Reform of Higher Education in Europe

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TABLE OF CONTENTS

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1. REFORM OF HIGHER EDUCATION IN EUROPE

1.1 AN INTRODUCTION

Nowhere today is higher education undergoing more substantial change than in Europe. As countries pursue policies designed to integrate their economies, political systems and social structures, it is becoming increasingly clear that higher education, research and innovation are critical components to fully realising the potential gains stemming from the changes ahead. This very idea has been espoused in several high-level European wide processes and has given rise to a series of ambitious goals and objectives designed to ensure long term European pre-eminence as both a knowledge producer and transmitter. European higher education systems have shown themselves to be no stranger to political reform: for the better part of three decades the sector has been included in the much broader national and international—even global—reforms in Western and Eastern Europe. In order to celebrate the twenty-fifth anniversary of our Center for Higher Education Policy Studies, former and current CHEPS staff have written the chapters of this book analysing and reflecting on issues of reform in European higher education. This introduction provides a brief overview of some of the major issues at stake in European higher education and introduces the contributions to this book.

European higher education systems have always undergone political reform; since the late 1990s, though, the rate of intended change has accelerated to unprecedented levels, largely on the shoulders of two key developments: the Bologna Declaration (1999), whose objective is to make the European higher education systems more competitive and attractive and the EU's Lisbon Strategy (2000), which seeks to reform the continent's still fragmented higher education systems into a more powerful and more integrated, knowledge-based economy. The EU's Modernisation Agenda (2007) highlights education, research, innovation and the modernisation of higher education institutions as important pillars of the Lisbon Strategy. Appropriate governance and funding structures and processes are regarded as a precondition to achieve these goals.

The Sorbonne Declaration of 1998 constituted the first signal of the preference of major European countries (France, Germany, Italy and the UK) for a more compatible and comparable set of European higher education systems while preserving the rich diversity of teaching, learning styles and higher education cultures. In Bologna one year later, 25 other European countries joined the original four. At each biannual ministerial follow-up conference since, more countries have joined the fray and by 2010 the total number of countries had reached 47. Though the

diversity within European higher education is regarded as one of its major strengths, at the same time a common path towards transparency, quality, growth, efficiency and excellence is regarded a prerequisite for making Europe one of the strongest educational and economic leaders in the world.

The Bologna Process aimed at the establishment of a European Higher Education Area by 2010, and Westerheijden et al. (2010) have recently assessed the first decade of working on it. While signatory countries have to some extent interpreted the Declaration in their own ways, the process rapidly achieved a wide acceptance. Focusing at first on reforming study programmes into the two-cycle 'bachelor-master' structure, concerns about comparability soon pushed quality assurance and accreditation and degree recognition firmly into the mix. Bologna's perspective broadened in Berlin (2003) with the inclusion of the Ph.D. as the third cycle and with linking the European Higher Education Area with the European Research Area. The third cycle was discussed again in Bergen (2005) through the explicit mentioning of 'the importance of higher education in further enhancing research and the importance of research in underpinning higher education for the economic and cultural development of our societies and for social cohesion.' The London communiqué (2007) stressed steps towards more student-centred higher education, and the increase in mobility between cycles and internationally. Important progress was made towards a European Qualifications Framework (EQF) adopted in April 2008 and the European Register of Quality Assurance Agencies (EQAR) was initiated in June 2008. In the 2009 follow-up conference in Leuven/Louvain-la-Neuve, the latest one before the writing of this book, the development of instruments to facilitate transparency came to the forefront.

In this book, *Marike Faber and Don Westerheijden* analyse multi-level policy dynamics in the context of the Bologna process in their contribution *European Degree Structure and National Reform: Constitutive Dynamics of the Bologna Process*. In their comparative analysis of national case studies they find that 'Bologna' was deployed as additional support for initiating changes of national higher education systems while 'Bologna' also brought about European pressure that affected national higher education policies. Although the Bologna agreement is a non-binding construction in a legal perspective, national actors can conceive of striving towards a common European degree structure as coercion. National technical changes in degree structure can be interpreted as having created a symbolic outcome in the creation of a European higher education system based on a common degree structure: there is unity in a European dimension at face value, while diversity at the national levels continues.

In her contribution, *Reform of Doctoral Training in Europe: A Silent Revolution?*, *Andrea Kottmann* argues that attempts to reform doctoral education increasingly move from the national to the European level. The 2003 Berlin Communiqué of the Bologna process can be seen as a starting point for this shift in the discussion. It stated that doctoral studies should be regarded as a third cycle in the Bologna reform, but at the same time diversity was explicitly to be maintained. Yet a 'silent revolution' towards more convergence has taken place. Kottmann argues that international organisations play a crucial role in disseminating policies, for example by publishing handbooks and standards. She points in particular to the EUA and its Council

for Doctoral Education. At an operational level, this has allowed for maintenance of diversity including the number of years of doctoral training, but at a more abstract level, doctoral education has shifted from an individual to an institutional responsibility. Not only international organisations, but also higher education institutions acquire more actorhood through this type of European processes.

Maarja Beerkens and Hans Vossensteyn discuss a related though different issue of European multi-level policies in their contribution *The Effect of the ERASMUS Programme on European Higher Education: The Visible Hand of Europe.* They argue that through ERASMUS, the European Union has had quite a considerable effect on higher education in Europe. To facilitate a smooth mobility of students, higher education systems need to be compatible, educational quality must be transparent, and qualifications need to be comparable. Such needs have triggered major developments in European higher education, such as the Bologna degree reform, the ECTS, the European Qualifications Framework, and changes in quality assurance systems. As a result of these developments we also see new supranational organisations coming to prominence, such as ENQA and the European Quality Assurance Register. As predicted by the conceptual framework of trans-national societies, the cycle does not stop here but feeds further trans-nationalisation. As a result, there will be need for more regulation at the European level and greater roles for supra-national organisations.

In March 2000, the countries of the European Union committed themselves in the Lisbon Strategy to the ambitious objective of becoming 'the most competitive and dynamic knowledge-based economy in the world, capable of sustainable economic growth with more and better jobs and greater social cohesion.' European policy-makers' intentions took a more concrete form in 2003 when the operational goal of raising EU-countries' investments in R&D to 3% of GDP was outlined in Barcelona. Aggregate public investment in both education and research still lags behind that in the United States and it seems that EU member states' abilities to make further investments are limited. The investments differ significantly across countries and even more so across sub-national regions (Dill and Van Vught, 2008). Although state investments in research have grown since 2000, industry contributions grew only marginally. The mid-term evaluation report (EC 2004) showed that the Lisbon summit goals were very difficult to reach, partly due to weak economic growth in the larger member states and partly due to the fact that the design and the implementation of the policy actions rely on the member states and industry. Another mid-term review (EC 2006) on a similar note reported a gap between the political rhetoric about the knowledge society and the realities of political financial priorities. The Lisbon process was restarted with the New Lisbon Partnership for Growth and Jobs (EC 2005c) where 'knowledge and innovation for growth' have been identified as one of the three main areas for action. In 2010, the Lisbon strategy evolved into the EU Commission's strategy 'Europe 2020', responding to the economic crisis and broadening the agenda to overcome some of the shortcomings of the previous initiatives. For instance, the link with higher education was strengthened with the goal that by 2020, 40% of the population aged 30 to 34 ought to have achieved tertiary-level education.

In such a context, the European Commission has increasingly emphasised the role of universities in contributing to the knowledge society and economy (EC 2003, 2005a) 'Europe must strengthen the three poles of its knowledge triangle: education, research and innovation. Universities are essential in all three' (EC 2005b). The Commission found that governments have increasing difficulties to match the rising costs of science and providing quality education and excellent research. Lack of competitiveness has been one of the major challenges for European universities noted by the Commission since 2003. The major criticism lies in European universities failing to use their full potential to stimulate economic growth, social cohesion, and improvement in the quality and quantity of jobs. The European Commission identifies the following problems: the tendency of uniformity and egalitarianism in many national higher education systems, too much emphasis on mono-disciplinarity and traditional learning and learners; and too little world-class excellence (Dill and Van Vught, 2008). Despite these difficulties the Commission believes that the quality and attractiveness of European universities need to increase, human resources need to be strengthened, and the diversity of the European higher education system needs to be combined with increased compatibility.

In his contribution to this book *Responding to the EU Innovation Strategy: The Need for Institutional Profiling in European Higher Education and Research, Frans van Vught* addresses the EU's innovation strategy and its consequences for the European higher education landscape and more particularly its higher education and research institutions. The creation, transfer and application of knowledge are assumed to be of prime importance for a process of economic reorientation and further social and economic development and higher education and research institutions are vitally important here. After an elaborate presentation of the relevant EU policies, Van Vught discusses the expectations and challenges for the institutions in this global and European context. The need to increase enrolment and graduate numbers; the levels of access and equity; research performance and knowledge transfer capacity; private income; academic stratification and regional differentiation are all discussed. In response to these challenges Van Vught argues that higher education and research institutions need to design and implement clear and realistic institutional profiles.

The Sorbonne and Bologna Declarations, the Lisbon Strategy and the Modernisation Agenda have not been the only influences on European higher education institutions. In many European countries a series of reforms were already underway in the 1980s (in the West) and 1990s (in Central and Eastern Europe) and many current reform initiatives have their origin in this period. The changing role of the state vis-à-vis higher education institutions (i.e. in the form of enhancing institutional autonomy and stressing quality assurance and accountability) are well-known themes of the last two decades. This has been convincingly demonstrated in Neave's article on the rise of the evaluative state (Neave, 1988), and Eurydice's 2000 study on two decades of higher education reform. Globalisation, internationalisation, the fall of communism and privatisation have all done much to shape the current situation. Some examples are the growing importance of international profiling, international consortia, tuition fees, external research funds and the emergence of private higher

education institutions. If, however, one seeks a common thread that links these larger developments to the current state of European higher education reforms, then few would disagree that it is the growing recognition that higher education sectors are both remarkably complex and not immune to the pull of the market.

Behind the policy initiatives discussed above considerable attention has been given to the adoption of more market-type mechanisms and modern types of governance (Enders, 2002). Keywords like accountability and New Public Management or network governance ('state supervision', 'the evaluative state') are gradually replacing the traditional focus on state control and academic collegial governance. State control is giving way to more institutional management in the name of efficiency and responsiveness to society's diverse needs, demonstrated through new processes of accountability including quality assurance. Institutions are encouraged - some would argue forced - to increase their capacity and willingness to become engaged in the production of useful knowledge and relevant teaching. Through competition and greater institutional autonomy higher education institutions are stimulated to become more sensitive to their varied consumers' demands for relevance.

Two contributions to this book address the role of higher education for commercialisation and knowledge transfer. *Arend Zomer and Paul Benneworth* address *The Rise of the University's Third Mission*. They argue that commercialisation has become an intrinsic part of what universities do. The third mission was a response to demands from government, industry and other societal actors for universities to become more self-reliant as institutions (covering their costs) but at the same time creating benefits for a range of societal actors, principally by supporting business innovation and boosting national competitiveness. Over time, the idea of a third mission has acquired a degree of autonomy as something shaping not only debates about universities' societal impacts, but also the meaning of university. The idea continues to evolve, with successes being extended and failures leading to evolutionary dead-ends and policy lacunas, as policy-makers distance themselves from those failures.

Egbert de Weert's contribution, *Transformation or Systems Convergence? The Research Profile of Universities of Applied Sciences in Europe,* provides a cross-national comparative perspective on the practice-oriented research function of Universities of Applied Sciences (UAS). Does the growing research function of UAS lead to a further blurring of boundaries or does it justify the preservation of binary systems? After a description of the UAS sector across Europe, the drivers of the research ambitions of the UAS sector are discussed such as making a contribution to the needs of the knowledge society, to boost regional innovation and to change competencies for professional practice. Based on examples from Ireland, Germany, Switzerland, Finland and the Netherlands, De Weert argues that commonalities between European countries regarding practice-led research and its distinctiveness from university research contribute to a further profiling of the UAS sector as a whole. UAS research is complementary and may result in a stronger differentiation between UAS and traditional universities. The core identity of the UAS sector concerns a strengthening of ties with companies and professional fields a re-balanced nexus between teaching and research and a focus on practice-led research. Within the UAS

sector De Weert foresees more differentiation, which is likely to contribute to a diversified European higher education system.

Until recently the higher education governance policy focus has largely addressed the relationship between institutions and the state. However, since the 1990s shifts in system governance are evident. In terms of system coordination one can witness growing recognition that relationships are not only more complex and dynamic but involve more actors from various levels. This overall shift has been termed 'from government to governance', which further reinforces the position that it is not just the state that rules. Authorities and powers have been redistributed across the various policy levels. In many countries, coordination has changed from a classical form of regulation dominated by a single actor, the state, to forms in which various actors at various system levels coordinate the system ('multi-level multi-actor governance') (Van Kersbergen & Van Waarden, 2001). Coordination increasingly takes place through interconnected policy levels with a substantial number of actors influencing agenda setting, policy development, policy determination, policy implementation, and evaluation (De Boer, Enders, & Leisyte, 2007).

Adrie Dassen's and Paul Benneworth's contribution to this book, *Understanding the Limits to Higher Education Policy,* addresses the increasing popularity of policy networks in the governance of higher education and research. Governments have sought to use policy networks to deal with situations which are problematic, involving intractable or ill-defined problems, complex groupings of stakeholders and interests, demanding a solution with no easy end in sight. Policy networks can be used with an experimental rationale, in which they allow sense-making in novel situations, and a displacement rationale, in which governments can withdraw from having responsibility for the issues at stake. The question that remains to be answered is the extent to which governments oscillate between these rationales and whether experiments in governance are acquiring widespread support and becoming normalised, or whether they allow a postponement of improving efficiency in higher education.

Whatever governments' rationales may be, they have to be realized by the higher education institutions and units and individuals within them. *Liudvika Leišytė and Jürgen Enders* in their chapter, *The strategic responses of English and Dutch university life scientists to the changes in their institutional environments*, address the question of how research groups react to governmental initiatives. They show that there are different strategies, from conformity to symbolic compliance and proactive manipulation and negotiation of the environment. Research groups use a mix of these strategies, with the higher credibility groups being able to engage more in proactive strategies and keep their core activities intact, while low-credibility groups more often have to resort to conformity strategies and adapt more to governments' policies. Yet, 'playing the game' and research groups being strategic actors using a mix of strategies may well be the most striking characteristic emerging from their study. How such reactions affect the effectiveness of policies, and thus what governments can do and how, needs further exploration. The difference between 'government' and 'governance' may play an important role in those explorations.

The notion of 'less government and more governance' is strongly and supported by several factors (De Boer, Enders, & Schimank, 2006). One is financial; high

public expenditures for continuously expanding higher education systems are demanding new steering instruments. Another is the ideological shift towards the market as a coordinating mechanism. Today in Europe it is evident that higher education increasingly functions in quasi-markets, where governments continue to play an important guiding role (Texeira, Jongbloed, Dill, & Amaral, 2004). Third, globalisation, internationalisation and Europeanisation have all challenged the national boundaries of higher education systems and posed new questions to governments and higher education institutions. For example, the European Union instrument of the Framework Programmes has encouraged higher education institutions to engage in large scale partnerships across national boundaries, which have resulted in different networks and consortia and research agenda setting moving towards a supra-national level. Fourth, empirical evidence suggests that the New Public Management (De Boer, Enders & Schimank, 2006) organisational approach has been influential in "modernising" public services. Some European countries increasingly treat their public service sector organisations as corporate enterprises with the goal of increasing their efficiency and effectiveness by giving them more autonomy and at the same time asking for more accountability.

