevant
Relevance of this collaboration for your academic work:	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**12**

**Outcome of this collaboration with institution 1:**

Only answer this question if the following conditions are met:

° ((6\_SQ001.NAOK == "Y"))

Please choose **all** that apply:

- Scholarly books (authored)
- Scholarly books (edited)
- Book chapters
- Articles in international peer-review journals
- Articles in national peer-review journals
- Research report written for a funded project
- Conference paper
- Patent or invention
- Software
- Artistic work
- Video or film
- Newspaper/magazine article
- Grant proposal
- Research in progress
- Other
- Other:

**13 Type of institution 2:**

Only answer this question if the following conditions are met:

° ((6\_SQ002.NAOK == "Y"))

Please choose **only one** of the following:

- Government
- Higher education institution
- Industry
- Non-for profit organization
- Other

**14**

**Main focus of the collaboration with institution 2:**

Only answer this question if the following conditions are met:

° ((6\_SQ002.NAOK == "Y"))

Please choose **only one** of the following:

- Mainly research focused
- Mainly teaching focused
- Mainly service/3rd mission focused

**15 Collaboration with institution 2:**

Only answer this question if the following conditions are met:

° ((6\_SQ002.NAOK == "Y"))

Please choose the appropriate response for each item:

	Not relevant at all	Somewhat relevant	Relevant	Very relevant
Relevance of this collaboration for your academic work:	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**16**

**Outcome of this collaboration with institution 2:**

Only answer this question if the following conditions are met:

° ((6\_SQ002.NAOK == "Y"))

Please choose **all** that apply:

- Scholarly books (authored)
- Scholarly books (edited)
- Book chapters
- Articles in international peer-review journals
- Articles in national peer-review journals
- Research report written for a funded project
- Conference paper
- Patent or invention
- Software
- Artistic work
- Video or film
- Newspaper/magazine article
- Grant proposal
- Research in progress
- Other
- Other:

**17 Type of institution 3:**

Only answer this question if the following conditions are met:

° ((6\_SQ003.NAOK == "Y"))

Please choose **only one** of the following:

- Government
- Higher education institution
- Industry
- Non-for profit organization
- Other

**18**

**Main focus of the collaboration with institution 3:**

Only answer this question if the following conditions are met:

° ((6\_SQ003.NAOK == "Y"))

Please choose **only one** of the following:

- Mainly research focused
- Mainly teaching focused
- Mainly service/3rd mission focused

**19 Collaboration with institution 3:**

Only answer this question if the following conditions are met:

° ((6\_SQ003.NAOK == "Y"))

Please choose the appropriate response for each item:

	Not relevant at all	Somewhat relevant	Relevant	Very relevant
Relevance of this collaboration for your academic work:	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**20**

**Outcome of this collaboration with institution 3:**

Only answer this question if the following conditions are met:

° ((6\_SQ003.NAOK == "Y"))

Please choose **all** that apply:

- Scholarly books (authored)
- Scholarly books (edited)
- Book chapters
- Articles in international peer-review journals
- Articles in national peer-review journals
- Research report written for a funded project
- Conference paper
- Patent or invention
- Software
- Artistic work
- Video or film
- Newspaper/magazine article
- Grant proposal
- Research in progress
- Other
- Other:

**21 Type of institution 4:**

Only answer this question if the following conditions are met:

° ((6\_SQ004.NAOK == "Y"))

Please choose **only one** of the following:

- Government
- Higher education institution
- Industry
- Non-for profit organization
- Other



**22**

**Main focus of the collaboration with institution 4:**

Only answer this question if the following conditions are met:

° ((6\_SQ004.NAOK=="Y"))

Please choose **only one** of the following:

- Mainly research focused
- Mainly teaching focused
- Mainly service/3rd mission focused

**23**

**Collaboration with institution 4:**

Only answer this question if the following conditions are met:

° ((6\_SQ004.NAOK=="Y"))

Please choose the appropriate response for each item:

	Not relevant at all	Somewhat relevant	Relevant	Very relevant
Relevance of this collaboration for your academic work:	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**24****Outcome of this collaboration with institution 4:****Only answer this question if the following conditions are met:**

° ((6\_SQ004.NAOK == "Y"))

Please choose **all** that apply:

- Scholarly books (authored)
- Scholarly books (edited)
- Book chapters
- Articles in international peer-review journals
- Articles in national peer-review journals
- Research report written for a funded project
- Conference paper
- Patent or invention
- Software
- Artistic work
- Video or film
- Newspaper/magazine article
- Grant proposal
- Research in progress
- Other
- Other:

**25****Type of institution 5:****Only answer this question if the following conditions are met:**

° ((6\_SQ005.NAOK == "Y"))

Please choose **only one** of the following:

- Government
- Higher education institution
- Industry
- Non-for profit organization
- Other

**26**

**Main focus of the collaboration with institution 5:**

Only answer this question if the following conditions are met:

° ((6\_SQ005.NAOK == "Y"))

Please choose **only one** of the following:

- Mainly research focused
- Mainly teaching focused
- Mainly service/3rd mission focused

**27 Collaboration with institution 5:**

Only answer this question if the following conditions are met:

° ((6\_SQ005.NAOK == "Y"))

Please choose the appropriate response for each item:

	Not relevant at all	Somewhat relevant	Relevant	Very relevant
Relevance of this collaboration for your academic work:	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**28**

**Outcome of this collaboration with institution 5:**

Only answer this question if the following conditions are met:

° ((6\_SQ005.NAOK == "Y"))

Please choose **all** that apply:

- Scholarly books (authored)
- Scholarly books (edited)
- Book chapters
- Articles in international peer-review journals
- Articles in national peer-review journals
- Research report written for a funded project
- Conference paper
- Patent or invention
- Software
- Artistic work
- Video or film
- Newspaper/magazine article
- Grant proposal
- Research in progress
- Other
- Other:

**C – DEMOGRAPHIC INFORMATION**

**29 Year of birth:**

Each answer must be between 1931 and 1990

Please write your answer here:

**30 Gender**

Please choose **only one** of the following:

- Female
- Male

**31 Were you born in Portugal:**

Please choose **only one** of the following:

- Yes
- No

**32 Do you have Portuguese nationality?**

Please choose **only one** of the following:

- Yes
- No

**33**

**Thank you very much for completing the survey. We take this opportunity to ask if you would be willing to be contacted for a very small follow-up survey. If so, please add your e-mail to the box below.**

**Thank you in advance!**

Please write your answer here:

# CINHEKS\_UK

There are 46 questions in this survey

## A. EDUCATION AND EMPLOYMENT

1

**In how many institutions/organizations do you work?**

**(By institutions/organizations where you work we mean those institutions/organizations where you perform teaching, research or other professional activities without necessarily implying that these institutions/organizations are your employers.)**

Please write your answer here:

2

**Please list the position(s) you currently have and the ones held in the past 5 years providing some information about each one:**

**(Start from the current position where you work)**

	Title of position	Name of institution/organization	From (year)	To (year)
Current position	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Other position (or previous position that you have held)	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Other position (or previous position that you have held)	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Other position (or previous position that you have held)	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Other position (or previous position that you have held)	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

position that you have held)	Title of position	Name of institution/organization	From (year)	To (year)
---------------------------------------	-------------------	-------------------------------------	-------------	-----------

### 3 Main scientific field of your current academic activity

Please choose **only one** of the following:

- Mathematics
- Computer and information sciences
- Physical sciences
- Chemical sciences
- Earth and related environmental sciences
- Biological sciences
- Other natural sciences
- Civil engineering
- Electrical engineering, electronic engineering, information engineering
- Mechanical engineering
- Chemical engineering
- Materials engineering
- Medical engineering
- Environmental engineering
- Environmental biotechnology
- Industrial Biotechnology
- Nano-technology
- Other engineering and technologies
- Basic medicine
- Clinical medicine
- Health sciences
- Health biotechnology
- Other medical sciences
- Agriculture, forestry, and fisheries
- Animal and dairy science
- Veterinary science
- Agricultural biotechnology
- Other agricultural sciences
- Psychology
- Economics and business
- Educational sciences
- Sociology
- Law
- Political Science

- Social and economic geography
- Media and communications
- Other social sciences
- History and archaeology
- Languages and literature
- Philosophy, ethics and religion
- Art (arts, history of arts, performing arts, music)
- Other humanities

**4 What is the highest degree of education you attained?**

Please choose **only one** of the following:

- PhD
- Master's degree
- Bachelor's degree
- Other

**5 University / institution where you obtained your highest educational degree:**

**Only answer this question if the following conditions are met:**  
 ° Answer was -oth-'Other' or 'PhD' or 'Master's degree' or 'Bachelor's degree' at question '4 [4]' (What is the highest degree of education you attained?) and Answer was A1'Other' or 'PhD' or 'Master's degree' or 'Bachelor's degree' at question '4 [4]' (What is the highest degree of education you attained?) and Answer was A2'Other' or 'PhD' or 'Master's degree' or 'Bachelor's degree' at question '4 [4]' (What is the highest degree of education you attained?) and Answer was A3'Other' or 'PhD' or 'Master's degree' or 'Bachelor's degree' at question '4 [4]' (What is the highest degree of education you attained?)

Please write your answer here:

**6 Year of graduation of the highest degree of education you attained:**

**Only answer this question if the following conditions are met:**  
 ° Answer was -oth-'Bachelor's degree' or 'Master's degree' or 'PhD' or 'Other' at question '4 [4]' (What is the highest degree of education you attained?) and Answer was A1'Bachelor's degree' or 'Master's degree' or 'PhD' or 'Other' at question '4 [4]' (What is the highest degree of education you attained?) and Answer was A2'Bachelor's degree' or 'Master's degree' or 'PhD' or 'Other' at question '4 [4]' (What is the highest degree of education you attained?) and Answer was A3'Bachelor's degree' or 'Master's degree' or 'PhD' or 'Other' at question '4 [4]' (What is the highest degree of education you attained?)

Please choose **only one** of the following:

- 2011
- 2010
- 2009
- 2008
- 2007
- 2006
- 2005
- 2004



<input type="radio"/>	2003
<input type="radio"/>	2002
<input type="radio"/>	2001
<input type="radio"/>	2000
<input type="radio"/>	1999
<input type="radio"/>	1998
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<input type="radio"/>	1962

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- 1948
- 1947
- 1946
- 1945
- 1944
- 1943
- 1942
- 1941
- 1940

**7 Main academic field of your highest degree:**

Please choose **only one** of the following:

- Mathematics
- Computer and information sciences
- Physical sciences
- Chemical sciences
- Earth and related Environmental sciences
- Biological sciences
- Other natural sciences
- Civil engineering
- Electrical engineering, Electronic engineering, Information engineering
- Mechanical engineering
- Chemical engineering
- Materials engineering
- Medical engineering
- Environmental engineering
- Environmental biotechnology

- Industrial biotechnology
- Nano-technology
- Other engineering and technologies
- Basic medicine
- Clinical medicine
- Health sciences
- Health biotechnology
- Other medical sciences
- Agriculture, Forestry, and Fisheries
- Animal and Dairy science
- Veterinary science
- Agricultural biotechnology
- Other agricultural sciences
- Psychology
- Economics and Business
- Educational sciences
- Sociology
- Law
- Political science
- Social and economic geography
- Media and communications
- Other social sciences
- History and Archaeology
- Languages and Literature
- Philosophy, Ethics and Religion
- Arts (arts, history of arts, performing arts, music)
- Other humanities

## B - ACADEMIC NETWORKS

**8**

**During the past 3 years, did you have academic or professional collaborations outside your institution? if so please list below the institutions or organizations with whom you have collaborated:**

**(Please check and list up to 5 institutions)**

Please choose all that apply and provide a comment:

- Institution / organization 1
- Institution / organization 2
- Institution / organization 3
- Institution / organization 4
- Institution / organization 5

### **9 Type of institution / organization 1:**

**Only answer this question if the following conditions are met:**

° Answer was Y at question '8 [6]' ( During the past 3 years, did you have academic or professional collaborations outside your institution? if so please list below the institutions or organizations with whom you have collaborated: (Please check and list up to 5 institutions) )

Please choose **only one** of the following:

- Government
- Higher education institution
- Industry
- Non-for profit organization
- Other

### **10 Main focus of the collaboration with institution / organization 1:**

**Only answer this question if the following conditions are met:**

° Answer was Y at question '8 [6]' ( During the past 3 years, did you have academic or professional collaborations outside your institution? if so please list below the institutions or organizations with whom you have collaborated: (Please check and list up to 5 institutions) )

Please choose **only one** of the following:

- Mainly research focused
- Mainly teaching focused
- Mainly service/3rd mission focused

### **11 Collaboration with institution / organization 1:**

**Only answer this question if the following conditions are met:**

° Answer was Y at question '8 [6]' ( During the past 3 years, did you have academic or professional collaborations outside your institution? if so please list below the institutions or organizations with whom you have collaborated: (Please check and list up to 5 institutions) )

Please choose the appropriate response for each item:

	Not relevant at all	Somewhat relevant	Relevant	Very relevant
Relevance of this collaboration for your academic work:	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**12 Outcome of this collaboration with institution / organization 1:**

**Only answer this question if the following conditions are met:**

° Answer was Y at question '8 [6]' ( During the past 3 years, did you have academic or professional collaborations outside your institution? if so please list below the institutions or organizations with whom you have collaborated: (Please check and list up to 5 institutions) )

Please choose **all** that apply:

- Scholarly books (authored)
- Scholarly books (edited)
- Book chapters
- Articles in international peer-review journals
- Articles in national peer-review journals
- Research report written for a funded project
- Conference paper
- Patent or invention
- Software
- Artistic work
- Video or film
- Newspaper/magazine article
- Grant proposal
- Research in progress
- Other:

**13 Type of institution / organization 2:**

**Only answer this question if the following conditions are met:**

° Answer was Y at question '8 [6]' ( During the past 3 years, did you have academic or professional collaborations outside your institution? if so please list below the institutions or organizations with whom you have collaborated: (Please check and list up to 5 institutions) )

Please choose **only one** of the following:

- Government
- Higher education institution
- Industry
- Non-for profit organization
- Other

**14 Main focus of the collaboration with institution / organization 2:**

**Only answer this question if the following conditions are met:**

° Answer was Y at question '8 [6]' ( During the past 3 years, did you have academic or professional collaborations outside your institution? if so please list below the institutions or organizations with whom you have collaborated: (Please check and list up to 5 institutions) )

Please choose **only one** of the following:

- Mainly research focused
- Mainly teaching focused
- Mainly service/3rd mission focused

**15 Collaboration with institution / organization 2:**

**Only answer this question if the following conditions are met:**

° Answer was Y at question '8 [6]' ( During the past 3 years, did you have academic or professional collaborations outside your institution? if so please list below the institutions or organizations with whom you have collaborated: (Please check and list up to 5 institutions) )

Please choose the appropriate response for each item:

	Not relevant at all	Somewhat relevant	Relevant	Very relevant
Relevance of this collaboration for your academic work:	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**16 Outcome of this collaboration with institution / organization 2:**