Across the board, a major trend has been the strengthening of higher education institutions as organisations (De Boer, Enders & Leisyte, 2006). One of the consequences of reshuffling authorities and responsibilities between the various levels within the higher education systems is that many powers have accrued at the top level of the institutions. Enhancing institutional autonomy, a state policy in many countries, has often meant strengthening of institutional leadership, particularly in those higher education systems where traditionally the institutional top level was relatively weak. The enhanced institutional autonomy has meant higher levels of accountability as well as more stringent and detailed procedures for quality assurance at the state as well as institutional levels ('the rise of the evaluative state'). Greater accountability also means that higher education institutions have to redefine the ways in which they inform their stakeholders about their performances and the ways in which they integrate external stakeholders into their internal decision-making processes.

This latter aspect is considered in the contribution of *Harry de Boer and Jon File, Old Wine in New Skins: The Long Evolution of Supervisory Boards in Dutch Higher Education.* They observe that, despite differences between higher education governance systems in Europe, external stakeholder involvement in internal university governance is on the rise. Through a longitudinal case study of supervisory boards in Dutch higher education, they highlight persisting issues around supervisory boards such as who should serve on a supervisory board, what should be their main roles and what kind of relationships should exist between the supervisory board, the ministry, society and the academic community. They argue that, at least in the Netherlands, a supervisory board is not a new phenomenon, as many would like us to believe, despite all the changes that have taken place in higher education of the last two centuries. The oldest Dutch university, Leiden, founded in 1575, had a supervisory board from the outset. The Dutch experience of external representation in internal university governance is much more a case of 'reinventing the wheel' than of 'modernising governance'.

The potentials and limits of various governance models such as stakeholder approaches, policy networks, quasi-markets and governmental regulation remain, however, contested. The role of governments is evolving into sometimes elaborate systems of incentives and sanctions that allow governments to continue utilising their higher education sectors by 'steering from a distance' in order to redress 'government failures' (Wolf, 1993) of the past. At the same time, the pace and reach of the changes now taking place raise the possibility that policymakers are fixing one problem by creating another. Markets breed 'market failures' and economists are quick to point out that universities are fundamentally different from the ideal-type firms that shape standard economic textbook theories (Winston, 1999). If Europe is to succeed in its efforts to create both a Higher Education and Research Area that will drive its economy in the years ahead then striking a balance between these types of failures will be crucial.

Teaching and research face similar problems and challenges lying ahead. While education is seen as critical to supporting and maintaining economic growth, so too is research and development (R&D) investment considered essential to ensuring that Europe remains at the forefront of technological innovation. Such goals however must be met in the context of increasing global competition for scarce academic talent and financial resources. Universities and other providers of higher education, as well as governments, are well aware that they play a major role in the "Europe of Knowledge" and of their responsibility to deliver the economic, social and cultural services expected from them. The regulatory environments and the governance structures and processes, combined with the material and human resources at their disposal, play a crucial role in the degree to which universities and colleges effectively provide these services locally, regionally, nationally and internationally (OECD, 2008).

In higher education the state's new role may be called facilitative as it creates a higher education environment in which the state controls the outcomes at the state level without much detailed interference. In some countries one can speak of the state as steering the market (Texeira, Jongbloed, Dill, & Amaral, 2004). In the last two decades, most European countries have also revised their higher education funding systems. The extent to which the reforms have been implemented varies considerably, but no country has been able to ignore the debate on higher education funding entirely. There are several serious funding issues that are receiving attention in European higher education: most importantly, first, the funding gap between higher education investments in Europe and its main competitors, secondly the related pressure to attract private funds both from industry and students/parents, and thirdly, financial allocation principles to focus more towards outcome-based and competitive funding instruments (e.g. Teixera et al., 2004; Jongbloed and Vossensteyn, 2004). New steering devices have been introduced, output funding and multi-year agreements with the (individual) higher education institutions provide illustrative examples.

In his contribution, *Funding through Contracts: European and Institutional Perspectives*, *Ben Jongbloed* discusses the state of the art and recent reforms in university funding in Europe. Contracting and performance-based budgeting (PBB) are two trends that emerge from a *tour d'horizon* of funding mechanisms for higher education institutions, as the result of, among other things, the New Public Management

doctrine. After presenting four main budget types (performance systems, process systems, project systems and input systems) and the mechanisms of public funding used by national authorities (negotiated funding, incremental funding, formula funding and contract funding), Jongbloed uses the Dutch example to explore the promises and pitfalls of contracting and PBB. In his conclusion he pictures a mixed pattern of pros and cons of the two trends and mentions that funding authorities and university administrators increasingly realise that their traditional funding approaches have been backward-looking, for instance, by using the formula funding mechanism. He foresees that formula funding will remain important but will increasingly be supplemented by contract (forward-looking) approaches.

In Europe, governments remain the primary funding source for higher education institutions. The figures and trends show that European investment in education and R&D, especially from private sources, is not pushing Europe towards parity with its global competitors instead show an ever-widening gap. This has prompted the European Commission to call on member-states to nearly double aggregate R&D investment and increase the share of industry-sponsored research from 56% to 66% by 2010 (EC 2002, 2005c). This is easier said than done, as continued and serious economic fluctuations have made it difficult for governments to provide incentives and subsidies that are capable of encouraging private investment in research and development. In the area of teaching, predominantly national policies towards cost sharing are sometimes met with scepticism due to fears of a decrease in access to higher education (Vossensteyn and Mateju, 2008).

In many ways the higher education systems of the countries that in recent years have become members of the EU and the non-EU signatory countries in the Bologna Process face an even harsher economic situation than the 15 old EU member states. Any effort at integrating higher education into a European Higher Education Area will invariably need to accommodate an increasingly rich variety of systems with regard to cultural norms, economic policies, organisational structures and GDP levels. Nevertheless, due to the considerable national power in shaping the regulatory frameworks and incentive structures, national governments still shape higher education systems and institutions as they see fit. Whether the envisaged performance improvements will take place will be the result of the dynamics of the incentive structures and the responses of the actors involved. As such, institutional responses, as well as the reactions of students, academics, industry and other stakeholders are crucial to the extent and direction of higher education reforms initiated by governments or the EU and for the impact of such reforms. As a result, before national and trans-national policies can be fine-tuned, a better understanding of the implementation and effects of the policies is needed.

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MARIKE FABER AND DON WESTERHEIJDEN

2. EUROPEAN DEGREE STRUCTURE AND NATIONAL REFORM

Constitutive Dynamics of the Bologna Process

2.1 INTRODUCTION

In the last decade, two types of cooperation in European higher education, to with the intergovernmental Bologna Process and the more supranational EU initiatives, seem to complement each other in the construction of a 'single space' of European higher education. The ministers responsible for higher education, taking part in the Bologna Process early in 2010 inaugurated the European Higher Education Area (EHEA). We will contend that this was mainly based on a generous reading of the 'pays politique' of regulations, while in the 'pays réel' (Neave, 2002) of higher education institutions, students and graduates the EHEA is still in the making. For this book, we look at the degree reforms in European higher education in the context of the Bologna Process. This initiative gave higher education cooperation in the European nation states a new face as from 1999. One of the main strategic objectives of the Bologna Process is to increase the compatibility—in more operational terms, similarity—of European higher education systems in general and national degree structures in particular in order to make the European Higher Education Area a space in which student and graduate mobility will be increased. The specific objectives formulated in the Bologna Process have created guidelines for the higher education systems of the European nation states to achieve the compatibility for which they signed up. As a consequence, the national higher education policies are becoming increasingly subject to European-level decision making.[1]

The *main question* posed in this chapter is 'why and how has the integration of national higher education policies towards a common European degree structure arrived at its current stage? We are particularly interested in the constructive force of the Bologna Process itself. The interests of nation states, and in particular their constitutive role in the Bologna Process, seem to be (empirically) underexplored. The *objective* of this study is to gain insight into and explain the extent to which national actions of the European nation states led to the current state of compatibility of the two-cycle degree structures in European higher education.

This chapter is organised as follows. We start by delineating the decisive steps in European cooperation and integration in the policy field of higher education. This will set the stage for the subsequent analysis. We then look at how the objectives set in the Bologna Declaration can be conceptualised analytically. In our contribution, the Bologna Process is studied as a policy process (see e.g. Veiga & Amaral, 2008).

The theory of multilevel governance is presented here as a valuable window through which to view current practices that arguably contribute to increasing the similarity of European higher education systems in general and national degree structures in particular. In the next section, we focus on describing the concrete objectives set for the construction of a common European degree structure. This is followed by a section on the progress made towards the objectives concerning degree structures in the states participating in the Bologna Process. To obtain a better insight into the constructive forces of the Bologna Process, in the penultimate section of this chapter we take a closer look at the incentives for the individual states to reform their national degree structures by means of brief case studies. We chose the contrasting cases of France, Italy, The Netherlands and Russia. The main conclusions we can draw from this study make up the last section of this chapter.

2.2 FROM NATIONAL EMBEDDEDNESS TO FAVOURING A COMMON EUROPEAN HIGHER EDUCATION AREA

The process of European cooperation and integration in higher education is in itself remarkable, given that during the last three centuries the European landscape has been organised in terms of (developing) nation-states, with different national interests and different national institutions. To wit, higher education played a crucial role in defining and transmitting self-understanding (Riddle, 1993). The national embeddedness resulted in a mosaic of national curricula, qualifications and quality requirements in the European academic landscape (Zoontjens, 2001). Despite the national embedding, however, '(in) present days we have come to a point where we want to break down some of the national barriers in favour of a common European higher education space' (Zoontjens, 2001, p. 165). This should be seen in the light of European integration (as one part of the dynamic processes of internationalisation), for new expectations are placed upon higher education and new understandings are emerging which summon higher education to 'meet beyond the boundaries of the nation state' (Huisman, Maassen, & Neave, 2001, p. 3) and within the European scene.

In the context of the European Union (EU), several initiatives emphasised cooperation between the Member States. Up until the 21st century, these did not go so far as to make the internal creation of a European higher education area a policy objective by harmonising the higher education policies of the member states. The framework of the EU would not allow for such a higher education policy, since the competencies of the Commission do not extend this far.[2] EU-level higher education is a policy area of shared competences, where subsidiarity is the guiding principle (Hingel, 2001).[3] In the last decade of the 20th century, however, European cooperation in higher education did become mobile on the Treaty basis (see Faber 2004). In addition, the increasing awareness in the European states that higher education was the pivot on which human resources (and therewith human capital) hinge, incited the national governments to use policy methods outside the Union's framework to better ensure and strengthen the competitiveness of higher education. Accordingly, European cooperation was given a new face with the intergovernmental dimension of European higher education.

One surprising initiative catalysed this movement in 1998, when, on the initiative of the French minister Claude Allègre, four European countries (Germany, France, Italy and the United Kingdom) issued their call for more convergence in the *Sorbonne Declaration*. Under the official title 'Joint declaration on harmonization of the architecture of the European higher education system' the four ministers committed themselves 'to encouraging a common frame of reference, aimed at improving external recognition and facilitating student mobility as well as employability' (Sorbonne Declaration 1998, p. 1). Herewith the dice were cast, especially since 'other Member States of the Union and other European countries' were invited to 'engage in the endeavour to create a European area of higher education, where national identities and common interests can interact and strengthen each other' (Sorbonne Declaration 1998, p. 1). The title of the Sorbonne Declaration made it obvious that this was an intergovernmental action that could only be reached outside the EU Treaty. Obvious, because the term 'harmonization' is included, whereas it is explicitly excluded in the Treaty Articles 149 and 150 (sub 4). This 'abandonment' of the supranational level was a conscious choice, as Verbruggen (2001–2002, p. 179–180) points out when she cites the French minister of Education on a statement concerning the Sorbonne Declaration: 'we wanted to avoid the bureaucracy and inertness of Brussels'.[4] However, if more countries were to join, certain adaptations must be made. The follow-up was enshrined in the *Bologna Declaration*, signed by 29 countries in 1999 to express their joint aim to establish a European Higher Education Area by 2010 (by 2010, 47 countries had reached this consensus). The rationale behind this intergovernmental initiative is the perceived need to respond to global challenges and international competition to which higher education is exposed (Van Vught, Van der Wende & Westerheijden, 2002).

> We must look with special attention at the objective to increase the international competitiveness of the European system of higher education. The vitality and efficiency of any civilisation is measured in fact by the attraction that its cultural system exerts on other countries. We need to ensure that the European system [sic] of higher education acquires in the world a degree of attraction equal to our extraordinary cultural and scientific traditions. (Bologna Declaration, 1999, p. 2).

Under its title 'The European Higher Education Area', the Bologna Declaration states several objectives that are of primary relevance to make the European higher education area a reality and to promote the European system of higher education worldwide. These objectives are (we quote the Bologna Declaration but without the explanations):

– The adoption of a system of easily readable and comparable degrees
– Adoption of a system essentially based on *two main cycles*, undergraduate and graduate.
– The establishment of a *system of credits*—such as in the ECTS system
– The promotion of *mobility* by overcoming obstacles to the effective exercise of free movement for both students and teachers, researchers and staff in higher education.

- The promotion of *European co-operation in quality assurance* with a view to developing comparable criteria and methodologies.
- The promotion of the *necessary European dimensions in higher education*, particularly with regards to curricular development, inter-institutional cooperation, mobility schemes and integrated programmes of study, training and research.

Most of these operational goals can be traced back to the framework of EU action programmes. First, there is the objective in Bolo7gna to establish a system of credits 'such as in ECTS', an explicit reference to the Union's activities. Secondly, Bologna aims to promote mobility, an area in which the European Union had already been successful (Verbruggen, 2001–2002). A third point concerns the promotion of European cooperation in quality assurance, which has likewise been adopted in actions of the European Union (Verbruggen, 2001–2002). A fourth point would be the last 'Bologna-objective' as described above, which fully relates to the framework of EU action programmes (Verbruggen, 2001–2002). Also, the notion of a 'European higher education area' was not totally new (Hackl, 2001). One of the SOCRATES objectives (1995) was 'the creation of an open European area for cooperation in education'. The only concrete objective stated in the Bologna Declaration that does not relate to activities of the EU is the creation of a two cycle-system (Verbruggen, 2001–2002).

Studying the Bologna Process with a focus on creating a two-cycle system in the participating countries can thence give insight into the particularities of the Bologna Process.

2.3 THE CONSTITUTIVE DYNAMICS EMBEDDED IN THE BOLOGNA DECLARATION

In order to gain insight into the constitutive dynamics of the Bologna Process, it is important to understand how its objectives can be conceptualised analytically.

From the outset, it should be clear that the objectives stated in the Bologna Declaration (and formalised in the Bologna Process) are not to be understood as a path towards the 'standardisation' or 'uniformisation' of European higher education. That is, even though it takes place outside the EU framework and its Treaty, and even though there is an underlying rationale of increasing similarity of European higher education, the Bologna Process respects diversity and does not aim at harmonisation; the latter term proved controversial and has therefore been kept out of the Bologna Process. Rather, the Bologna Declaration is an understanding of challenges:

> A Europe of Knowledge is now widely recognized as an irreplaceable factor for social and human growth and as an indispensable component to consolidate and enrich European citizenship, capable of giving its citizens the necessary competencies to face the challenges of the new millennium, together with an awareness of shared values and belonging to a common social and cultural space. (Bologna Declaration, 1999, introductory section).

With this opening rhetoric, the Bologna Process introduces a new system dynamism into European higher education. As a policy process, its dynamics can be explained

more effectively from a governance point of view. Governance studies can 'construct a more differentiated picture of the causes, implications, and effects of the emerging trends and the multiple actors and levels involved' (Enders, 2002, p. 7). The multi-level governance approach provides a window to explain the current practices of governance within the Bologna Process. As the name reveals, this theory understands European decision making as a multi-level governance system, implicating and implying that it reflects 'a polity creating process in which authority and policy-making influence are shared across multiple levels of government' (Hooghe & Marks, 2001, quoted in Kaiser & Prange, 2002, p. 2). In theory, the system of European multilevel governance is characterised by: 'multiplication of levels and actors taking part in the decision-making process and in the implementation of the decisions; interaction between the subnational, national, supranational and transnational levels of authority; continuous negotiation between interests at several levels, including public and private actors; the centrifugal, complex and overlapping character of the system and the absence of hierarchy in the organisation of authorithy' (Telò, 2002, p. 249 after Schmitter et al., 1996). The Bologna Process, as an example of European cooperation in higher education, can be explained more effectively by pulling it into the multilevel structured Europe. Within multilevel governance, distinct modes of interaction can be differentiated (Scharpf, 2001). The Bologna Process has been placed under the mode of *mutual adjustment* (Van der Wende, 2003). This means that it is understood as a process in which national governments continue to adapt their policies nationally, but in response to, or in anticipation of, the policy choices of other governments (Scharpf, 2001, p. 7). The objective in this chapter is to advance insight into this process. The interesting puzzle arises at the nexus where the agreed-upon European-level 'Bologna objectives' and action at the national policy-making level (i.e. agency) intersect. What makes this nexus so interesting is that the 'agents', i.e. the national governments, are not only reacting to the Bologna objectives and other governments, but also to internal goals (i.e. its own policy agenda) and the pressures from actors at the other sub-national levels. The forces on each national government, which all start in different positions, are different and come from different angles, which would make us hypothesise a different resultant vector of movement for each national government. Yet they have all pledged to achieve a common degree structure within a ten-year period (or shorter for those that joined later). Can a 'Brownian' movement, resembling a random pattern to an outside observer, change into a converging movement? And is the Bologna Process capable of achieving this? The challenge taken up in this contribution is to model and explore this complexity. We focus on the creation of the two-cycle degree structure in European higher education.

2.4 SETTING THE GOALS FOR A COMMON DEGREE STRUCTURE

The objective of a common degree structure started in the Sorbonne and Bologna Declarations. The Bologna signatories pledged to adopt a two-cycle degree structure, while 'access to the second cycle shall require successful completion of first cycle studies'. In addition, it was stated that the first cycle should last 'a minimum of three years'. The degree awarded after the first cycle shall also be relevant to the

European labour market as 'an appropriate level of qualification'. The second cycle 'should lead to the master and/or doctorate degree as in many European countries'. These formulae echo the Plan-Attali and the Sorbonne Declaration.

Four years later, in the 2003 Berlin communiqué, doctoral studies were included as the third cycle; instead of the 'and/or' after the undergraduate cycle, we now have a three-tier system, with the 'master' level as a necessary phase for entry into doctoral studies (Conference of Ministers responsible for Higher Education, 2003). In the qualifications framework for the European Higher Education Area (QF-EHEA) the newly-introduced degree structure is typified as 'comprising three cycles (including, within national contexts, the possibility of intermediate qualifications)' (Bologna Working Group on Qualifications Frameworks, 2005).

In this chapter, we focus on the first two cycles. The study lengths of the respective cycles were specified in the 2005 Bergen conference in terms of credits in the European Credit Transfer and Accumulation System (ECTS). The first cycle should 'typically include 180 to 240' ECTS; the second degree is to encompass 'typically 90 to 120' ECTS 'with a minimum of 60 credits'.

The second objective is that the Bologna Declaration called for 'the adoption of a system of *easily readable and comparable degrees*'. This objective is not so much aimed towards similarity (see Westerheijden, et al., 2010), rather it objectifies that it should be possible to *compare* degrees (cf. also Witte, 2008). Degree titles were not further specified. As we can see now, in the European participating countries, the first cycle leads to a degree that is often referred to as 'bachelor'. This term is however does not appear in the Bologna Declaration or subsequent communiqués. The term 'master', the title typically obtained after the second cycle, does.

2.5 EFFECT OF DEGREE REFORM ON NATIONAL POLICY-MAKING OF COUNTRIES PARTICIPATING IN THE BOLOGNA PROCESS

Having outlined the decisive goal formulations in the degree reform, we now look at the implementation of the objectives. We start by discussing the achievements in relation to the objective of a common degree structure in a European higher education area.

The report on the independent assessment of the Bologna Process was published in 2010 (Westerheijden et al., 2010). The outcomes of this study of the then 46 participating countries are used here to understand the intricate dynamics of the Bologna Process as a policy process.

Before the Bologna Process, degree structures were a national matter. In the European countries, a diversity of national models and internal logics was apparent—Guy Haug has been credited with coining the term 'jungle of degrees'. Nevertheless, 30 of the 46 countries that were participating in the Bologna Process by 2009, already had some form of two-cycle degree structure in place by 1999. However, the logic of these systems was often different from the 'Bologna principles'. Ten years later, all 46 participating countries had a national degree system based on two main cycles, with the first cycle lasting for a minimum of three years. Most countries that already had a system in place based on two cycles have adapted their national model to the stated goals of the Bologna Declaration. The combination of 180 EC for the first

degree and 120 EC for the second degree emerged as a prominent model in Europe (Westerheijden et al., 2010). However, many varieties on this 3+2 model exist and the modal country in the EHEA allows for several models, e.g. 3+2 and 4+1, perhaps for different subsectors of higher education. Figure 1 shows the most commonly adopted two-cycle structure models for the participating higher education systems.

The first cycle has a credit range of 180–240 and a second cycle that varies between 60–120 credits, as agreed in the Bologna Process. We note that Figure 1 does not show the whole spectrum of different models in the national higher education systems, but only the most common ones per country. Moreover, certain knowledge areas have been exempted from the reforms in some countries (in particular medicine, dentistry, veterinary science, some other. regulated professions and fine arts). And, although the two-cycle model is reported to be in place in the participating countries, not all learners study in the 'Bologna-type' structures. In 2009, 90%–100% of learners were studying in reformed degree programmes in 30 national higher education systems. In six systems, however, less than half of learners studied in two-cycle programmes, including two large countries (late joiner Russia but also early signatory Germany). This reflects that the reform of the degree structure is still in transition, most notably in the countries that joined the Bologna Process recently. It could, however, also indicate problems with the adoption of a two-cycle degree system in some of these countries (Westerheijden et al., 2010).
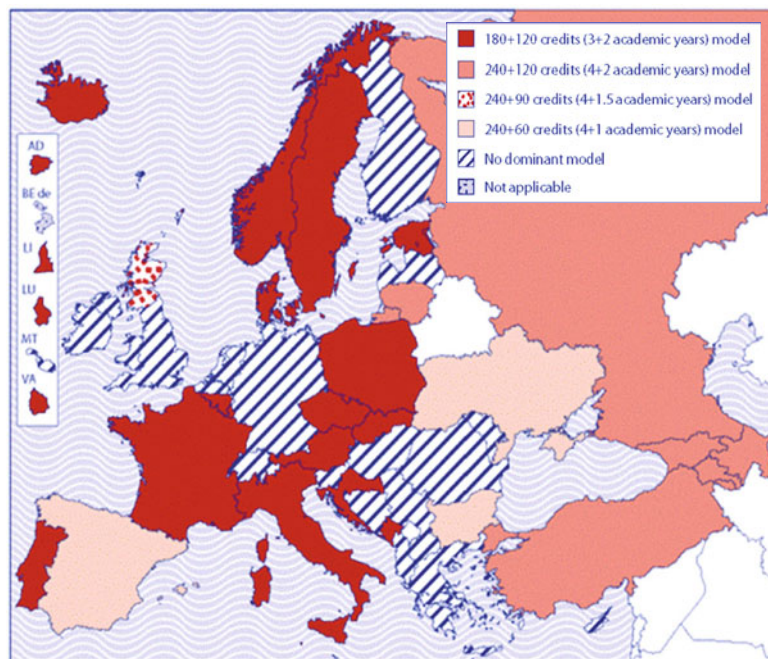

Figure 1. Degree models in the EHEA (Source: Eurydice, 2010).

It certainly also points to a weakness in the Bologna Process—and in our methodology in this chapter—to focus at the European and national levels of the governance systems exclusively, neglecting that the real reforms must be made in higher education institutions: study programmes have to redesign entry and examination requirements, curricula, etc. Only then will students experience the 'Bologna reality', which does not always appear to be as positive and 'European' as desired by the ministers who signed the Bologna Declaration a decade before (ESU 2009; McCoshan et al., 2010; Westerheijden et al., 2010). 'A large majority of institutions have implemented the new Bologna degree structure: … 95% in 2010. In some cases, however, the change has not led to meaningful curricular renewal, but rather to compressed Bachelor degrees that leave little flexibility for students' (Sursock & Smidt, 2010, p. 7).

All in all, the goal of reforming degree structures has been declared fully achieved (Westerheijden et al., 2010), while accommodating flexibility for the different national higher education systems.

2.6 MECHANISMS IN REFORMING DEGREE STRUCTURES IN THREE SIGNATORY COUNTRIES

So far, we have outlined how the objectives of the Bologna Declaration and the follow-up meetings have affected the higher education systems of the participating countries. At this point, we can state that the Bologna principle of a two-cycle model has been implemented, though the commonality desired in 1999 has been accomplished while maintaining diversity of national higher education systems within the signatory countries. The objective of our contribution is to gain insight in the constructive forces of the Bologna Process. To gain more insight in the constitutive dynamics at both the European and the national level of analysis, we take a detailed look at the incentives behind the reforms of the national degree structures of four Bologna participating countries: France, Italy, The Netherlands and the Russian Federation. France and Italy were among the countries that signed the Sorbonne Declaration and may therefore be assumed to have had a recognised need for national reform. The Netherlands signed the Bologna Declaration in 1999 and was just joining the bandwagon. We present a further contrasting case of a country that joined the Bologna Process (much) later, the Russian Federation.

In answering the question of how the objective of creating a common degree structure in European higher education interacts with and has an effect on the national policy-making level of higher education, we are also interested in the motivations of these nation states in contributing to creating a single European higher education area.

2.6.1 The Bologna Process and Degree Reform in France

France was the initiator of the Sorbonne Declaration, and therefore, indirectly, of the Bologna Declaration. Its higher education was in need of reform, as a report that appeared in 1998, the so-called Plan-Attali, argued forcibly. The report (Attali, 1998) was written for Minister Claude Allègre, who was responsible for Education, Research

and Technology. The mix of areas of responsibility of this ministry set the stage for the reform plan: the traditional focus on (higher) education as an element of culture changed into one in which higher education was seen in the context of research and technology, in short, in the context of the knowledge economy. The Plan-Attali introduced ideas of new public management and neo-liberalism into France's higher education system almost 20 years after they hit higher education in the United Kingdom (Elton, 1988; Paradeise et al., 2009; Sizer, 1989). In Attali's analysis, the state of French higher education was: 'confus, bureaucratique et inégalitaire'; besides, it should focus more on educating for the changed labour market, giving each student a 'diplôme à valeur professionnelle' (Attali, 1998, p. 5) for which he proposed a two-cycle model, with short (Nouvelle Maîtrise) and long (Doctorat) second cycle options. Until then, higher education in France was a 'jungle of degrees', where popular degree types included two-year, three-year, four- and five-year degrees of different characters along the professional-to-academic continuum. And those were only the main degree types in the university sector; the *Grandes Écoles* were separate.

The plan also suggested that for France to maintain a 'place de premier plan dans la compétition mondiale' research needed strengthening. The worldwide competition also required French students to know the world better, and foreign students to understand France better: student mobility entered the stage of higher education reform (Attali, 1998, pp. 26–27). In turn, mobility needed harmonisation of diplomas, and that needed a European approach, 'just like the currency'—the Euro was being introduced at the same time.

The Plan-Attali foreshadowed many themes of the Bologna Process and of the Lisbon strategy for boosting research and innovation in the EU. It also shows that, contrary to what some believe (Martens & Wolf, 2006, p. 159), the Sorbonne and Bologna Declarations were not conceived in the old-style view of higher education as an ivory tower in the area of culture, but squarely set in the then current debate on globalisation with its new understanding of higher education as a factor in the knowledge economy (Van Vught, Van der Wende, & Westerheijden, 2002). Yet it was set also in the democratic and egalitarian traditions of continental Europe: little sympathy for a fully market-driven and highly stratified higher education system.

The French university sector introduced the three-cycle degree structure, called *LMD* (*Licence –Maîtrise – Doctorat*). Reinforced by the Plan-Attali, the 3+2+3 model prevailed. The *Grandes Écoles* were less happy to adjust to the European standard— as they saw it—, but in the end they were also integrated into it. The *Grandes Écoles*, which serve a small percentage of students, were not legally obliged to restructure their curricula, as they are private establishments. However, most adopted new degrees: all engineering schools under the *Commission des Titres d'Ingénieur* award master degrees. Business schools may award master degrees after five-year (full-time) courses, but the old style degrees, also called master, awarded after four years, still exist. Students are advised about the news-style masters 'C'est un plus non négligeable'.[5] The access route to *Grandes Écoles* via up to two years of preparatory classes and a selective entrance examination remained; after one year of what is often called 'foundation studies', a *licence* degree may be awarded, but the focus of studies remains the *master* level of an additional two years of teaching—plus

in a number of cases a year of practical training, bringing the total duration of studies after secondary school to six years rather than 3+2 (often the year of practice is not counted towards credits in ECTS).

In sum, France has indeed reformed the degree structures in a sector of society that has been subject to reform by accretion (adding new models or sectors without terminating old ones). In the universities, the old degree structures have been largely replaced by the new 'Bologna' ones; in the small but prestigious sector of the *Grandes Écoles* old degrees still exist alongside new ones.

2.6.2 The Bologna Process and Degree Reform in Italy

Italy was one of the countries invited by French higher education minister Allègre to sign the Sorbonne Declaration in 1998. This invitation shows that reform of higher education was on Italy's political agenda (Vaira, 2003). The problem situation was depicted as one of 'low efficiency': after decades of strong expansion (700% increase in student participation between 1945 and the late 1990s), many students were *fuoro corso* (delayed study progress) or had even dropped out of university. They were studying in very specialised, single-cycle five-year study programmes leading to a *Laurea* degree. The higher education system had expanded quantitatively in the decades before the turn of the century, leading to sometimes very large universities in a unitary system of universities.

The Italian constitution protects academic autonomy and, in the 1980s, Clark had depicted Italy as the epitome of a higher education system dominated by the academic oligarchy, all but impervious to change (Clark, 1983, also: Boffo et al., 2004).