**Only answer this question if the following conditions are met:**

° Answer was Y at question '8 [6]' ( During the past 3 years, did you have academic or professional collaborations outside your institution? if so please list below the institutions or organizations with whom you have collaborated: (Please check and list up to 5 institutions) )

Please choose **all** that apply:

- Scholarly books (authored)
- Scholarly books (edited)
- Book chapters
- Articles in international peer-review journals

Articles in national peer-review journals  
 Research report written for a funded project  
 Conference paper  
 Patent or invention  
 Software  
 Artistic work  
 Video or film  
 Newspaper/magazine article  
 Grant proposal  
 Research in progress  
 Other:

**17 Type of institution / organization 3:**

**Only answer this question if the following conditions are met:**  
 ° Answer was Y at question '8 [6]' ( During the past 3 years, did you have academic or professional collaborations outside your institution? if so please list below the institutions or organizations with whom you have collaborated: (Please check and list up to 5 institutions) )

Please choose **only one** of the following:

Government  
 Higher education institution  
 Industry  
 Non-for profit organization  
 Other

**18 Main focus of the collaboration with institution / organization 3:**

**Only answer this question if the following conditions are met:**  
 ° Answer was Y at question '8 [6]' ( During the past 3 years, did you have academic or professional collaborations outside your institution? if so please list below the institutions or organizations with whom you have collaborated: (Please check and list up to 5 institutions) )

Please choose **only one** of the following:

Mainly research focused  
 Mainly teaching focused  
 Mainly service/3rd mission focused

**19 Collaboration with institution / organization 3:**

**Only answer this question if the following conditions are met:**  
 ° Answer was Y at question '8 [6]' ( During the past 3 years, did you have academic or professional collaborations outside your institution? if so please list below the institutions or organizations with whom you have collaborated: (Please check and list up to 5 institutions) )

Please choose the appropriate response for each item:

	Somewhat relevant		Very relevant
Not relevant at all		Relevant	

	Not relevant at all	Somewhat relevant	Relevant	Very relevant
Relevance of this collaboration for your academic work:	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**20 Outcome of this collaboration with institution / organization 3:**

**Only answer this question if the following conditions are met:**

° Answer was Y at question '8 [6]' ( During the past 3 years, did you have academic or professional collaborations outside your institution? if so please list below the institutions or organizations with whom you have collaborated: (Please check and list up to 5 institutions) )

Please choose **all** that apply:

- Scholarly books (authored)
- Scholarly books (edited)
- Book chapters
- Articles in international peer-review journals
- Articles in national peer-review journals
- Research report written for a funded project
- Conference paper
- Patent or invention
- Software
- Artistic work
- Video or film
- Newspaper/magazine article
- Grant proposal
- Research in progress
- Other:

**21 Type of institution / organization 4:**

**Only answer this question if the following conditions are met:**

° Answer was Y at question '8 [6]' ( During the past 3 years, did you have academic or professional collaborations outside your institution? if so please list below the institutions or organizations with whom you have collaborated: (Please check and list up to 5 institutions) )

Please choose **only one** of the following:

- Government
- Higher education institution
- Industry
- Non-for profit organization
- Other

**22 Main focus of the collaboration with institution / organization 4:**

**Only answer this question if the following conditions are met:**



° Answer was Y at question '8 [6]' ( During the past 3 years, did you have academic or professional collaborations outside your institution? if so please list below the institutions or organizations with whom you have collaborated: (Please check and list up to 5 institutions) )

Please choose **only one** of the following:

- Mainly research focused
- Mainly teaching focused
- Mainly service/3rd mission focused

**23 Collaboration with institution / organization 4:**

**Only answer this question if the following conditions are met:**

° Answer was Y at question '8 [6]' ( During the past 3 years, did you have academic or professional collaborations outside your institution? if so please list below the institutions or organizations with whom you have collaborated: (Please check and list up to 5 institutions) )

Please choose the appropriate response for each item:

	Not relevant at all	Somewhat relevant	Relevant	Very relevant
Relevance of this collaboration for your academic work:	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**24 Outcome of this collaboration with institution / organization 4:**

**Only answer this question if the following conditions are met:**

° Answer was Y at question '8 [6]' ( During the past 3 years, did you have academic or professional collaborations outside your institution? if so please list below the institutions or organizations with whom you have collaborated: (Please check and list up to 5 institutions) )

Please choose **all** that apply:

- Scholarly books (authored)
- Scholarly books (edited)
- Book chapters
- Articles in international peer-review journals
- Articles in national peer-review journals
- Research report written for a funded project
- Conference paper
- Patent or invention
- Software
- Artistic work
- Video or film
- Newspaper/magazine article
- Grant proposal
- Research in progress
- Other:

**25 Type of institution / organization 5:**

**Only answer this question if the following conditions are met:**  
° Answer was Y at question '8 [6]' ( During the past 3 years, did you have academic or professional collaborations outside your institution? if so please list below the institutions or organizations with whom you have collaborated: (Please check and list up to 5 institutions) )

Please choose **only one** of the following:

- Government
- Higher education institution
- Industry
- Non-for profit organization
- Other

**26 Main focus of the collaboration with institution / organization 5:**

**Only answer this question if the following conditions are met:**  
° Answer was Y at question '8 [6]' ( During the past 3 years, did you have academic or professional collaborations outside your institution? if so please list below the institutions or organizations with whom you have collaborated: (Please check and list up to 5 institutions) )

Please choose **only one** of the following:

- Mainly research focused
- Mainly teaching focused
- Mainly service/3rd mission focused

**27 Collaboration with institution / organization 5:**

**Only answer this question if the following conditions are met:**  
° Answer was Y at question '8 [6]' ( During the past 3 years, did you have academic or professional collaborations outside your institution? if so please list below the institutions or organizations with whom you have collaborated: (Please check and list up to 5 institutions) )

Please choose the appropriate response for each item:

	Not relevant at all	Somewhat relevant	Relevant	Very relevant
Relevance of this collaboration for your academic work:	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**28 Outcome of this collaboration with institution / organization 5:**

**Only answer this question if the following conditions are met:**  
° Answer was Y at question '8 [6]' ( During the past 3 years, did you have academic or professional collaborations outside your institution? if so please list below the institutions or organizations with whom you have collaborated: (Please check and list up to 5 institutions) )

Please choose **all** that apply:

- Scholarly books (authored)
- Scholarly books (edited)
- Book chapters
- Articles in international peer-review journals
- Articles in national peer-review journals

- Research report written for a funded project
- Conference paper
- Patent or invention
- Software
- Artistic work
- Video or film
- Newspaper/magazine article
- Grant proposal
- Research in progress
- Other:

**C – SCHOLARLY CONTRIBUTIONS**

**29**

**How many of the following scholarly contributions have you completed in the past 3 years?**

**(Note: include those scholarly contributions that you authored and co-authored)**

Please enter a number between 0 and 300 for each item:

	Number of scholarly contributions	Of which, how many in collaboration?
Scholarly books (authored)	<input type="text"/>	<input type="text"/>
Scholarly books (edited)	<input type="text"/>	<input type="text"/>
Book chapters	<input type="text"/>	<input type="text"/>
Articles in international peer-review journals	<input type="text"/>	<input type="text"/>
Articles in national peer-review journals	<input type="text"/>	<input type="text"/>
Research report written for a funded project	<input type="text"/>	<input type="text"/>
Conference paper	<input type="text"/>	<input type="text"/>
Patent or invention	<input type="text"/>	<input type="text"/>
Software	<input type="text"/>	<input type="text"/>
Artistic work	<input type="text"/>	<input type="text"/>
Video or film	<input type="text"/>	<input type="text"/>
Newspaper/magazine article	<input type="text"/>	<input type="text"/>
Others	<input type="text"/>	<input type="text"/>

**30**

**Of the scholarly books developed in collaboration, with whom did you collaborate?**

**(Multiple answers allowed)**

Only answer this question if the following conditions are met:

\* Answer was greater than 0'0' at question '29 [7]' ( How many of the following scholarly contributions have you completed in the past 3 years? (Note: include those scholarly contributions that you authored and co-authored) )

Please choose all that apply:

- Advisor/Mentor
- Peer at your institution
- Peer at other national institution
  
- Peer based at institution based abroad
- Student
- Industry researcher

- Lab technician
- Other

**31**

**Of the scholarly books you edited or co-edited in collaboration, with whom did you collaborate?**

**(Multiple answers allowed)**

**Only answer this question if the following conditions are met:**

° Answer was greater than '0'0' at question '29 [7]' ( How many of the following scholarly contributions have you completed in the past 3 years? (Note: include those scholarly contributions that you authored and co-authored) )

Please choose **all** that apply:

- Advisor/Mentor
- Peer at your institution
- Peer at other national institution
- Peer based at institution based abroad
- Student
- Industry researcher
- Lab technician
- Other

**32**

**Of the articles published in an international peer-review journal developed in collaboration, with whom did you collaborate?**

**(Multiple answers allowed)**

**Only answer this question if the following conditions are met:**

° Answer was greater than '0'0' at question '29 [7]' ( How many of the following scholarly contributions have you completed in the past 3 years? (Note: include those scholarly contributions that you authored and co-authored) )

Please choose **all** that apply:

- Advisor/Mentor
- Peer at your institution
- Peer at other national institution
- Peer based at institution based abroad
- Student
- Industry researcher
- Lab technician
- Other

**33**

**Of the articles published in a national peer-review journal developed in collaboration, with whom did you collaborate?**

**(Multiple answers allowed)**

Only answer this question if the following conditions are met:

° Answer was greater than 0'0' at question '29 [7]' ( How many of the following scholarly contributions have you completed in the past 3 years? (Note: include those scholarly contributions that you authored and co-authored) )

Please choose all that apply:

- Advisor/Mentor
- Peer at your institution
- Peer at other national institution
  
- Peer based at institution based abroad
- Student
- Industry researcher
  
- Lab technician
- Other

**34**

**Of the book chapters developed in collaboration, with whom did you collaborate?**

**(Multiple answers allowed)**

Only answer this question if the following conditions are met:

° Answer was greater than 0'0' at question '29 [7]' ( How many of the following scholarly contributions have you completed in the past 3 years? (Note: include those scholarly contributions that you authored and co-authored) )

Please choose all that apply:

- Advisor/Mentor
- Peer at your institution
- Peer at other national institution
  
- Peer based at institution based abroad
- Student
- Industry researcher
  
- Lab technician
- Other

**35**

**Of the research reports/monographs written for funded projects developed in collaboration, with whom did you collaborate?**

**(Multiple answers allowed)**

**Only answer this question if the following conditions are met:**

° Answer was greater than 0'0' at question '29 [7]' ( How many of the following scholarly contributions have you completed in the past 3 years? (Note: include those scholarly contributions that you authored and co-authored) )

Please choose **all** that apply:

- Advisor/Mentor
- Peer at your institution
- Peer at other national institution
- Peer based at institution based abroad
- Student
- Industry researcher
- Lab technician
- Other

**36**

**Of the papers presented at scholarly conferences developed in collaboration, with whom did you collaborate?**

**(Multiple answers allowed)**

**Only answer this question if the following conditions are met:**

° Answer was greater than 0'0' at question '29 [7]' ( How many of the following scholarly contributions have you completed in the past 3 years? (Note: include those scholarly contributions that you authored and co-authored) )

Please choose **all** that apply:

- Advisor/Mentor
- Peer at your institution
- Peer at other national institution
- Peer based at institution based abroad
- Student
- Industry researcher
- Lab technician
- Other

**37**

**Of the articles written for a newspaper or magazine developed in collaboration, with whom did you collaborate?**

**(Multiple answers allowed)**

**Only answer this question if the following conditions are met:**

° Answer was greater than 0'0' at question '29 [7]' ( How many of the following scholarly contributions have you completed in the past 3 years? (Note: include those scholarly contributions that you authored and co-authored) )

Please choose **all** that apply:

- Advisor/Mentor
- Peer at your institution
- Peer at other national institution
  
- Peer based at institution based abroad
- Student
- Industry researcher
  
- Lab technician
- Other

**38**

**Of the patents or inventions developed in collaboration, with whom did you collaborate?**

**(Multiple answers allowed)**

**Only answer this question if the following conditions are met:**  
° Answer was greater than '0'0' at question '29 [7]' ( How many of the following scholarly contributions have you completed in the past 3 years? (Note: include those scholarly contributions that you authored and co-authored) )

Please choose **all** that apply:

- Advisor/Mentor
- Peer at your institution
- Peer at other national institution
  
- Peer based at institution based abroad
- Student
- Industry researcher
  
- Lab technician
- Other

**39**

**Of the computer programs/software developed in collaboration, with whom did you collaborate?**

**(Multiple answers allowed)**

**Only answer this question if the following conditions are met:**  
° Answer was greater than '0'0' at question '29 [7]' ( How many of the following scholarly contributions have you completed in the past 3 years? (Note: include those scholarly contributions that you authored and co-authored) )

Please choose **all** that apply:

- Advisor/Mentor
- Peer at your institution
- Peer at other national institution



- Peer based at institution based abroad
- Student
- Industry researcher
- Lab technician
- Other

**40**

**Of the artistic work performed or exhibited, and developed in collaboration, with whom did you collaborate?**

**(Multiple answers allowed)**

**Only answer this question if the following conditions are met:**

° Answer was greater than '0'0' at question '29 [7]' ( How many of the following scholarly contributions have you completed in the past 3 years? (Note: include those scholarly contributions that you authored and co-authored) )

Please choose **all** that apply:

- Advisor/Mentor
- Peer at your institution
- Peer at other national institution
- Peer based at institution based abroad
- Student
- Industry researcher
- Lab technician
- Other

**41**

**Of the videos or films developed in collaboration, with whom did you collaborate?**

**(Multiple answers allowed)**

**Only answer this question if the following conditions are met:**

° Answer was greater than '0'0' at question '29 [7]' ( How many of the following scholarly contributions have you completed in the past 3 years? (Note: include those scholarly contributions that you authored and co-authored) )

Please choose **all** that apply:

- Advisor/Mentor
- Peer at your institution
- Peer at other national institution
- Peer based at institution based abroad
- Student
- Industry researcher
- Lab technician

Other

**42**

**Of the other scholarly outputs developed in collaboration, with whom did you collaborate?**

**(Multiple answers allowed)**

Only answer this question if the following conditions are met:

\* Answer was greater than 0'0' at question '29 [7]' ( How many of the following scholarly contributions have you completed in the past 3 years? (Note: include those scholarly contributions that you authored and co-authored) )

Please choose **all** that apply:

- Advisor/Mentor
- Peer at your institution
- Peer at other national institution
  
- Peer based at institution based abroad
- Student
- Industry researcher
  
- Lab technician
- Other

## F – DEMOGRAPHIC INFORMATION

### 43 Year of birth

Please write your answer here:

### 44 Gender

Please choose **only one** of the following:

- Female
- Male

### 45 Nationality of birth:

Please choose **only one** of the following:

- Afghan
- Albanian
- Algerian
- American
- Andorran
- Angolan
- Antiguan
- Argentinean
- Armenian
- Australian
- Austrian
- Azerbaijani
- Bahamian
- Bahraini
- Bangladeshi
- Barbadian
- Barbudans
- Batswana
- Belarusian
- Belgian
- Belizean
- Beninese
- Bhutanese
- Bolivian
- Bosnian
- Brazilian

- British
- Bruneian
- Bulgarian
- Burkinabe
- Burmese
- Burundian
- Cambodian
- Cameroonian
- Canadian
- Cape Verdean
- Central African
- Chadian
- Chilean
- Chinese
- Colombian
- Comoran
- Congolese
- Costa Rican
- Croatian
- Cuban
- Cypriot
- Czech
- Danish
- Djibouti
- Dominican
- Dutch
- East Timorese
- Ecuadorean
- Egyptian
- Emirian
- Equatorial Guinean
- Eritrean
- Estonian
- Ethiopian
- Fijian
- Filipino
- Finnish
- French
- Gabonese
- Gambian
- Georgian
- German

- Ghanaian
- Greek
- Grenadian
- Guatemalan
- Guinea-Bissauan
- Guinean
- Guyanese
- Haitian
- Herzegovinian
- Honduran
- Hungarian
- I-Kiribati
- Icelander
- Indian
- Indonesian
- Iranian
- Iraqi
- Irish
- Israeli
- Italian
- Ivorian
- Jamaican
- Japanese
- Jordanian
- Kazakhstani
- Kenyan
- Kittian and Nevisian
- Kuwaiti
- Kyrgyz
- Laotian
- Latvian
- Lebanese
- Liberian
- Libyan
- Liechtensteiner
- Lithuanian
- Luxembourgger
- Macedonian
- Malagasy
- Malawian
- Malaysian
- Maldivan

- Malian
- Maltese
- Marshallese
- Mauritanian
- Mauritian
- Mexican
- Micronesian
- Moldovan
- Monacan
- Mongolian
- Moroccan
- Mosotho
- Motswana
- Mozambican
- Namibian
- Nauruan
- Nepalese
- New Zealander
- Nicaraguan
- Nigerian
- Nigerien
- North Korean
- Northern Irish
- Norwegian
- Omani
- Pakistani
- Palauan
- Panamanian
- Papua New Guinean
- Paraguayan
- Peruvian
- Polish
- Portuguese
- Qatari
- Romanian
- Russian
- Rwandan
- Saint Lucian
- Salvadoran
- Samoan
- San Marinese
- Sao Tomean

- Saudi
- Scottish
- Senegalese
- Serbian
- Seychellois
- Sierra Leonean
- Singaporean
- Slovakian
- Slovenian
- Solomon Islander
- Somali
- South African
- South Korean
- Spanish
- Sri Lankan
- Sudanese
- Surinamer
- Swazi
- Swedish
- Swiss
- Syrian
- Taiwanese
- Tajik
- Tanzanian
- Thai
- Togolese
- Tongan
- Trinidadian or Tobagonian
- Tunisian
- Turkish
- Tuvaluan
- Ugandan
- Ukrainian
- Uruguayan
- Uzbekistani
- Venezuelan
- Vietnamese
- Welsh
- Yemenite
- Zambian
- Zimbabwean
- Other

**46 Citizenship(s):**

Please choose **all** that apply:

- Algerian
- Afghan
- Albanian
- American
- Andorran
- Angolan
- Antiguans
- Argentinean
- Armenian
- Australian
- Austrian
- Azerbaijani
- Bahamian
- Bahraini
- Bangladeshi
- Barbadian
- Barbudans
- Botswana
- Belarusian
- Belgian
- Belizean
- Beninese
- Bhutanese
- Bolivian
- Bosnian
- Brazilian
- British
- Bruneian
- Bulgarian
- Burkinabe
- Burmese
- Burundian
- Cambodian
  
- Cameroonian
- Canadian
- Cape Verdean
- Central African
- Chadian



- Chilean
- Chinese
- Colombian
- Comoran
- Congolese
- Costa Rican
- Croatian
- Cuban
- Cypriot
- Czech
- Danish
- Djibouti
- Dominican
- Dutch
- East Timorese
- Ecuadorean
- Egyptian
- Emirian
- Equatorial Guinean
- Eritrean
- Estonian
- Ethiopian
- Fijian
- Filipino
- Finnish
- French
- Gabonese
- Gambian
  
- Georgian
- German
- Ghanaian
- Greek
- Grenadian
- Guatemalan
- Guinea-Bissauan
- Guinean
- Guyanese
- Haitian
- Herzegovinian
- Honduran
- Hungarian

- I-Kiribati
- Icelander
- Indian
- Indonesian
- Iranian
- Iraqi
- Irish
- Israeli
- Italian
- Ivorian
- Jamaican
- Japanese
- Jordanian
- Kazakhstani
- Kenyan
- Kittian and Nevisian
- Kuwaiti
- Kyrgyz
- Laotian
- Latvian
  
- Lebanese
- Liberian
- Libyan
- Liechtensteiner
- Lithuanian
- Luxembourger
- Macedonian
- Malagasy
- Malawian
- Malaysian
- Maldivan
- Malian
- Maltese
- Marshallese
- Mauritanian
- Mauritian
- Mexican
- Micronesian
- Moldovan
- Monacan
- Mongolian

- Moroccan
- Mosotho
- Motswana
- Mozambican
- Namibian
- Nauruan
- Nepalese
- New Zealander
- Nicaraguan
- Nigerian
- Nigerien
- North Korean
  
- Northern Irish
- Norwegian
- Omani
- Pakistani
- Palauan
- Panamanian
- Papua New Guinean
- Paraguayan
- Peruvian
- Polish
- Portuguese
- Qatari
- Romanian
- Russian
- Rwandan
- Saint Lucian
- Salvadoran
- Samoan
- San Marinese
- Sao Tomean
- Saudi
- Scottish
- Senegalese
- Serbian
- Seychellois
- Sierra Leonean
- Singaporean
- Slovakian
- Slovenian

- Solomon Islander
- Somali
- South African
- South Korean
  
- Spanish
- Sri Lankan
- Sudanese
- Surinamer
- Swazi
- Swedish
- Swiss
- Syrian
- Taiwanese
- Tajik
- Tanzanian
- Thai
- Togolese
- Tongan
- Trinidadian or Tobagonian
- Tunisian
- Turkish
- Tuvaluan
- Ugandan
- Ukrainian
- Uruguayan
- Uzbekistani
- Venezuelan
- Vietnamese
- Welsh
- Yemenite
- Zambian
- Zimbabwean
- Other

# CINHEKS\_USA

There are 32 questions in this survey

## A. EDUCATION AND EMPLOYMENT

**1**

**In how many institutions/organizations do you work?**

**(By institutions/organizations where you work we mean those institutions/organizations where you perform teaching, research or other professional activities without necessarily implying that these institutions/organizations are your employers.)**

Please write your answer here:

**2**

**Please list the position(s) you currently have and the ones held in the past 5 years providing some information about each one:**

**(Start from the current position where you work)**

	Title of position	Name of institution/organization	From (year)	To (year)
Current position	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Other position (or previous position that you have held)	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Other position (or previous position that you have held)	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Other position (or previous position that you have held)	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Other position (or previous position that you have held)	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

position that you have held)	Title of position	Name of institution/organization	From (year)	To (year)
---------------------------------------	-------------------	-------------------------------------	-------------	-----------

### 3 Main scientific field of your current academic activity

Please choose **only one** of the following:

- Mathematics
- Computer and information sciences
- Physical sciences
- Chemical sciences
- Earth and related environmental sciences
- Biological sciences
- Other natural sciences
- Civil engineering
- Electrical engineering, electronic engineering, information engineering
- Mechanical engineering
- Chemical engineering
- Materials engineering
- Medical engineering
- Environmental engineering
- Environmental biotechnology
- Industrial Biotechnology
- Nano-technology
- Other engineering and technologies
- Basic medicine
- Clinical medicine
- Health sciences
- Health biotechnology
- Other medical sciences
- Agriculture, forestry, and fisheries
- Animal and dairy science
- Veterinary science
- Agricultural biotechnology
- Other agricultural sciences
- Psychology
- Economics and business
- Educational sciences
- Sociology
- Law
- Political Science

- Social and economic geography
- Media and communications
- Other social sciences
- History and archaeology
- Languages and literature
- Philosophy, ethics and religion
- Art (arts, history of arts, performing arts, music)
- Other humanities

#### 4 What is the highest degree of education you attained?

Please choose **only one** of the following:

- PhD
- Master's degree
- Bachelor's degree
- Other

#### 5 University / institution where you obtained your highest educational degree:

**Only answer this question if the following conditions are met:**

° Answer was -oth-'PhD' or 'Master's degree' or 'Bachelor's degree' or 'Other' at question '4 [4]' (What is the highest degree of education you attained?) and Answer was A1'PhD' or 'Master's degree' or 'Bachelor's degree' or 'Other' at question '4 [4]' (What is the highest degree of education you attained?) and Answer was A2'PhD' or 'Master's degree' or 'Bachelor's degree' or 'Other' at question '4 [4]' (What is the highest degree of education you attained?) and Answer was A3'PhD' or 'Master's degree' or 'Bachelor's degree' or 'Other' at question '4 [4]' (What is the highest degree of education you attained?)

Please write your answer here:

#### 6 Year of graduation of the highest degree of education you attained:

**Only answer this question if the following conditions are met:**

° Answer was -oth-'PhD' or 'Master's degree' or 'Bachelor's degree' or 'Other' at question '4 [4]' (What is the highest degree of education you attained?) and Answer was A1'PhD' or 'Master's degree' or 'Bachelor's degree' or 'Other' at question '4 [4]' (What is the highest degree of education you attained?) and Answer was A2'PhD' or 'Master's degree' or 'Bachelor's degree' or 'Other' at question '4 [4]' (What is the highest degree of education you attained?) and Answer was A3'PhD' or 'Master's degree' or 'Bachelor's degree' or 'Other' at question '4 [4]' (What is the highest degree of education you attained?)

Please choose **only one** of the following:

- 2011
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- 1941
- 1940

**7****Main academic field of your highest degree:**

Please choose **only one** of the following:

- Mathematics
- Computer and information sciences
- Physical sciences
- Chemical sciences
- Earth and related Environmental sciences
- Biological sciences
- Other natural sciences
- Civil engineering
- Electrical engineering, Electronic engineering, Information engineering
- Mechanical engineering
- Chemical engineering
- Materials engineering
- Medical engineering
- Environmental engineering

- Environmental biotechnology
- Industrial biotechnology
- Nano-technology
- Other engineering and technologies
- Basic medicine
- Clinical medicine
- Health sciences
- Health biotechnology
- Other medical sciences
- Agriculture, Forestry, and Fisheries
- Animal and Dairy science
- Veterinary science
- Agricultural biotechnology
- Other agricultural sciences
- Psychology
- Economics and Business
- Educational sciences
- Sociology
- Law
- Political science
- Social and economic geography
- Media and communications
- Other social sciences
- History and Archaeology
- Languages and Literature
- Philosophy, Ethics and Religion
- Arts (arts, history of arts, performing arts, music)
- Other humanities

## B - ACADEMIC NETWORKS

**8**

**During the past 3 years, did you have academic or professional collaborations outside your institution? if so please list below the institutions with whom you have collaborated:**

**(Please check and list up to 5 institutions)**

Please choose all that apply and provide a comment:

Institution 1

Institution 2

Institution 3

Institution 4

Institution 5

**9 Type of institution 1:**

**Only answer this question if the following conditions are met:**  
 ° Answer was Y at question '8 [6]' ( During the past 3 years, did you have academic or professional collaborations outside your institution? if so please list below the institutions with whom you have collaborated: (Please check and list up to 5 institutions) )

Please choose **only one** of the following:

Government

Higher education institution

Industry

Non-for profit organization

Other

**10 Main focus of the collaboration with institution 1:**

**Only answer this question if the following conditions are met:**  
 ° Answer was Y at question '8 [6]' ( During the past 3 years, did you have academic or professional collaborations outside your institution? if so please list below the institutions with whom you have collaborated: (Please check and list up to 5 institutions) )

Please choose **only one** of the following:

Mainly research focused

Mainly teaching focused

Mainly service/3rd mission focused

**11 Collaboration with institution 1:**

**Only answer this question if the following conditions are met:**  
 ° Answer was Y at question '8 [6]' ( During the past 3 years, did you have academic or professional collaborations outside

your institution? if so please list below the institutions with whom you have collaborated: (Please check and list up to 5 institutions) )

Please choose the appropriate response for each item:

	Not relevant at all	Somewhat relevant	Relevant	Very relevant
Relevance of this collaboration for your academic work:	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**12 Outcome of this collaboration with institution 1:**

**Only answer this question if the following conditions are met:**  
° Answer was Y at question '8 [6]' ( During the past 3 years, did you have academic or professional collaborations outside your institution? if so please list below the institutions with whom you have collaborated: (Please check and list up to 5 institutions) )

Please choose **all** that apply:

- Scholarly books (authored)
- Scholarly books (edited)
- Book chapters
- Articles in international peer-review journals
- Articles in national peer-review journals
- Research report written for a funded project
- Conference paper
- Patent or invention
- Software
- Artistic work
- Video or film
- Newspaper/magazine article
- Grant proposal
- Research in progress
- Other:

**13 Type of institution 2:**

**Only answer this question if the following conditions are met:**  
° Answer was Y at question '8 [6]' ( During the past 3 years, did you have academic or professional collaborations outside your institution? if so please list below the institutions with whom you have collaborated: (Please check and list up to 5 institutions) )

Please choose **only one** of the following:

- Government
- Higher education institution
- Industry
- Non-for profit organization
- Other

**14 Main focus of the collaboration with institution 2:**

**Only answer this question if the following conditions are met:**

° Answer was Y at question '8 [6]' ( During the past 3 years, did you have academic or professional collaborations outside your institution? if so please list below the institutions with whom you have collaborated: (Please check and list up to 5 institutions) )

Please choose **only one** of the following:

- Mainly research focused
- Mainly teaching focused
- Mainly service/3rd mission focused

**15 Collaboration with institution 2:**

**Only answer this question if the following conditions are met:**

° Answer was Y at question '8 [6]' ( During the past 3 years, did you have academic or professional collaborations outside your institution? if so please list below the institutions with whom you have collaborated: (Please check and list up to 5 institutions) )

Please choose the appropriate response for each item:

	Not relevant at all	Somewhat relevant	Relevant	Very relevant
Relevance of this collaboration for your academic work:	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**16 Outcome of this collaboration with institution 2:**

**Only answer this question if the following conditions are met:**

° Answer was Y at question '8 [6]' ( During the past 3 years, did you have academic or professional collaborations outside your institution? if so please list below the institutions with whom you have collaborated: (Please check and list up to 5 institutions) )

Please choose **all** that apply:

- Scholarly books (authored)
- Scholarly books (edited)
- Book chapters
- Articles in international peer-review journals
- Articles in national peer-review journals
- Research report written for a funded project
- Conference paper
- Patent or invention
- Software
- Artistic work
- Video or film
- Newspaper/magazine article
- Grant proposal
- Research in progress
- Other:

**17 Type of institution 3:**

**Only answer this question if the following conditions are met:**

° Answer was Y at question '8 [6]' ( During the past 3 years, did you have academic or professional collaborations outside your institution? if so please list below the institutions with whom you have collaborated: (Please check and list up to 5 institutions) )

Please choose **only one** of the following:

- Government
- Higher education institution
- Industry
- Non-for profit organization
- Other

**18 Main focus of the collaboration with institution 3:**

**Only answer this question if the following conditions are met:**

° Answer was Y at question '8 [6]' ( During the past 3 years, did you have academic or professional collaborations outside your institution? if so please list below the institutions with whom you have collaborated: (Please check and list up to 5 institutions) )

Please choose **only one** of the following:

- Mainly research focused

- Mainly teaching focused
- Mainly service/3rd mission focused

**19 Collaboration with institution 3:**

**Only answer this question if the following conditions are met:**

° Answer was Y at question '8 [6]' ( During the past 3 years, did you have academic or professional collaborations outside your institution? if so please list below the institutions with whom you have collaborated: (Please check and list up to 5 institutions) )

Please choose the appropriate response for each item:

	Not relevant at all	Somewhat relevant	Relevant	Very relevant
Relevance of this collaboration for your academic work:	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**20 Outcome of this collaboration with institution 3:**

**Only answer this question if the following conditions are met:**

° Answer was Y at question '8 [6]' ( During the past 3 years, did you have academic or professional collaborations outside your institution? if so please list below the institutions with whom you have collaborated: (Please check and list up to 5 institutions) )

Please choose **all** that apply:

- Scholarly books (authored)
- Scholarly books (edited)
- Book chapters
- Articles in international peer-review journals
- Articles in national peer-review journals
- Research report written for a funded project
- Conference paper
- Patent or invention
- Software
- Artistic work
- Video or film
- Newspaper/magazine article
- Grant proposal
- Research in progress
- Other:

**21 Type of institution 4:**

**Only answer this question if the following conditions are met:**

° Answer was Y at question '8 [6]' ( During the past 3 years, did you have academic or professional collaborations outside your institution? if so please list below the institutions with whom you have collaborated: (Please check and list up to 5 institutions) )

Please choose **only one** of the following:

- Government
- Higher education institution
- Industry
- Non-for profit organization
- Other

**22 Main focus of the collaboration with institution 4:**

**Only answer this question if the following conditions are met:**  
 ° Answer was Y at question '8 [6]' ( During the past 3 years, did you have academic or professional collaborations outside your institution? if so please list below the institutions with whom you have collaborated: (Please check and list up to 5 institutions) )

Please choose **only one** of the following:

- Mainly research focused
- Mainly teaching focused
- Mainly service/3rd mission focused

**23 Collaboration with institution 4:**

**Only answer this question if the following conditions are met:**  
 ° Answer was Y at question '8 [6]' ( During the past 3 years, did you have academic or professional collaborations outside your institution? if so please list below the institutions with whom you have collaborated: (Please check and list up to 5 institutions) )

Please choose the appropriate response for each item:

	Not relevant at all	Somewhat relevant	Relevant	Very relevant
Relevance of this collaboration for your academic work:	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**24 Outcome of this collaboration with institution 4:**

**Only answer this question if the following conditions are met:**  
 ° Answer was Y at question '8 [6]' ( During the past 3 years, did you have academic or professional collaborations outside your institution? if so please list below the institutions with whom you have collaborated: (Please check and list up to 5 institutions) )

Please choose **all** that apply:

- Scholarly books (authored)
- Scholarly books (edited)
- Book chapters
- Articles in international peer-review journals
- Articles in national peer-review journals
- Research report written for a funded project
- Conference paper
- Patent or invention
- Software



Artistic work  
 Video or film  
 Newspaper/magazine article  
 Grant proposal  
 Research in progress  
 Other:

**25 Type of institution 5:**

**Only answer this question if the following conditions are met:**  
 ° Answer was Y at question '8 [6]' ( During the past 3 years, did you have academic or professional collaborations outside your institution? if so please list below the institutions with whom you have collaborated: (Please check and list up to 5 institutions) )

Please choose **only one** of the following:

Government  
 Higher education institution  
 Industry  
 Non-for profit organization  
 Other

**26 Main focus of the collaboration with institution 5:**

**Only answer this question if the following conditions are met:**  
 ° Answer was Y at question '8 [6]' ( During the past 3 years, did you have academic or professional collaborations outside your institution? if so please list below the institutions with whom you have collaborated: (Please check and list up to 5 institutions) )

Please choose **only one** of the following:

Mainly research focused  
 Mainly teaching focused  
 Mainly service/3rd mission focused

**27 Collaboration with institution 5:**

**Only answer this question if the following conditions are met:**  
 ° Answer was Y at question '8 [6]' ( During the past 3 years, did you have academic or professional collaborations outside your institution? if so please list below the institutions with whom you have collaborated: (Please check and list up to 5 institutions) )

Please choose the appropriate response for each item:

	Not relevant at all	Somewhat relevant	Relevant	Very relevant
Relevance of this collaboration for your academic work:	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**28 Outcome of this collaboration with institution 5:**

**Only answer this question if the following conditions are met:**

\* Answer was Y at question '8 [6]' ( During the past 3 years, did you have academic or professional collaborations outside your institution? if so please list below the institutions with whom you have collaborated: (Please check and list up to 5 institutions) )

Please choose **all** that apply:

- Scholarly books (authored)
- Scholarly books (edited)
- Book chapters
- Articles in international peer-review journals
- Articles in national peer-review journals
- Research report written for a funded project
- Conference paper
- Patent or invention
- Software
- Artistic work
- Video or film
- Newspaper/magazine article
- Grant proposal
- Research in progress
- Other:

**C – DEMOGRAPHIC INFORMATION****29 Year of birth**

Please write your answer here:

**30 Gender**

Please choose **only one** of the following:

- Female  
 Male

**31 Nationality of birth:**

Please choose **only one** of the following:

- Afghan  
 Albanian  
 Algerian  
 American  
 Andorran  
 Angolan  
 Antiguan  
 Argentinean  
 Armenian  
 Australian  
 Austrian  
 Azerbaijani  
 Bahamian  
 Bahraini  
 Bangladeshi  
 Barbadian  
 Barbudans  
 Batswana  
 Belarusian  
 Belgian  
 Belizean  
 Beninese  
 Bhutanese  
 Bolivian  
 Bosnian  
 Brazilian

- British
- Bruneian
- Bulgarian
- Burkinabe
- Burmese
- Burundian
- Cambodian
- Cameroonion
- Canadian
- Cape Verdean
- Central African
- Chadian
- Chilean
- Chinese
- Colombian
- Comoran
- Congolese
- Costa Rican
- Croatian
- Cuban
- Cypriot
- Czech
- Danish
- Djibouti
- Dominican
- Dutch
- East Timorese
- Ecuadorean
- Egyptian
- Emirian
- Equatorial Guinean
- Eritrean
- Estonian
- Ethiopian
- Fijian
- Filipino
- Finnish
- French
- Gabonese
- Gambian
- Georgian
- German