Since the 1960s, there had been several reforms (Ballarino & Perotti, 2010), which, since the late 1980s, aimed to make the system more adaptable to society's changing needs (Westerheijden et al., 2010). In 1997, minister Berlinguer assumed office with plans for major reforms for the sector (Vaira, 2003). A report drafted by an ad hoc working group of academics was published in April 1998 after sector-wide, but continuing, discussions. The Italian reform plans concerned a whole package to revitalise the system, including governance (greater institutional autonomy and tighter connections to the region rather than to the ministry), competition through differentiation of degrees, competition for academic staff, quality assurance of education, and reform of the degree structure. The invitation to the Sorbonne celebration, a month later, and the signing of a solemn declaration there with other reform-minded ministers was a welcome occasion for Berlinguer to give additional support to these reform plans (Vaira, 2003).

The reform of degrees, as discussed at the beginning of 1998, were centred on universities designing new curricula individually rather than according to national standards as before. However, soon after the Sorbonne Declaration, national standards re-emerged, partly in response to the need for national compatibility (Vaira, 2003), but more importantly, the degree *classes* were 'defined by representative [rather than expertise-based] commissions where the possibility for innovation were [sic] weak', so that 'in most of the cases the new two-tier courses were just an adaptation of the previously existing' ones (Ballarino & Perotti, 2010, p. 17).

This brings us to the two tiers. The original reform plans in Italy were copying French pre-1998 examples and thus proposed a three-tier degree system, but when the Sorbonne Declaration proposed a two-cycle structure (Witte, 2006), Berlinguer immediately followed suit, even in the face of internal opposition (Vaira, 2003); a clear case of 'European' (or rather French) pressure towards convergence that affected national policy.

We may conclude that reform-mindedness of part of the academic community and of ministers ensured that Italy was invited to sign the Sorbonne Declaration, and after that ensured that legal changes were made very rapidly. Minister Berlinguer saw a 'window of opportunity' in 1998 and used it to adapt the higher education law rapidly. Implementation in universities also took place quickly, to the point of changing the proposed three-cycle degree structure to a two-cycle one in order to obtain the international leverage of the Sorbonne Declaration. Nevertheless, in the further implementation of the degree and curriculum reforms in the universities, the old and very specialised *laurea* courses were recreated under new forms. There was perhaps little overt resistance from academics, but the way in which they interpreted and superficially implemented the degree reforms could be interpreted as resistance against the underlying goals of modernising Italy's higher education system.

2.6.3 The Bologna Process and Degree Reform in the Netherlands

Reform of the higher education system was an issue that had re-emerged on the political agenda since the 1980s. A two-tier system of degrees had been proposed and was partially introduced in universities in 1982: the old five-year (on average) degrees were shortened to four-year curricula, with a second tier for specialised professional and research training, e.g. by cutting up the six-year medical training into what could anachronistically be called a '4+2' model (Bijleveld, 1989). However, the second tier was hardly introduced—except in the medical sector—when budget cuts stopped its further development. This meant that for the large majority of students, the two-tier system entailed a shortened first-tier education only (Bijleveld, 1989) and that a single-cycle degree remained the leading principle.

A policy principle ruling Dutch higher education since then and into the 1990s was that this small country had to adapt to its international—European—environment to maintain (or gain) recognition of its degrees. This made the ministry of education an avid monitor of developments in other countries—not least through comparative studies it commissioned from CHEPS. One of those studies led to a re-adaptation of engineering and science degrees from four- to five-year curricula (Goedegebuure et al., 1993). Other studies intended to establish the compatibility of graduates' skills and knowledge cross-nationally (Westerheijden & Lugthart, 1999) long before qualifications frameworks became *en vogue*, looked at programme offerings and cooperation in the north-western region of Europe rather than in the country only (Huisman et al., 1997; Westerheijden & Klemperer, 2002).

This pro-international attitude which was associated with a widespread neo-liberal attitude that welcomed international competition of study programmes for internationally mobile students predicted a positive response to the opportunity to

join the Bologna Declaration which promised a much more compatible and open higher education space across the continent. The ensuing need to reconsider the degree system was taken up with great speed: the university first tier, four-year *doctorandus* curricula were divided further into a '3+1' model of bachelor and master cycles.[6] In the UAS sector, the need for change was minimal: its 4-year degree was already deemed equivalent to a bachelor and the change mainly involved making 'bachelor' the standard title on degree papers.

All higher education institutions, despite perhaps some misgivings among the academic body, readily introduced the new types of degrees as soon as the legal change of 2003 formalised them (Westerheijden et al., 2008). All new students started in 'Bologna-type' study programmes from that year onwards, and in 2007 only a few thousand 'old' students with delayed progress were left in the old structures (Westerheijden et al., 2008, p. 24).

Although, in some cases, existing curricula were 'cut up', in many instances the degree reform was used for curricular renewal: in the non-university curriculum, adaptations often included a stronger 'work-field orientation', i.e. a more applicative and multidisciplinary nature of the curriculum (Westerheijden et al., 2008). A move towards more competency-based learning was also a continuing trend in the non-university sector (Witte, 2006, p. 251). In contrast, the new university bachelors were considered less specialised and more multidisciplinary, whilst the new university master programmes led to stronger specialisation and a more pronounced research orientation (Westerheijden et al., 2008). Yet, the desired broadening of education instead of immediate immersion in a single discipline or subject remained exceptional, as the increased demands for specialised masters implied that the breadth of the bachelors was harder to achieve (Westerheijden et al., 2008, p. 19). The most conspicuous examples of 'broad bachelor programmes' was the spread of the 'university college' model based on the US liberal arts college. This model was introduced in 1997,[7] before the Bologna Declaration, at the University of Utrecht, which saw this 'International Honors College' as a way to profile itself for exceptionally talented and motivated students. After the Bologna Declaration, some other higher education institutions followed this example, but for most students, the choice remained as before, a specialised undergraduate programme, though usually with an overhauled curriculum.

The Netherlands kept up with the dynamics of Bologna Process demands: it also introduced accreditation of the new study programmes in 2003 and it belonged to the vanguard of countries that had their qualifications frameworks certified before the 2010 ministerial conference.

In sum, the change of the degree structure was rapid and very much in the direction of the 'guidelines' of the Bologna Process. This included implementation of laws but also of curriculum change (although broadening of curricula remained a minority). Obviously, impacts of those system changes did not appear quickly, so that documented results in evaluation studies may not always fully show the positive picture. The slowness of impacts is due to time lags (there are still few cohorts that went through the whole of the renewed system), but also because it seems that the 'collective wisdom' of students needs time to develop, e.g. mobility between sectors

was weak at first but increased in later years; similar expectations seem to exist for the exit of university bachelors to the labour market (Westerheijden et al., 2008).

2.6.4 The Bologna Process and Degree Reform in Russia

Russia joined the Bologna Process in 2003, and after 6 years, it was the only country with less than 25% of students (9%) in the 'Bologna Process-structures' (Westerheijden et al., 2010a, p. 17). Although the same study found that several 'early adopters' also took a long time to implement the degree reform in order for most students to be enrolled in the new structures, Russia's slow adoption may be seen as a sign that the attitude in this country was quite different from the Italian and Dutch approaches to the Bologna Declaration. The main motivation for Russia— and other later adopters—to join the Bologna Process was: 'If [sic] we admit that Russia is a European country, it would be strange … to stay away from this process and then successfully to catch up with the other European countries … as we did it or tried to do it so many times in similar cases in other areas' (Gladkov, 2005, p. 62). No internal need was felt for the reform of degrees, but there was fear of losing out if the country did not join.

The traditional university study was a five-year, single-cycle study leading to the degree of *specialist*. Innovations of the system already started soon after the fall of the Soviet Union, and since 1992 bachelor and master studies have been offered; yet the specialist degree remained—and remains to this day—the favoured degree (Sursock & Smidt, 2010, p. 118). In the internal discussions about joining the Bologna Process, through fear of losing the traditional 'high status and authority of the Russian education' when only few study places in the second cycle would be state-funded (Gladkov, 2005, p. 67), it was decided to make the first cycle four years long. Another reason for the long bachelor option was that students usually enter higher education at the age of 17, which is rather early compared to other European countries (Sursock & Smidt, 2010). The master-cycle was set at two years. This resulted in Russia becoming one of the five countries in which the dominant model became '4+2'—and one of the rare ones where the length of study for the master level increased, from 5 to 6 years.

Not much is known about the implementation of curriculum reforms in Russian higher education institutions. The tradition of higher education institutions conforming to State Educational Standards certainly persisted and was reinforced by the accreditation agency of the Russian Federation (Sursock & Smidt, 2010). In the first years after the Bologna Declaration, such standards continued to be developed along the traditional lines of prescribing in detail a large percentage of the curriculum. Nor is much known about if and how the switch in the Bologna Process towards qualifications frameworks has already trickled down to higher education institutions (Westerheijden et al., 2010a). Recent case studies of two higher education institutions that were committed to the Bologna Process showed that even there 'transformation of contents and teaching/ learning methods are still to be achieved' (Sursock & Smidt, 2010).

2.7 DISCUSSION: COMMONALITY AND DIVERSITY – THE INFLUENCE
OF EUROPE VS. INTERNAL POLITICS

In this final section, we turn our attention to the main question posed at the beginning of this chapter: 'why and how has the integration of national higher education policies towards a common European degree structure arrived at its current stage?' We explored the constitutive dynamics of European cooperation in striving towards one common European degree structure in higher education. Attention to national interests in an international context has provided us with information about the transformation processes of national higher education policies leading towards a (more or less) single European degree structure. The argument developed here is that the Bologna Process is an ongoing policy process in which room is left for diversity while the participating countries—because of different national motivations—attune to agreed-upon guidelines for a common European level degree structure in higher education.

With France as the instigator of the process, the four Sorbonne countries (France, Italy, Germany and the United Kingdom) were soon followed by 25 others to initiate a European and intergovernmental dimension of integrating national degree structures. Over the course of the last ten years, over 20 other nation states have decided to join the Bologna Process and have contributed to the specification of a common European degree structure. Admittedly, the commonality exists only at a high level of abstraction: two-cycle studies have been introduced. Diversity is maintained at the level of years or ECTS. Among the four illustrative cases in this chapter, we found 3+2 in France and Italy, 3-or-4+1 (and variants) in The Netherlands, and 4+2 in Russia. Besides, there are different ways of handling exceptions (e.g. medicine is exempted from the two-cycle structures in 37 countries, though not in The Netherlands).

We believe that this current stage of diversity in the common framework can be explained as the outcome of the interaction between conformity with agreed upon guidelines of a two-tier structure and the individual interests of the different actors in meeting the requirements. Although the case studies are by no means exhaustive, it can be witnessed that in the French, Italian and Dutch cases, there was a desire for national reform of their higher education systems. Bologna was deployed as additional support for commencing changes whereby national compatibility was in the individual interest of the national higher education systems. The cases also illustrate a different constructive force of the Bologna Process whereby there is a dynamic of the national interest and European cooperation. In all the cases, we can see that 'Bologna' brought about a European pressure that affected the national higher education policies. The Russian and Dutch cases together illustrate that international legitimacy of their degrees is an important motive. In this respect, the cases point out that, in the process, there is a coercive effect in mutually adjusting to the agreed upon guidelines. In adjusting degree structures, a major rationale was to keep up with their (European) peers. Furthermore, international or global competition among countries can also be said to be a driver of the process. From this, it could be deduced that the states participating in the Bologna Process make a conscious choice to

conform to the two-cycle structure to guarantee the international competitiveness of their national higher education system.

Although the Bologna agreements remain a non-binding construction in a legal perspective, the empirical data presented in this chapter indicate that certain (political) constraints can be identified. Based on the empirical findings, the constitutive dynamics of the Bologna Process can be typified as a soft policy approach whereby cooperation is achieved voluntary in principle, but the national actors can conceive of the striving towards a common European degree structure as coercion. It can be argued that the national technical changes in degree structure can be interpreted as having created a symbolic outcome in the creation of a European higher education system based on a common degree structure. More boldly, there is unity in a European dimension at face value, while diversity at the national levels continues. Nevertheless, the unity has had positive effects from the point of view of stimulating mobility: international mobility from the first to the second cycle has increased since the introduction of the Bologna Process (Westerheijden et al., 2010).

The hope vested in the Bologna Process to create the open space that was aimed for has shifted from a degree reform (now seen as a necessary but insufficient condition) to setting standards for quality assurance (equally insufficient), to commonality of learning outcomes (in the qualifications framework, QF-EHEA) in an attempt to move beyond the symbolic commonality of (degree) structures in the European higher education area. The implementation of this framework for qualifications follows the same pattern as the degree reform—necessitated by the Bologna Process being an international process. To achieve more commonality, there is a check of the national qualifications frameworks against the QF-EHEA, but again that is a national matter (self-certification by national authorities against a common checklist, to be completed by 2012). This too, then, seems a route that will result in a larger degree of diversity than what would be needed for a really transparent, open higher education space in Europe. The multilevel governance situation in the Bologna Process is not an easy one and is not likely to lead to a large degree of convergence in the 'pays réel' of how students experience their learning and of how graduates will perceive the labour market.

NOTES

[1] Notably, the distinction between a European and national level, is an artificial one, given that multiple feedback loops cut across them; at the same time, the distinction can be justified analytically, as it can help to unpack and understand the different steps in the process of standardization of a EHEA (see also Checkel, 2001).

[2] This is also crucial to the position of the Commission in the process, which accordingly was first limited to being an observer, though its role gradually enlarged (van der Wende & Huisman, 2003). The involvement of the Commission notably included active (financial) support of many international activities that are part of the Bologna process (van der Wende & Huisman, 2003, p. 37).

[3] The principle of subsidiarity can be understood as a balance of power between national sovereignty and supranational (EU) decision-making (see De Wit, 2003), with the balance tilted towards national soverignty.

[4] 'En fait, nous ne souhaitions pas passer par les mécanismes bruxellois extraordinairement bureaucratiques et lents', ('L'objectif est de proposer une trame commune', *Le Monde*, 24–25 mai 1998).

5 www.phosphore.com/contenu_connexe_ges/37/formation/ 140031, last accessed 2010-11-26

6 3+2 in engineering, sciences and some other fields, and 3+3 for medicine, to maintain their *status quo* in total numbers of years. The three-year bachelor in universities was sometimes depicted as reincarnation of the pre-1982, three-year *kandidaat*-degree, which over the 20th century had lost its independent status and had become an intermediate examination.

7 www.uu.nl/EN/faculties/universitycollege/organization/Pages/HistoryofUCU.aspx, last accessed 2010-08-30.

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3. REFORM OF DOCTORAL TRAINING IN EUROPE

A Silent Revolution?

3.1 INTRODUCTION

Only a few years ago, the general form of doctoral education in the different European countries was strongly criticised (Kivinen, Ahola & Kaipainen, 1999, Sadlak 2004). Critics claimed that doctoral education would lack efficiency, as it would not produce a sufficient number of PhD holders who would be well prepared for the labour market. The lack of transparency in admission, selection and quality assessment was also criticised (Kehm, 2007, p. 315).

Enders & de Weert (2004, p. 129ff) point to several issues that challenge the forms and conditions of doctoral education. The changing job markets for PhD holders, the changes in knowledge production, the internationalisation of higher education and the 'blurring boundaries' between different forms and areas of research generated stronger interest in, but also critique of doctoral education.