- Ghanaian
- Greek
- Grenadian
- Guatemalan
- Guinea-Bissauan
- Guinean
- Guyanese
- Haitian
- Herzegovinian
- Honduran
- Hungarian
- I-Kiribati
- Icelander
- Indian
- Indonesian
- Iranian
- Iraqi
- Irish
- Israeli
- Italian
- Ivorian
- Jamaican
- Japanese
- Jordanian
- Kazakhstani
- Kenyan
- Kittian and Nevisian
- Kuwaiti
- Kyrgyz
- Laotian
- Latvian
- Lebanese
- Liberian
- Libyan
- Liechtensteiner
- Lithuanian
- Luxembourgger
- Macedonian
- Malagasy
- Malawian
- Malaysian
- Maldivan

- Malian
- Maltese
- Marshallese
- Mauritanian
- Mauritian
- Mexican
- Micronesian
- Moldovan
- Monacan
- Mongolian
- Moroccan
- Mosotho
- Motswana
- Mozambican
- Namibian
- Nauruan
- Nepalese
- New Zealander
- Nicaraguan
- Nigerian
- Nigerien
- North Korean
- Northern Irish
- Norwegian
- Omani
- Pakistani
- Palauan
- Panamanian
- Papua New Guinean
- Paraguayan
- Peruvian
- Polish
- Portuguese
- Qatari
- Romanian
- Russian
- Rwandan
- Saint Lucian
- Salvadoran
- Samoan
- San Marinese
- Sao Tomean

- Saudi
- Scottish
- Senegalese
- Serbian
- Seychellois
- Sierra Leonean
- Singaporean
- Slovakian
- Slovenian
- Solomon Islander
- Somali
- South African
- South Korean
- Spanish
- Sri Lankan
- Sudanese
- Surinamer
- Swazi
- Swedish
- Swiss
- Syrian
- Taiwanese
- Tajik
- Tanzanian
- Thai
- Togolese
- Tongan
- Trinidadian or Tobagonian
- Tunisian
- Turkish
- Tuvaluan
- Ugandan
- Ukrainian
- Uruguayan
- Uzbekistani
- Venezuelan
- Vietnamese
- Welsh
- Yemenite
- Zambian
- Zimbabwean
- Other

**32 Citizenship(s):**

Please choose **all** that apply:

- Algerian
- Afghan
- Albanian
- American
- Andorran
- Angolan
- Antiguan
- Argentinean
- Armenian
- Australian
- Austrian
- Azerbaijani
- Bahamian
- Bahraini
- Bangladeshi
- Barbadian
- Barbudans
- Botswana
- Belarusian
- Belgian
- Belizean
- Beninese
- Bhutanese
- Bolivian
- Bosnian
- Brazilian
- British
- Bruneian
- Bulgarian
- Burkinabe
- Burmese
- Burundian
- Cambodian
  
- Cameroonian
- Canadian
- Cape Verdean
- Central African
- Chadian



- Chilean
- Chinese
- Colombian
- Comoran
- Congolese
- Costa Rican
- Croatian
- Cuban
- Cypriot
- Czech
- Danish
- Djibouti
- Dominican
- Dutch
- East Timorese
- Ecuadorean
- Egyptian
- Emirian
- Equatorial Guinean
- Eritrean
- Estonian
- Ethiopian
- Fijian
- Filipino
- Finnish
- French
- Gabonese
- Gambian
  
- Georgian
- German
- Ghanaian
- Greek
- Grenadian
- Guatemalan
- Guinea-Bissauan
- Guinean
- Guyanese
- Haitian
- Herzegovinian
- Honduran
- Hungarian

- I-Kiribati
- Icelander
- Indian
- Indonesian
- Iranian
- Iraqi
- Irish
- Israeli
- Italian
- Ivorian
- Jamaican
- Japanese
- Jordanian
- Kazakhstani
- Kenyan
- Kittian and Nevisian
- Kuwaiti
- Kyrgyz
- Laotian
- Latvian
  
- Lebanese
- Liberian
- Libyan
- Liechtensteiner
- Lithuanian
- Luxembourger
- Macedonian
- Malagasy
- Malawian
- Malaysian
- Maldivian
- Malian
- Maltese
- Marshallese
- Mauritanian
- Mauritian
- Mexican
- Micronesian
- Moldovan
- Monacan
- Mongolian

- Moroccan
- Mosotho
- Motswana
- Mozambican
- Namibian
- Nauruan
- Nepalese
- New Zealander
- Nicaraguan
- Nigerian
- Nigerien
- North Korean
  
- Northern Irish
- Norwegian
- Omani
- Pakistani
- Palauan
- Panamanian
- Papua New Guinean
- Paraguayan
- Peruvian
- Polish
- Portuguese
- Qatari
- Romanian
- Russian
- Rwandan
- Saint Lucian
- Salvadoran
- Samoan
- San Marinese
- Sao Tomean
- Saudi
- Scottish
- Senegalese
- Serbian
- Seychellois
- Sierra Leonean
- Singaporean
- Slovakian
- Slovenian

- Solomon Islander
- Somali
- South African
- South Korean
  
- Spanish
- Sri Lankan
- Sudanese
- Surinamer
- Swazi
- Swedish
- Swiss
- Syrian
- Taiwanese
- Tajik
- Tanzanian
- Thai
- Togolese
- Tongan
- Trinidadian or Tobagonian
- Tunisian
- Turkish
- Tuvaluan
- Ugandan
- Ukrainian
- Uruguayan
- Uzbekistani
- Venezuelan
- Vietnamese
- Welsh
- Yemenite
- Zambian
- Zimbabwean
- Other

## Appendix D

### *The CINHEKS Open Access Approach to Further Research and Collaboration*

[www.eurohesc.net](http://www.eurohesc.net)

As we put the textbook based on the CINHEKS study into production, it's easy to be satisfied with the theoretical, conceptual, empirical and methodological outcomes of our comparative study. Yet, in other ways it feels like we barely scratched the surface. Mainly, this is because of the narrow geographical scope of the study and the nagging realization that many of the most interesting continents, regions, countries, communities, cultures, societies and higher education institutions were outside the direct scope of our comparison.

Because of this, we applied for a modest grant from the European Science Foundation (ESF), which generously agreed to assist those of us who wish to develop new collaborations. The most obvious ways forward are based on the approaches we developed in the initial CINHEKS study and especially improving and further developing the theory, concepts, and the initial set of methodological approaches and tools that were used – in new and different settings.

On the site [www.eurohesc.net](http://www.eurohesc.net) we have focused our efforts on a new network or community, focused at its core on new studies and collaborations, based on the principles of open science. As soon as practical, online versions of the CINHEKS *HEI profile*, *interview protocol* and *sample surveys* will be made available to anyone who would like to download them, improve them and initiate or participate in new scholarly collaborations based on this core set of tools. That said, in addition to replication and development work it is our hope that another aspect of CINHEKS might continue in our new community. Specifically, that *new ideas and collaborations*, limited only by our imaginations, might begin.

In order to carry out future efforts in the framework of **open science**, Appendices A, B, C & D may be used and developed under the **Attribution-NonCommercial.ShareAlike 4.0 International License** (<https://creativecommons.org/licenses/by-nc-sa/4.0/>) as defined within the **Creative Commons** (<https://creativecommons.org/>).

While replication studies, the development and critique of our findings, theory, methods or brand new ideas remain to be seen, we extend an invitation to you to visit our community at [www.eurohesc.net](http://www.eurohesc.net) to see what might be possible within and across networked knowledge societies. Hope to meet you there!

Sincerely, the development team of [www.eurohesc.net](http://www.eurohesc.net)

David Hoffman, Yoav Assa, Andrés Emilio Fernández Vergara, Aurelia Kollasch, Anna Smolentseva, Brigida Blasi and Hugo Horta

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