Until the late 1990s, critique and several reforms across Europe were mostly at the national level. We find a dramatic change at the beginning of the new millennium. Following the 2003 Berlin Communiqué by the Bologna Follow-Up Group and the Salzburg Principles on doctoral education by the European University Association (EUA), attempts to reform doctoral education clearly moved from the national to the European level. The 2003 Berlin Communiqué can be seen as a starting point for this shift in the discussion. It stated that doctoral studies should be regarded as a third cycle in the Bologna Process.[1] The Salzburg principles on doctoral education in 2005 formulated general guidelines for doctoral education which included the general nature of doctoral education, the institutional responsibilities for doctoral education, duration of doctoral studies, the status of doctoral students as early researchers or aspects of supervision and funding (EUA, 2007, p. 21ff).

Including doctoral studies as the third cycle of study also followed the idea of harmonisation of study conditions across Europe. Compared to the reforms of the first and second study cycle, the reform of the third cycle does not aim at a high degree of compatibility of doctoral education and harmonisation of doctoral degrees. The Salzburg Principles recommend retaining the diversity of doctoral education across Europe.

To date, one can still find many different forms of doctoral education and degrees across Europe (Kehm, 2007). But, one can also find convergence in some aspects: graduate and research schools have become a standard in European doctoral education and universities invest in additional courses for doctoral students.

Jørgenson (2010, p. 84) describes these recent changes as a silent revolution. According to the EUA-Report Trends 2010, the major change in doctoral education across Europe was that it has become an institutional effort of the university itself. The former individualised approach where training took place in a personal relationship between a single supervisor (professor) and his or her doctoral student has been replaced by a structural approach where it is embedded at the institutional level of the higher education institution. Kehm (2007) classifies this change as a second shift where responsibility has moved from the individual level of the master-apprenticeship-model to the institutional level of the university.[1] In 2010, 49% of the universities in the study had doctoral schools, 16% had graduate schools (offering trainings at Master and PhD-level), and 72% were offering additional training in key qualifications (Sursock & Smidt 2010, p. 43–44). In 2007, these figures were significantly smaller: only 49% of the universities were offering taught courses and 29% had doctoral schools (Crosier, Purser & Smidt, 2007, p. 28).

Besides the large number of European countries adopting more structured forms of doctoral education, most amazing about this change is the speed of the reforms. Before the implementation of the Salzburg Principles, the reform of doctoral education was stuck in most European countries. Changes often happened as muddling through or were only partially affecting doctoral education. Now, to implement a doctoral or research school is at the agenda of almost every European university. Given these strong changes, the question arises of which factors have driven this silent revolution and how to understand this rapid diffusion of a certain policy instrument across Europe. We will try to answer this question by analysing the short history of the third cycle in the Bologna Process. We will apply policy diffusion approaches that emphasise the special role of international organisations in distributing policy innovations.

3.2 THEORY

Nagel, Martens & Windzio (2010, p. 5) claim that, since 1990, education policy has become more internationalised: parallel problem pressure such as demographic changes and demands of the labour market have shifted educational policy from the national to the international level of policy making. Leuze, Martens & Rusconi (2007, p. 3) introduce the 'growing activity of international organizations' and the 'increasing marketization in the field of education' as further factors which have led to a stronger internationalisation of education policies.

This growing internationalisation is accompanied by two further changes: firstly, new arenas of governance and new actors determining education policies have emerged. Secondly, new theories/theoretical approaches have been applied in the analysis of education policy. In particular, approaches such as policy diffusion and the convergence theory, approaches that consider the impact of international organisations and world-polity approaches became popular in analysing these changes (Leuze, Martens & Rusconi, 2007; Nagel, Martens & Windzio, 2010).

The recent reform of doctoral education in Europe is an outstanding example of the ongoing internationalisation of higher education policy. To analyse the process underlying the silent revolution in European doctoral education, we will use

approaches of policy diffusion, in particular those that draw on international organisations as the most important drivers of policy innovation.

Tews (2002) as well as Knill (2005) show that diffusion approaches are interested in the processes that lead to the diffusion of policy innovations at a global or European level. They ask to what extent similar policies have been introduced in different countries. "Diffusion is generally defined as the socially mediated spread of policies across and within political systems, including communication and influence processes which operate both on and within populations of adopters." (Knill 2005, p. 3) As a result of these studies, the diffusion process is mostly described as an adoption pattern which shows at what point in time certain policies have been introduced at the national level and what factors have caused their adoption. Busch & Jörgens (2005, p. 6) also refer to diffusion as the voluntary adoption of policy innovations which have been spread by information flows between national systems. The adoption patterns include the pace of adoption within the political systems under observation and the factors that lead to the adoption of policy innovations. Knill (2005, p. 4) also points out that diffusion studies are mostly interested in the 'spatial, structural and socioeconomic reasons for particular adoption patterns' in a population of countries. The individual reasons for a country adopting a certain policy are not analysed.

Besides these more structural reasons for policy adoption diffusion, approaches are also interested in the communication that has led to the spread of policy innovations (cf. Tews, 2002, p. 8ff). Different studies on the structure of communication have shown that certain characteristic of the communication network in the population of observed political systems can lead to different policy outcomes. Further, policy diffusion approaches point to the strong role of actors such as governmental, non-governmental or international organisations in the diffusion of policy innovations (Tews, 2002, p. 18ff). For educational policies, the role of OECD (Nagel, Martens & Windzio, 2010, Martens & Jakobi, 2010; Marcussen, 2001) and the Bologna Process (Balzer & Rusconi, 2007) have been analysed.

From this broad body of literature, two concepts seem to be most suitable to follow the recent reform of doctoral education in Europe: first, the concept of organisational fields as used by Jakobi to explain the diffusion of the idea of lifelong learning worldwide (Jakobi, 2007, 2009). Secondly, the approach by Leuze et al. (2008) that conceptualises different governance instruments that international organisations apply to force nation states to adopt policy innovations.

3.2.1 Organisational Fields

The concept of organisational fields was introduced by DiMaggio & Powell (1983) in organisational sociology. In their approach, the concept is used to describe the social structure in which organisations are embedded and that determines their actions, in particular the further rationalisation of organisations. In their approach, the organisational field is a key concept to explain the growing homogeneity of organisations (DiMaggio & Powell, 1983, p. 148). Organisational fields are used as an empirical concept rather than a theoretical construct. Whether organisations become

more alike because they are acting in an organisational field can only be answered empirically. DiMaggio and Powell introduce four criteria to assess if an organisational field has been institutionalised (DiMaggio & Powell, 1983, p. 148):

– an increase in the extent of interaction among organizations in the field;
– the emergence of sharply defined interorganizational structures of domination and patterns of coalition;
– an increase of the information load with which organizations in the field must contend;
– the development of a mutual awareness among participants in a set of organizations that they are involved in a common enterprise.

Jakobi defines the organisational field as a social structure in which nation states (or the respective national organisations and actors) are embedded. This structure (pre-) defines and regulates the actions of the social units involved. She argues that the policies of nation states or other organisations participating in this organisational field will become more homogeneous or isomorphic as they are exposed to 'ideas of the wider environment that concern their identity, either by explicit or implicit rules' (Jakobi, 2009, p. 2). The organisational field can be understood as a form of a quasi organisation that 'embeds actors in a common enterprise that also provides a goal to achieve' (Jakobi, 2007, p. 42). The common enterprise can be made up of different elements. Most important for the internationalisation of education policies is to put forward general ideas and concepts from which concrete policy innovations can be derived.

Jakobi shows in her analysis of the global diffusion of lifelong learning that the OECD played a pivotal role in the institutionalisation of an organisational field when the idea of lifelong learning was promoted (Jakobi, 2007, p. 45ff). Since the 1990s, the number of interactions among member states dealing with lifelong learning has increased, with several OECD meetings on that issue. The cooperation of OECD with other international actors such as the European Union or the World Bank led to a further spread of the concept and the institutionalisation of different interaction and coalition patterns. As social research also focused on lifelong learning, more information was made available. These developments contributed to the institutionalisation of an organisational field where the promotion of lifelong learning became a common enterprise for a number of states. As a result, lifelong learning and exchange on best practices about implementing it are on the policy agenda of most nation states.

Applying the concept of the organisational field can help to better understand the dynamics that underlie the promotion and diffusion of policies. Yet the concept does not provide insight into the social mechanisms that could have forced the policy change at the national level. Also, the role of international organisations in promoting the change is not clear.

3.2.2 Governance Instruments of International Organizations

The approach of Leuze et al. (2008) starts from a different angle. They are interested in how international organisations have contributed to policy diffusion and policy change at the national level.

While Jakobi is mostly interested in how ideas spread globally and how these organisational fields make it possible that ideas about education and educational policies became broadly accepted, the approach of Leuze et al. (2008) goes one step further. Their research covers the change in national educational policies under the influence of international organisations. A change of national educational policies is defined here as the result of the interplay of different governance instruments of the international organisation and the transformation capacities of the single nation state. These five instruments cover the following aspects (Table 1):

Table 1. Governance instruments of international organizations

Governance instruments	Dominant function
Discursive dissemination	Establishing ideas
Standard setting	Prescribing behaviour
Financial means	Transfer payment
Coordinative activities	Execute surveillance
Technical assistance	Support structures

Source: based on Leuze et al., 2008, p. 10.

– *Discursive dissemination* does not only refer to the dissemination and generation of ideas by an international organisation. It also refers to the capacity of that international organisation to put these ideas on the policy agenda, i.e. the 'capacity of international organization to initiate and influence debates on policy issues' (Leuze et al., 2008, p. 8).

– *Standard setting* can be characterised as the most powerful governance instrument of international organisations. It refers to the capacity of an international organisation to set rules for nation states. Either as hard or soft laws, these rules can force nation states to change their policy agenda. In the field of education, the formulation of evaluation standards and objectives for education policies can have a strong impact on change.

– *Financial means* can work in different ways; they can support the implementation of favourite policies in countries that lack sufficient financial means. For other countries, money allocated by international organisations may function as an additional incentive to implement a new policy.

– International organisations functioning as coordinators in a reform process can also use this to exert surveillance over its member states. Leuze et al. (2008, p. 9) define the *coordinative funct*ion of an international organisation as its 'capacity to organize and logistically influence procedures in order to observe and promote policy initiatives and decisions' (Ibid., p. 9).

– Finally, *technical assistance* refers to the activities of international organisations to help or support a state in 'moving towards an internationally outlined policy aim' (Jakobi, 2009, p. 6).

While these governance instruments can be considered as the main drivers for policy change, a full analysis of policy diffusion should also integrate different

aspects of the process in which the policy change occurs. Jakobi (2009a) describes policy change as a process where policy ideas are spread at the global level and trickle down as policy instruments to the domestic/national level. The success of ideas depends on whether it was possible to open a window of opportunity to boot a norm cascade (Finnemore & Sikkink, 1998) in which ideas and policy instruments are applied at the national level. To open this window of opportunity and to initiate some kind of tipping point, it is crucial that international organisations are able to link national problems, politics and policies. In other words, international organisations will probably more successful in implementing policies when they are able to establish an understandable link between general policy ideas and the problem and needs of countries at the domestic level.

We will use these concepts to better understand the rapid change in doctoral education in Europe. We will give a short history of the third cycle in the Bologna Process before analysing the policy diffusion that accompanies it.

3.3 A SHORT HISTORY OF THE THIRD CYCLE IN THE BOLOGNA PROCESS

The history of the third cycle in the Bologna Process can be understood as the history of two parallel but interwoven processes. On the one hand, we find that, after the 2003 Berlin Communiqué, the third cycle became an important part of the Bologna Process. Declarations announced doctoral education as an important area of concern, putting forward the need to reform it as a third cycle of the study in order to foster the competitiveness of the European Higher Education and Research Area. On the other hand we find concrete reform processes in doctoral education following the 2005 EUA Salzburg Principles.

The doctoral level was included as a third cycle of the Bologna Process in 2003. In their Berlin Communiqué, the Ministers announced that the Bologna Process should be extended to doctoral studies. The Communiqué also made clear that this cycle should differ significantly from the first and second study cycle. Doctoral studies were recognised as a central means of connecting the European Research Area (ERA) and the European Higher Education Area (EHEA), since its central focus is on research training and conducting original research. The Communiqué does not give detailed recommendations on doctoral education. It states its general nature and its importance in promoting the European knowledge society:

> Conscious of the need to promote closer links between the EHEA and the ERA in a Europe of Knowledge, and of the importance of research as an integral part of higher education across Europe, Ministers consider it necessary to go beyond the present focus on two main cycles of higher education to include the doctoral level as the third cycle in the Bologna Process. They emphasize the importance of research and research training and the interdisciplinarity in maintaining and improving the quality of higher education and in enhancing the competitiveness of European higher education more generally. (Berlin Communiqué, 2003, p. 7)

The decision to include the third cycle in the Bologna Process took up the re-commendations of the EUA 'Graz Convention' issued in spring 2003. As regards

degree structures and the employability of graduates, the Graz Convention emphasised the need to strengthen research as an integral part of higher education. One of its central recommendations was therefore to 'recognize the doctoral level as the third tier/cycle in the Bologna Process' (EUA Graz Convention 2003, p. 6).

This collaboration between the Ministerial Conference and the EUA was intensified after the 2003 Berlin Meeting when EUA was given the mandate to explore further the 'key issues facing doctoral training' (EUA, 2005, p. 6) and formulate basic recommendation for successful doctoral programmes in Europe. In order to obtain further insight into these issues, the EUA conducted a research project on doctoral programmes in Europe in 2004 and 2005 which addressed two goals: 'to identify essential conditions for successful doctoral programmes in Europe; and to promote and encourage cooperation in the development of doctoral programmes at the European level' (EUA, 2005, p. 6).

Data and experiences about doctoral programs gathered from 48 European universities participating in the project resulted in the Salzburg Ten Basic Principles on Doctoral Education. Results were then summarised in a report on good practices in doctoral education in Europe (EUA, 2005).

The Salzburg Principles were elaborated during an EUA seminar on doctoral education at the beginning of 2005. It was initiated by the Austrian and German Ministries of Education and the EUA. During the seminar, results of the EUA project were discussed and the ten Salzburg Principles were worked out. They[1] cover different aspects of doctoral education (EUA, 2005, p. 32):

– The core component of doctoral education is defined as research that should contribute to the 'advancement of knowledge through original research'.
– Higher education institutions take over the responsibility for doctoral education.
– Across Europe doctoral education should remain diverse: different types of degrees should be preserved, but should come up to some quality standards.
– The status of doctoral candidates was redefined as 'early stage researchers', i.e. as professionals contributing to 'the creation of new knowledge'.
– Supervision and assessment should be organized transparently, contracts should be introduced to steer the relationship between doctoral candidates, supervisors and institutions.
– Doctoral programs should achieve a critical mass of students, but also should be adjusted to the specific needs of the single context.
– The length of doctoral studies should be around three to four years.
– Doctoral programs should allow students to be mobile internationally, inter-disciplinary or between sectors.
– Finally, doctoral programs should provide 'appropriate and sustainable funding.'

The Bergen Communiqué issued at the Minister's Conference in 2005 took up these recommendations and restated that doctoral education was central in linking the European Higher Education and the European Research Area. It describes the central characteristics of doctoral education:

The core component of doctoral education is the advancement of knowledge through original research. Considering the need for structured doctoral programmes and the need for transparent supervision and assessment, we note

that the normal workload of the third cycle in most countries would correspond to 3–4 years fulltime. We urge universities to ensure that their doctoral prog-rammes promote interdisciplinary training and the development of transferable skills, thus meeting the needs of the wider employment market. We need to achieve an overall increase in the numbers of doctoral candidates taking up research careers within the EHEA. We consider the participants in third cycle programmes both as students and as early stage researchers. (Bergen Communiqué 2005, p. 4)

The Bergen Communiqué 2005 also specified the role of EUA in the reform process, as it officially mandated EUA (and further partners) to work on a report on the development of basic principles for doctoral programmes (Bergen Communiqué, 2005, p. 4).

For the period from 2005 to 2007, EUA initiated other projects and workshops to research doctoral education more deeply (EUA, 2007, p. 23). Several workshops were organized around different thematic clusters to share good practices in doctoral education with a wider academic audience (de Rosa, 2008, p. 7f). A survey of representatives of the Bologna Follow-Up Group was also undertaken to analyse the possibilities of funding doctoral studies (Westphal, 2008, p. 108).

These activities fed into a second report on doctoral education in Europe which also took stock of recent developments. The core of the analysis focused on the changing role of universities in doctoral education (EUA, 2007, pp. 9–13). The report also fed into the London Communiqué 2007 that welcomed the recent reforms and restated their importance in linking the EHEA and the ERA. More interestingly, the London Communiqué 2007 defined different responsibilities for steering the reform of doctoral education. Higher education institutions were invited 'to reinforce their efforts to embed doctoral programmes in institutional strategies and policies, and to develop appropriate career paths and opportunities for doctoral candidates and early stage researchers.' (London Communiqué, 2007, p. 5) Here, universities were clearly defined as the main actors in the reform process. Furthermore, the mandate of EUA was prolonged and its role was redefined as being a supporter for certain activity areas in the further reform process: 'We invite EUA to continue to support the sharing of experience among HEIs on the range of innovative doctoral programmes that are emerging across Europe as well as on other crucial issues such as transparent access arrangements, supervision and assessment procedures, the development of transferable skills and ways of enhancing employability.' (London Communiqué, 2007, p. 5)

EUA took up this mandate and built new organisational structures. The EUA Council for Doctoral Education (EUA-CDE) was funded in 2008. It is an integral part of EUA and higher education institutions can become members.[1] Its core objectives are related to the mandate that EUA received in 2007 (http://www.eua. be/cde/about-euacde.aspx):

– To enhance the quality of doctoral education in European universities by fostering debate and promoting the exchange and dissemination of good practice;
– To encourage and support the development of institutional policies and strategies as well as the introduction of effective leadership and management practices;

- To improve the availability of data and information on doctoral education in European universities;
- To identify and monitor emerging trends in doctoral education inside and outside Europe;
- To act as a representative voice of European universities in the dialogue with other stakeholders on the issues of doctoral education;
- To contribute to strengthening the international dimension of doctoral programmes and research training through improved cooperation among its members and in particular by establishing dialogue with partner organisations in other world regions;
- To build and develop a strong link between education and research policies and strategies within Europe;
- To promote the doctorate and doctorate holders as careers upon which to build a knowledge-based society.

Following the London Communiqué of 2007, the EUA conducted several projects on doctoral education. These were research projects and projects that facilitated the exchange on best practices in doctoral education between the member countries. Research projects mostly focused on doctoral education and employment markets for PhD-holders outside academia. In summer 2008, the Council for Doctoral Education took up its work and has organised a number of seminars, workshops and conference on topics such as quality assurance, careers of researchers and structural doctoral programmes.

At the CDE's 2009 annual meeting, members agreed on a 2010 EUA-CDE agenda that was announced as the 'Salzburg II initiative'. Its goal was to validate, affirm and enrich the 2005 Salzburg Principles on doctoral education by consulting with the members of the CDE (EUA-CDE, 2010, p. 3). The results of these consultations were discussed at the 2010 CDE annual meeting and were only recently published as the Salzburg II recommendations (EUA-CDE, 2010). The recommendations deal with three different topics:

- The specific nature of doctoral studies,
- Factors and practices determining the success of doctoral programs (like recruitment, admission and status of doctoral students or the organization of supervision), and finally
- Main obstacles and problems that still go along with doctoral education.

The Salzburg II recommendations build on the experiences of higher education institutions in the last five years. The document also makes clear that doctoral education is regarded as an area that is under the full responsibility of universities and not left to policy making at the national level.

3.4 ANALYSING THE PROCESS

Looking briefly at the short history of the third cycle in the Bologna Process one can assume that a new field of international governance in higher education policy has emerged. According to DiMaggio and Powell's terminology, a number of European universities are now participating in a common enterprise. Officially, their common

goal is to reform doctoral education in order to strengthen the research capacities of the European knowledge society for global competition (Pechar, 2007). This goal could be considered rhetorical for some of the countries involved and this paper is not interested in how single countries are realising core components of the reform. From a research perspective, it is more interesting to analyse why the inclusion of the third cycle in the Bologna Process has triggered the emergence of a supranational field of governance in which international organisations and higher education institutions are the main actors in policy definition and diffusion.

Applying the two theoretical concepts described above, the organisational field and the governance instruments of international organisations give deeper insight into why the reforms could spread at high speed across Europe.

Including the third cycle in the Bologna Process did not lead to a standardisation of doctoral education in Europe. The diversity of doctoral education and degrees has been maintained. But we also find a strong convergence in European universities in the following aspects:

– The reform process has led to greater institutional responsibility for doctoral education. The former continental model in which doctoral education was mainly the responsibility of professors has been replaced by a model where the university takes over responsibility for doctoral training.
– This change is linked to several other reforms. Taking over institutional responsibility forced universities to institutionalise organizational structures that can embed doctoral students in the broader framework of the university. Most universities have now created research or graduate schools that disentangle doctoral training from the more narrow master apprenticeship model.
– Offering taught courses in key and transferable qualifications is another instrument that has been implemented by most universities. Hence, the employability of doctoral degree holders has become part of the universities' interest in the efficiency of their training.

Even though the reform did not lead to a standardised or homogenised doctoral degree, we find some convergence among European universities, as responsibility for doctoral education has shifted from the individual to the institutional level. With this shift, universities have become the main actors in doctoral education that take care of research training. Looking at the reform process in more detail, we can state that the concept of the organisational field proves to be an adequate tool to understand this convergence.

DiMaggio & Powell (1983, p. 148) claim that one must assess empirically whether organisations have institutionalised an organisational field. We can observe that, with the inclusion of the third cycle in the Bologna Process, the interaction among universities and other actors in this field of higher education policy has increased. The most important factor that has contributed to this is that EUA, with its project on doctoral programmes in Europe, has started an open working dialogue among universities (EUA 2005, p. 31). The workshops and seminars on different aspects of doctoral education also helped to increase the number of interactions between European universities. We also find evidence of the emergence of sharply defined interorganisational structures of domination and coalition. Again, EUA had a strong

impact in this respect. We first come across a strong support for the leading role of EUA in the reform project, as it was given the mandate to organise the process by the Minister's Meeting. Secondly, the internal differentiation of special organisational structures, the EUA-CDE, contributed to the crystallisation of interorganisational structures with members taking over a steering role in the process. Also, the different projects on doctoral education run by EUA were based on networks among universities and other stakeholders in higher education policy who cooperated on different topics. Unfortunately, available material does not indicate to what extent patterns of domination and coalition have emerged, but it becomes clear that a steering unit has been integrated into the process with the implementation of the CDE.

What becomes very obvious from the process is that the ongoing analyses of doctoral education, the workshops and seminars on the topic and the declarations and principles led to an enormous increase in information on doctoral education. The growing research interest in the different aspects of doctoral education has also contributed to this. The definition and exchange on best practices in workshops and seminars can be seen as a further information input.

This constant exchange among European universities in networks, workshops and seminars and the building of formal organisational structures made it possible for universities to develop a mutual awareness that the reform of doctoral education can be regarded as a common enterprise. Some scholars argue that it has led to growing competition among universities (Kehm, 2007), but we find that strong cooperation among universities as regards the definition of good practices has emerged. They value the mutual benefit of exchange on good practices. Their common interest in finding the most adequate instrument for doctoral education defines their mutual awareness of being involved in a common enterprise.

These findings support the idea that the inclusion of the third cycle in the Bologna Process has institutionalised an organizational field. It also becomes clear that EUA, as an international organisation, has played an important role in establishing this field and the dramatic speed of the reforms.

Assessing the process in an organisational field tells only part of the story. We can also see from the short history of the third cycle in the Bologna Process that EUA acquired its strong role by using certain governance instruments to steer and shape the process. Drawing on the categories of governance instruments provided by Leuze et al. (2008), we find that, except for financial means, all other governance instruments have been applied by EUA.

– Discursive dissemination: for the reform of doctoral education EUA chose a very special way to popularise ideas on doctoral education. Instead of generating ideas and issuing them top-down via domestic legislations, EUA chose a bottom-up approach. Using the method of open dialogue, it drew on the ideas and experiences of universities and experts in doctoral education. Jørgenson (2010) classifies this approach as a grass root movement that has mainly succeeded because of the contributions of the actors involved. We also observe that ideas about the reform of doctoral education were not clearly defined when EUA issued the Graz Convention. The notion that doctoral education should be included in the Bologna Process as a third cycle released the reform process.

– Once this first step was taken, EUA used the instrument of standard setting. Elaborated in a bottom-up process, ten principles of doctoral education were formulated and prominently issued at the Salzburg Conference. The integration of the these Salzburg Principles in the Bergen Communiqué 2005 strongly supported that certain ideas on doctoral education were taken as a good practice to guide the reform. They also function as evaluation standards, as they were used to take stock of the changes that had taken place in the universities. Furthermore, the Ten Salzburg Principles fed in a manual on how to develop the doctorate in institutional settings. The EUA Handbook issued general guidelines on how reforms of doctoral education should be implemented (Chambaz, Biaudet & Collonge, n.d.).

– EUA also functions as a central coordinator for the reform process. It does not exert surveillance; as it does not promote and supervise decisions at university s level. As it has received the mandate from the Ministers' Meeting in 2007 to further steer and accompany the reform process, it can be regarded as the main coordinating institution. Before 2007, EUA was mainly preparing the decision of the Ministers' Meeting by contributing input on the recent reforms in doctoral education.

– Finally, EUA used technical assistance to an extensive degree. The EUA Handbook can be understood as a central instrument to assist in the implementation of new aspects of doctoral education. These texts and the reports on best practices can be seen as strong instruments to define the content of graduate and research schools, as well as transferable skills. These publications helped to develop a common understanding of the new terminology around doctoral education.

Table 2 summarises the governance instruments used by EUA to push forward the reform of doctoral education in Europe. Summarising these findings, it becomes clear that by institutionalising an organisational field and using certain governance instruments, the reform of doctoral education has emerged as a reality in its own right. It was socially constructed by the universities participating in the process and successfully steered by EUA. The constant exchange on reforms, solutions and the implementation of a new terminology allowing discussions about doctoral education at an international level were factors that contributed to the wide diffusion of several elements of the reform. One could assume that this provided new solutions to universities and/or countries that were stuck before.

Looking at the reform process as a whole, we can state that EUA was able to open a window of opportunity and link problems, politics and policies. European countries that were stuck in their own national reform processes before (Kivinen, Ahola & Kaipainen, 1999) were provided with workable instruments, manuals and workshops to reform doctoral education. One central element for the success of the EUA initiative was its open working dialogue that gave higher education institutions and countries opportunities to learn about good practices without too much investment. Furthermore, the special treatment of doctoral education as a third cycle in the Bologna Process gave the reforms a special forum. A cooperation network and a common language on doctoral education were developed within this forum. These developments made doctoral education more tangible for the actors involved.

3.5 CONCLUSION: A NEW ARENA OF EDUCATIONAL GOVERNANCE?

Besides the dramatic speed of the reform of doctoral education, what is most interesting about it is that the reform happened in a new form or arena of governance. To understand the underlying process, it is irrelevant whether it can be understood as internationalisation, globalisation or Europeanisation. What is more important is the fact that responsibility for the reform was moved from the nation states and their governments to international organisations and higher education institutions. The process can be understood on the one hand as a consequence of foregoing reforms and as an ongoing Europeanisation of universities on the other. It can be understood as a consequence of the comprehensive reforms of higher education, as these gave universities the opportunity to gain a stronger degree of actorhood (Krücken & Meier, 2006). Universities now can autonomously decide their internationalisation strategies and actively compete with other universities (see also Kehm, 2007, Kupfer, 2008). Furthermore, most of the recent national reforms of higher education delegated responsibilities for several issues to higher education institutions (Kupfer, 2008).

Governments or Ministries of Education only played a minor role in the definition of certain concepts of the reform. It was mostly driven by the universities themselves and international organisations were structuring the reform process to a large extent.

Table 2. Governance Instruments of EUA

Governance instruments	Dominant function	Concrete measures
Discursive dissemination	Establishing ideas	Bottom-Up Approach Open dialogue with universities, democratic participation, grass root movement of universities Fine tuning and definition of ideas in the process
Standard setting	Prescribing behaviour	Berlin Communiqué Bergen Communiqué Salzburg Principles on Doctoral Education EUA Handbook – Developing the Doctorate
Coordinative activities	Execute surveillance	Stocktaking/reports on Doctoral Education/Doctoral Programmes in Europe Preparing decisions on doctoral education for Ministers' Meetings in the Bologna Process
Technical assistance	Support structures	Workshops and practitioners seminars on doctoral education Institutionalizing a special terminology on doctoral education. Manuals on implementing new forms of doctoral training in universities

Compared to other recent reforms in higher education and research, the steering of this reform has clearly moved from the state level to the level of the higher education institutions.

While Enders (2004) suggests that autonomous universities would produce a variety of internationalisation strategies across Europe, one could assume that the current reform of doctoral education leads to some standardisation across Europe. Kehm (2007) and Kupfer (2008) describe that the recent reforms that came along with the Bologna Process made it possible for higher education institutions to benchmark their performances and to compete. This did not lead to a higher variety but to a stronger standardisation of practices in doctoral training. To date, it is not clear whether this standardisation of practices of training will lead to a standardisation of doctoral degrees. But we can already see that EUA's mandate has facilitated the whole process, but has also led to a strong standardisation of practices in doctoral training. Whether this standardisation will also lead to a standardisation of doctoral degrees across Europe remains to be seen.

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4 THE EFFECT OF THE ERASMUS PROGRAMME ON EUROPEAN HIGHER EDUCATION

The Visible Hand of Europe

4.1 INTRODUCTION

For the last few decades, European higher education has gone through significant transformation which has been driven by broad global developments, such as massification of higher education, a global competition, and economic benefits of education (Maassen & Stensaker, forthcoming). The direct and indirect influence of the European dimension is another force that gradually changes the nature of higher education in Europe. The pace of change has accelerated since the 1990s, particularly with the Sorbonne Declaration (1998), the Bologna Declaration (1999), and the Lisbon Strategy (2000). The first two have led to a process to make study programmes more compatible and transparent across Europe as well as to the outside world. The Lisbon process seeks to reform the continent's still fragmented national systems into a more powerful and more integrated knowledge-based economy in which higher education is regarded one of the key drivers of innovative capacity. Subsequent communications from European policy makers have strengthened the belief that higher education institutions will be crucial to Europe's future well-being and that stronger cooperation between countries and universities in this endeavour is a necessary condition for success.

The effect of the European Union on higher education goes beyond these policy declarations. As shown by Beerkens (2008), we can observe the process of Europeanisation in higher education in all dimensions of the supranational governance—in the EU rules, EU organisations and the development of a transnational society. Not only the mobility of students and staff and academic cooperation within Europe have significantly grown, but also institutions such as the Framework Programmes, the European Research Council (ERC), the European Institute of Technology (EIT) have strengthened the role of Europe as a player in the higher education landscape. Also legal regulations, such as recognition of qualifications, right of residence for students, or the rights of children of migrant workers have significant policy effects. Furthermore, legal regulations from other sectors have proven to have an indirect effect. For example, the general principles of common labour market and non-discrimination have had a direct implication on funding and admission policies for international European students, as ruled by the European Court of Justice (Reuvers, 2010).

The relationship between European initiatives and national developments in the area of higher education is an interesting issue. Formally, the education sector is left outside the jurisdiction of the European Union and is only a national responsibility. Nevertheless, we can observe a significant and increasing effect of the European dimension in higher education systems everywhere in Europe. This chapter analyses the effect of one of the supranational instruments of the European Union—the ERASMUS programme. It is one of the best-known European level instruments in higher education and is called a 'flagship' programme (EC, n.d.). It has been in place for 25 years while its original function of facilitating student and staff mobility is still dominant next to stimulating institutional collaboration. This chapter aims to track the effect of ERASMUS on higher education institutions, national policies, and supranational developments. It also aims to demonstrate the expansion in breadth of the programme.

4.2 THE ERASMUS PROGRAMME AND EUROPEAN UNIVERSITIES

ERASMUS is a programme of the European Commission. It was launched in 1987 as a student exchange programme. Since its inception, it has enabled more than 2.2 million students and 250,000 academic staff to be mobile within Europe (EC, n.d.). Around 90% of European higher education institutions (more than 4,000) in 33 countries participate in the programme. ERASMUS, however, is not only a mobility programme. Over the years, its scope and contribution have broadened. In the framework of its decentralised actions – coordinated through national ERAMUS units – the programme supports projects that bring together students and staff from several countries for an intensive programme, linguistic courses and preparatory visits to widen the ERASMUS network. In addition, under the umbrella of the European Union's Socrates (1994–1999), Socrates II (2000–2006) and Lifelong Learning Programme (2007–2013), ERASMUS has supported many centralised actions which are coordinated by the Brussels' ERASMUS office, including multilateral projects for curriculum development, modernisation of higher education, virtual campuses and facilitating academic and non-academic networks. Some of these initiatives have had a significant influence on broader developments in the higher education sector, as we will discuss below. ERASMUS has been thus constantly expanding its scope and developing new ways for stimulating and supporting higher education. Since 2007, ERASMUS has three new components: student placements in enterprises, university staff training in enterprises and teaching business staff (EC, n.d.).

Over the years, ERASMUS has had an important role in making European universities more international. As shown by various evaluation reports, its effects exceed the direct impact on mobile students and staff. As early as 1996, Maiworm et al. refer to the fact that institutions supported by ERASMUS are more internationally oriented. The effects of ERASMUS became visible in the institutionalisation of international activities. Since its launch, universities have been more likely to establish an international office, language centres and other specialised units (Teichler & Maiworm, 1997). The integration of ERASMUS in the Socrates

programme increased institutions' awareness for European and international activities even further (Barblan et al., 2000) and resulted in a reinforcement of institutional policies (Teichler, 2001). There is also a clear trend of institutions moving from ad-hoc decentral strategies for internationalisation to a more centralised strategy, where a large volume of international work is undertaken and the international mission is explicit, followed through with specific goals and procedures (Brakel et al., 2004).

The European Policy Statements (EPS) have had a significant impact. According to a Europe-wide survey, representatives from most universities agree that the requirement to submit an EPS has helped to increase awareness and co-operation in Europe-oriented activities (Brakel et al., 2004). Moreover, these authors indicate that some aspects of internationalisation have become more prominent, such as the Europeanisation of the curricula, improvements in the quality of teaching and learning for mobile students, and quality assurance.

While the impact of ERASMUS on the international dimension of European universities is well documented, its effect on the quality of teaching, services and management is much less studied. Although ERASMUS/SOCRATES is believed to have had a considerable effect on higher education institutions, less than one third of survey respondents – being ERASMUS coordinators – were convinced that the programme had contributed to an improvement of the quality of *teaching and learning* (Teichler et al., 2001). While many students see academic development as a benefit of their ERASMUS period, the primary contribution is linked to personal development and soft skills, not to academic enhancement (Teichler, 2001). Nor are mobile teachers very optimistic about enhancements in terms of teaching methods and curricula as a result of their stay abroad (Kreitz & Teichler, 1997). Most mobile teachers reported positive effects of the programme, but these referred to closer contacts between the institutions involved, an increase in joint activities between the teacher's home and host institution and efficiency of administrative processes. The importance of teacher mobility is recognised by university leaders, not because of its effect on teaching and learning, but as an instrument of reputation building (Bracht et al., 2006).

The effect of ERASMUS on European universities cannot be viewed in isolation, but against the background of a more general trend of internationalisation. The changes that internationalisation inspires mainly concern organisational structure and management (Vossensteyn et al., 2008). It has become more important in universities' strategy. International offices and international relations offices have been established, with major growth in the 1990s. These offices often have direct access to the highest level of institutional decision-making and the international dimension has achieved a prominent place in universities' goals and mission state-ments. While universities differ in terms of their level of internationalisation and ambitions, international networks and cooperation are perceived to be beneficial in most institutions.

Internationalisation affects not only organisational structure, but also teaching and research. Internationalisation of the curriculum, joint degrees, and collaborative research networks affect the core activities of universities. Adjustments in the language

of instruction are a clear side-effect of internationalisation. English-taught Bachelor and Master programmes have grown rapidly from 700 courses in 2002 to 2,400 in 2007 (Wächter & Maiworm, 2008). Universities are motivated by their governments to offer programmes in English in order to attract international students, prepare domestic students for the global labour market and raise the profile of the institution. These programmes seem to have had some interesting side-effects in institutions. For example, universities have had to develop 'marketing' strategies for their English-taught programmes to attract both domestic and international audiences. As a result, the marketing of traditional domestic programmes has also improved. Improvements in student services and more targeted student recruitment are also identified as positive side-effects (Vossensteyn et al., 2008).

However, universities not only respond to internationalisation, but also use it actively to achieve their own goals (Huisman & Van der Wende, 2005). The reasons for developing an international dimension vary by country and type of institution. Some universities use international activities to acquire the status of global player or 'world class university'. Others find this goal either unachievable or undesirable and, while also responding to competition, they aim to strengthen their European or regional profile. In some countries, international students have become an important financial resource for universities and internationalisation is sometimes necessary for the survival of a faculty or programme. Another group of universities uses internationalisation to help enhance their reputation in the local community and/or nationally. Internationalisation of curricula and students may also be regarded as a way of improving the quality of teaching. As such, teaching programmes keep up with developments in the professional field and students mutually learn from other perspectives.

The effect of ERASMUS is therefore congruent with a general trend of internationalisation. Interestingly, however, two recent ERASMUS evaluations (Brakel et al., 2004; Teichler et al., 2001) conclude that the EU view of internationalisation is becoming more inclusive, looking further than just promoting the mobility of individuals. EU policies and actions are said to increasingly influence policies and planning practices of higher education institutions and systems. This is an interesting trend in the light of the restricted authority of the European Union in this particular area.

4.3 EUROPE, NATION STATES AND HIGHER EDUCATION INSTITUTIONS

The authority of the European Union in the area of higher education is quite limited. As stated in Article 149 in the *Treaty Establishing the European Community*, the education sector is under the control of the Member States, fully respecting their responsibility for 'the content of teaching and the organisation of education systems and their cultural and linguistic diversity'. The actions of the European Union in this sector are limited to the following aspects (Article 149):
– developing the European dimension in education, particularly through the teaching and dissemination of the languages of the Member States,
– encouraging mobility of students and teachers, by encouraging inter alia, the academic recognition of diplomas and periods of study,

- promoting cooperation between educational establishments,
- developing exchanges of information and experience on issues common to the education systems of the Member States,
- encouraging the development of youth exchanges and of exchanges of socio-educational instructors,
- encouraging the development of distance education.

The ambition of the European Union is thus limited to mobility and cooperation among institutions. The overall goal, as defined in Article 149, is to 'contribute to the development of quality education', but only within the limits mentioned.

Although the mechanisms for support are quite limited, this does not necessarily mean that the effect of these initiatives is as modest on institutions and systems. We can predict from a functionalist perspective that active mobility and cooperation require some adaptation from universities. When mobility becomes widespread, universities need to set-up structures to facilitate the process. This includes organisational structures to accommodate the needs of mobile students and staff, e.g. information and accommodation. It is also likely that a more international environment has an effect on curricula and other aspects of the academic environment. Finally, when mobility and cooperation between institutions increase significantly, there emerges a need at the institutional level to address the international dimension more systematically, formally, and perhaps also selectively.

The relationship between the initiatives and regulations of the European Union, national policies and institutional activities cannot be viewed as unidirectional. There is a feedback loop at every level. Stone Sweet and Sandholtz (1998) conceptualise European integration as an interaction between transnational exchange, supranational organisations, and EC rule-making. If transnational activities emerge in one specific area, then the activities trigger further supranational regulation in order to coordinate these transnational activities and increase the role of supranational organisations. According to this framework, a relationship between transnational activities and EU policies is neither a top-down nor a bottom-up process, as for example in the distinction between the Europeanisation and European integration approach of Börzel (2003). We speak of the 'bottom' and the 'top' developing together, facilitating and triggering each other.

From this perspective, we can expect a feedback effect between developments in higher education institutions and related European policies. When mobility and international cooperation activities spread in universities, they not only trigger changes in institutions to adapt to the new environment, but the new environment requires more facilitation and regulation at the national and the European levels. It is therefore expected that the role of Europe has extended from supporting mobility and cooperation to creating the wider structures and policies that facilitate mobility more generally.

One must keep in mind that the term EU policy is used here quite loosely. EU policy-making is still restrained by the limits that are identified in the EU Treaty mentioned above. The policies would take the form of initiatives, projects, norms and recommendations, not of regulations and directives. However, the Bologna Process cannot be called an EU policy as it is a voluntary intergovernmental process

to internationalise and integrate the various national higher education systems. The ERASMUS programme is a European policy initiative but activities under this programme, as an example, are in no way forced on any country or institution. Nevertheless they have a strong impact. In the next chapter, we will focus on the effects of the ERASMUS at two levels. First, we analyse the perceived effects on higher education institutions, including their central management and academic programmes. Secondly we analyse how far ERASMUS has triggered or contributed to more substantial and large-scale initiatives in the new, more transnational environment at system level.

4.4 THE IMPACT OF THE ERASMUS PROGRAMME

Adding to the large body of knowledge about the impact of ERASMUS on students, staff and higher education institutions in Europe, the 2008 study (Vossensteyn et al., 2008) – which is central in the remainder of this chapter – takes a broader look at its various effects. It examines the impact of ERASMUS not only on internationalisation policies, but also on academic activities in universities. Therefore, the starting point of this 2008 study was the core functions of a higher education institution: teaching, research and openness to society. A potential impact on teaching would, for example, concern innovations in the curriculum, teaching methods, examination and evaluation, and other related areas. A potential effect on research would relate to the research agenda and quality, but also to research networks and communication strategies. Lastly, openness to society is not only understood as the contribution to the region, the economy and society, but also to networks and international cooperation in general. While these three missions are the core tasks of universities, they are not the only possible ways in which ERASMUS impacts on institutions. Strategies set at the central level and policies related to quality assurance, credit accumulation may also be important impacts that influence universities' functioning.

One can thus identify different organisational levels to determine a potential impact of ERASMUS. In this chapter, the focus is not on the immediate personal level of the ERASMUS impact on students and staff in terms their career-related and personal development. The core focus is on the effects of ERASMUS on higher education systems and institutions. The potential impact relationships between the various levels are summarised in Figure 1.

The academic department level is most directly involved in the core tasks of teaching, research and openness to society. ERASMUS can affect faculties and academic departments in various ways. The centralised actions such as curriculum development, thematic networks and intensive programmes contribute directly to curriculum and learning opportunities. Mobility actions have an effect not only on mobile students and staff, but also on an academic environment more broadly. Mobile teachers can bring new ideas, experiences and competences and mobile students may enrich the classroom with different perspectives. Furthermore, in order to accommodate the needs of mobile students and staff, departments may need to adjust their academic programme and support structures.
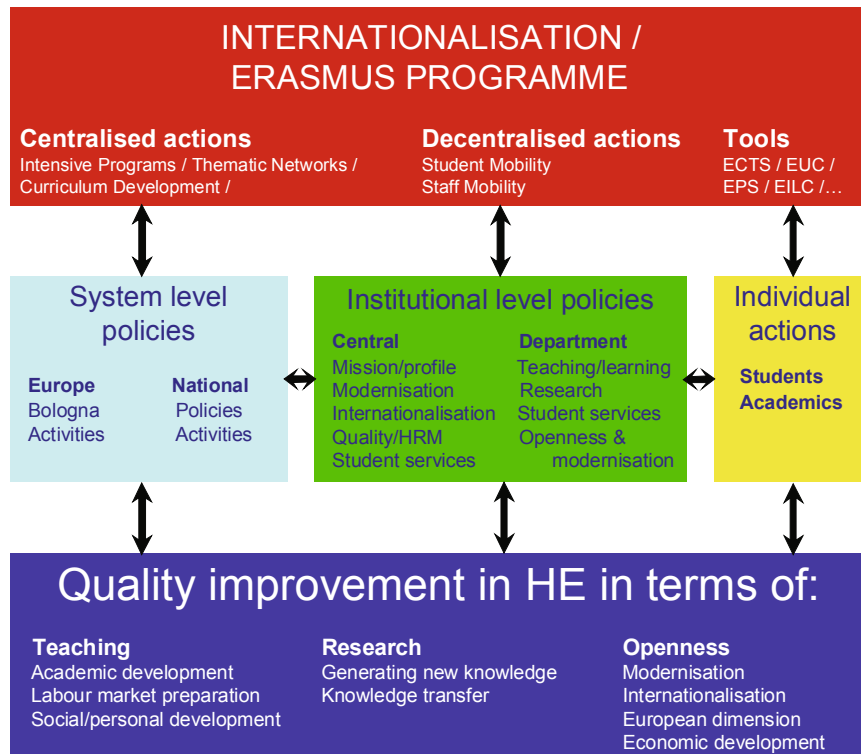
Figure 1. Operational model for evaluating the impact of the ERASMUS programme on higher education in Europe

Note: Figure 1 shows a simplified overview of the relationships that matter in the implementation of internationalisation programmes such as ERASMUS. One must realise that actions and policies at one level result in reciprocal effects in actions and policies at the other levels. In the study of which results are presented it was intended to show the impact of the ERASMUS programme on quality improvement activities and policies at the level of higher education systems and institutions.

At the institutional level, the central management activities affect teaching and research objectives indirectly through institutional policies such as profiling, internationalisation strategies, quality assurance, student services, etc. The central management level activities and policies provide an overall direction to an institution, specify standards and thereby facilitate and influence practices at the academic unit level. In the context of the ERASMUS programme, universities may have adjusted their structures and policies to accommodate mobile staff and students – e.g. with mobility grants or flexibility in the academic planning – to support partnerships and networks with other institutions or to support curriculum development and intensive programmes.

The effect at the national and supranational levels is more indirect and emerges through other means than the main activities in the programme. If institutions and departments start to internationalise more, or governments specify that internationalisation and modernisation are increasingly important, then different conditions must be created in order to facilitate smooth mobility and international cooperation. At a system level, including the national and supranational level, policies shape the environment in which higher education institutions operate and organise their activities. The most important effects at the system level are therefore policies and policy instruments that stimulate higher education institutions to change.

In attempting to document a relationship between ERASMUS and developments in the European higher education sector, two approaches were used. To evaluate how ERASMUS has contributed to – or hindered – achieving teaching, research and other goals of European higher education institutions and departments, a large scale survey was conducted among two groups of university representatives: university internationalisation/ERASMUS coordinators and faculty representatives responsible for the coordination of ERASMUS. A smaller scale survey was conducted among university leaders. In total, the survey received 951 responses from central ERASMUS coordinators, 903 responses from departmental coordinators (from 328 institutions) and 752 responses from institutional leaders (Vossensteyn et al., 2008).

To analyse the effect of ERASMUS on large-scale developments at the national and supranational levels, we attempted to document the main initiatives under the ERASMUS umbrella which have had a lasting and visible effect on the higher education sector in Europe. As shown in other studies (e.g. Brakel et al., 2004), a survey and interview approach among stakeholders is not particularly effective to establish a link between ERASMUS and (inter)national developments. Since the factors behind such large-scale developments are multiple and because the role of ERASMUS in these developments is often rather ambiguous, it would be difficult for respondents to make the link. Therefore a systematic overview of ERASMUS-related initiatives is the most transparent way to think about the broader effects of ERASMUS.

4.4.1 The Impact of ERASMUS on Higher Education Institutions and Academic Departments

Examining the perceived effect of ERASMUS on different aspects of academic life, the results of the centralised ERASMUS coordinators, departmental coordinators and institutional leadership are discussed simultaneously as far as possible. In case of major distinctions, they will be dealt with separately. It is interesting to note that the relative importance of ERASMUS for different aspects is quite consistent among the groups, but the coordinators seem to be more optimistic than the departmental representatives about the contribution of ERASMUS. This is an expected outcome. The day-to-day work of central ERASMUS coordinators revolves around the issues of internationalisation and its policies, whilst the departmental representatives see the interaction with various other factors and limitations related to internationalisation at the shop-floor level. The percentages below report the proportion of respondents in each group who consider the contribution of ERASMUS in various aspects as

either important or very important. In the survey, we also distinguish between a triggering and a supportive effect because it is likely that in many cases ERASMUS may have supported larger processes without triggering activities or the other way around.

4.4.1.1 The Impact of ERASMUS on Teaching, Learning and Student Services

The results indicate that the greatest contribution of ERASMUS is in the area of student services. As one could expect, the areas related to student and staff mobility are perceived to be affected the most (Figure 2). 75% of central coordinators indicated the role of ERASMUS in improving the counselling for staff and students interested in study abroad, 68% reported improvements in the non-academic support for incoming students, 61% see that ERASMUS triggered the institutions' efforts to provide course and other information in English. ERASMUS has had a significant impact on adapting campuses to the needs of international students. Universities have set up and expanded international offices, provided language training for out-going and incoming students and provided contact persons at international support offices. Information provision has also improved, e.g. websites for international students and information on health issues. Additional services for students, such as accommodation services, have been created on many occasions. ERASMUS procedures (e.g. learning agreements) are often extended to other international mobility programmes and thus benefit non-ERASMUS students. Interestingly, the respondents see the role of ERASMUS as triggering rather than supporting these improvements.

The major contribution of ERASMUS is therefore linked to mobile staff and students, but one can also detect some spill-over effects on domestic students. An interesting result is the fact that all arrangements made for mobile students also improved the facilities, information provision and transparency offered to local students. A significant 38% of central coordinators found that ERASMUS contributed to services for domestic students. As an example, a need to provide information to international students on accommodation, health and other important aspects of student life also improves such information for domestic students.

ERASMUS has less impact on teaching functions than on student services. As reported by departmental representatives, the contribution is largest in the areas of internationalising teaching and learning (45%), fostering soft skills (41%), setting up courses in English or in other foreign languages (36%) and internationalising the curriculum (36%). A contribution to introducing a foreign language requirement in the programme receives quite a number of responses (28%). We can thus see that ERASMUS has a significant effect on making a programme more international. One aspect that sticks out from this pattern is the contribution in developing soft skills. This area is not directly linked to internationalisation, but, according to depart-mental representatives and central coordinators it is the second most important contribution after internationalising teaching and learning. All other aspects, such as curriculum innovation, teaching methods and examinations are recognised by less than a quarter of respondents.
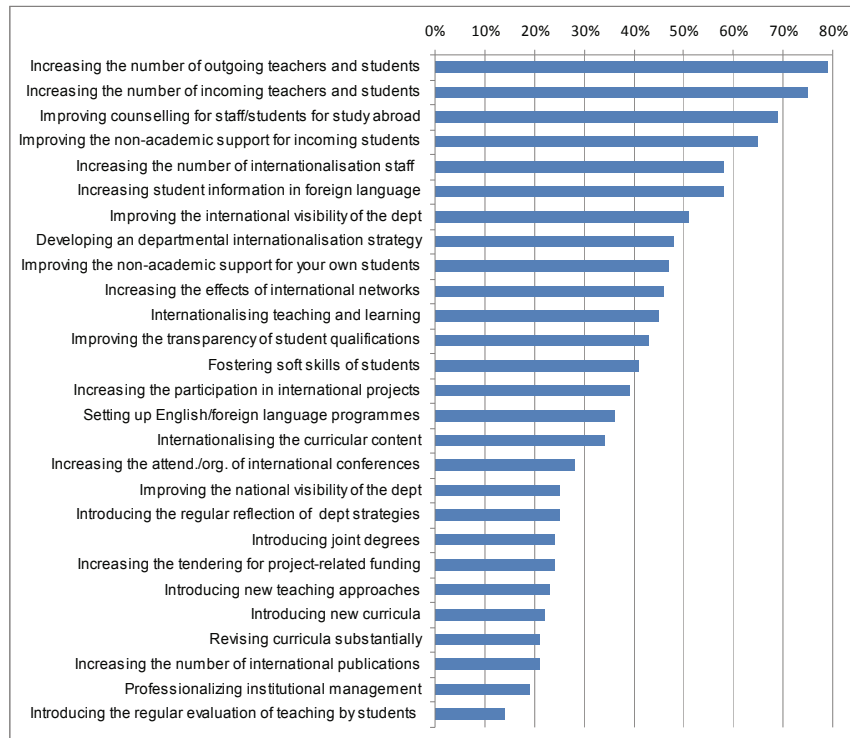
Figure 2. The importance of ERASMUS in initiating selected processes
in university organization and academics.

Note: % of departmental ERASMUS coordinators perceiving the effect of ERASMUS as (very)
important.

4.4.1.2 The Impact of ERASMUS on Transparency and Quality

ERASMUS is acting as a driver to improve transparency and transferability of student qualifications at more than half the participating institutions (53%). About half the coordinators also reported that ERASMUS triggered language training and inter-cultural training for teachers. With respect to modernising the learning infrastructure, quality, professionalisation and introducing regular student and/or graduate surveys, however, both the central coordinators and the institutional leaders recognised only a limited effect.

4.4.1.3 The Impact of ERASMUS on Research

Considering that ERASMUS does not directly support research activities in universities, we can expect a lesser influence in this area. Yet 23% of respondents

see ERASMUS as having an effect on incorporating an international dimension in research proposals and fewer (16%) see a link to improving research excellence. We also see that ERASMUS has a considerable effect on research networks. It increases the participation in international projects (34%) and attendance in international conferences (20%). This confirms earlier suggestion that the benefits perceived by mobile teachers are more closely linked to expanding networks than to teaching related activities (Kreitz & Teichler, 1997). Again, ERASMUS has a role of initiator in these activities and concerning the international networks we see the biggest gap between initiation and support.

4.4.1.4 The Impact of ERASMUS on Networks and Cooperation

Expectedly, the role of ERASMUS in the area of mobility, networks and cooperation is important. It has a deep effect on promoting outgoing and incoming teachers and students: respectively 79% and 75% of ERASMUS coordinators saw it as an initiator of these activities and 71% and 62% found it supportive. International networks that ERASMUS helped to create are benefiting the institution more generally. Just under half the respondents (42%) recognised the role in the effect of international networks as well as in increasing participation in international projects (34%). Interestingly, 67% of institutional leadership representatives reported (very) great progress in increasing the participation in international networks and projects (in teaching, research or at the institutional level) as well as cooperation with interest groups in their respective university regions. Also with respect to strengthening cooperation with the economic sector, the members of university leadership rated progress slightly more positively (42% (very) great) than the central coordinators.

4.4.1.5 The Impact of ERASMUS on Institutional Management and Development

The effect of ERASMUS is not necessarily limited to the three missions of universities (teaching, research and openness to society) but can also include institutional management and development. At more than half the institutions surveyed, ERASMUS was the trigger for establishing or developing institutional internationalisation strategies, as well as improving international visibility and attractiveness of the institution. Impacts on other aspects followed far behind, but are still considerable. At least one quarter of the institutions reported the effect of ERASMUS on regular reflection on and evaluation of institutional strategies, improving the national and international visibility and attractiveness of an institution and increasing tendering for project-related funding. It is also significant that 40% of the central coordinators and half the university leaders said that ERASMUS played a triggering role in professionalising institutional management. University leaders also reported that it enhanced the international and national visibility and attractiveness of the institution and that in many cases it triggered the development of an institution wide internationalisation strategy. In addition, 22% of the institutional leaders indicated that ERASMUS triggered a process of regular reflection on and evaluation of the general institutional strategies and 18% stated that it was supportive to these processes.

Furthermore, two thirds of institutional leaders stated that ERASMUS strongly contributed to a process towards (financial) resource diversification.

4.4.1.6 The Impact of ERASMUS on Different Types of Institutions

The perceived effect of ERASMUS, however, is not homogenous in different types of universities and between countries. Larger institutions tended to report a greater impact of ERASMUS in most areas. In general, larger institutions are more actively involved and therefore experience a greater effect. There are, however, some important exceptions. Coordinators at small institutions saw the triggering effect of ERASMUS as being significantly higher than their colleagues in mid-size and large institutions: 43% recognised the triggering effect on participation in international projects and 35% on attendance at or organisation of international conferences. ERASMUS seems to be particularly important for small institutions to establish international contacts and expand their international network.

Institutions in the new EU Member States seem to have gained more from ERASMUS than those in traditional EU Member States. For most aspects the respondents from new Member States reported a greater importance of ERASMUS in initiating change and in supporting the developments.

When we look at the general picture of the effects of ERASMUS, we see that these effects are strictly in the line with its main mission – to facilitate mobility and collaboration and promote quality. The most important aspects of the programme relate to triggering mobility and providing services (including information) for mobile students and staff. To a somewhat lesser but still considerable extent it has contributed to internationalising the learning environment and curricula and enhancing international networks. At the institutional level, ERASMUS has helped institutions to build their international visibility and encouraged the development of an internationalisation strategy. The indirect effect of ERASMUS on teaching approaches, curriculum, research activities and quality assessment is relatively small. As will be argued in the next section, however, the perceived effects of ERASMUS give us only a partial picture of the full impact of the programme on European higher education institutions and systems.

4.4.2 The Impact of ERASMUS on (supra-) National Developments

The effect of ERASMUS on national and supranational policies is quite difficult to capture. National policies are triggered and influenced by a range of forces and interest groups. Brakel et al. (2004) attempt to map these higher level effects and admit that policy documents and interviews rarely specify which particular national policies were connected to specific elements of ERASMUS. Yet its traces can be found in the major higher education policy developments in Europe, such as in the Bologna process, Lisbon strategy, quality assurance initiatives and many others. Therefore, particular attention has been paid here to define and analyse the links between ERASMUS and various initiatives and developments at the national and European level.

The Bologna Process is the major development in the European higher education. It is a purely intergovernmental action, and not an initiative of the European Union, but its links to the EC's ERASMUS Programme are quite evident. The Bologna reform agenda builds to a large extent on the 'ERASMUS acquis'. Five out of six of the action lines of the Bologna declaration overlap with ERASMUS: transparent and comparable degrees (diploma supplement), the establishment of a credit system (ECTS), promotion of mobility (ERASMUS students), quality assurance (1998 Council Recommendation, ENQA), and the European dimension (joint and double degrees). Dozens of projects in these areas have been and are being financially supported by ERASMUS.

In addition to contributing to the agenda of Bologna process, there is also explicit evidence of the intention to draw on EU's programmes for its promotion and implementation. With respect to ECTS and the Diploma supplement, for example, 'the importance of the Commission's Socrates-ERASMUS programme as the 'main mechanism' for their introduction' is an explicit aspiration. (Zgaga, 2004; Witte, 2006). ERASMUS helps to provide the basic infrastructure for the running of the Bologna process. ERASMUS grants supported the Bologna Stocktaking exercise, the biennial Ministerial Conferences, the Bologna Follow-up Group conferences, the EUA (European University Association) convention, the EUA Trends reports, the ESU (European Students' Union) survey 'Bologna With Student Eyes', and a series of key seminars and projects.

The Europe-wide application of ECTS also forms a concrete example of how ERASMUS contributes to national and supranational policies. ECTS started in 1987 as a pilot project for a limited number of institutions (departments) involved in ERASMUS. The use of the credit system gradually extended to more departments and more institutions. In adopting and developing the credit system, institutions were supported by targeted ERASMUS grants and assisted by a network of ECTS Counsellors. The use of the system got a boost in 1998 when it was included in the Bologna process as one of the main action lines. At present, almost all 46 Bologna countries have made use of ECTS and extended it from mobile students to all students in all institutions and departments. Credits can now also be used to move from Bachelor to Master programmes within and between institutions. Furthermore, ECTS can be used to recognise informal and non-formal learning. A similar development has taken place with respect to the Diploma Supplement, a transparency tool developed by the Council of Europe, the European Commission and UNESCO.

Besides the Bologna process, the impact of ERASMUS-supported activities is particularly strong in the field of quality assurance. In the 1990s, the Commission organised pilot projects to test the possibility of external quality review of university education. The insights acquired through these ERASMUS projects were presented to the Education Ministers. This led to the Council Recommendation on European cooperation in quality assurance in higher education in 1998. According to this document, all countries were recommended to consider introducing systematic external reviews according to a provided format and exchanging good practices. This Recommendation laid the basis for the creation of ENQA (European Network for

Quality Assurance in Higher Education) in the year 2000. The European activities of ENQA are still supported through the ERASMUS' competitive funding scheme.

Quality assurance is now one of the most prominent action lines in the Bologna process which has contributed to the spread of systematic quality assurance in the sector. The European Commission supports this action line though the ERASMUS and Tempus programmes. The programme supports external (ENQA and quality labels) as well as internal reviews and collegial benchmarking organised by university associations (such as EUA). ERASMUS was instrumental for the European Quality Assurance Register (EQAR). The EQAR was launched in March 2008, based on the *Standards and Guidelines for Quality Assurance in the European Higher Education Area*, adopted by the Bologna Ministers in Bergen in May 2005. The Register has the political support of both the Bologna Ministers (London Communiqué, May 2007) and the EU Parliament and Council (Recommendation of February 2006). ERASMUS supported the creation of the Register as well as the first year of its activities. In addition, it funds the first three editions of the annual Forum on quality assurance in higher education organised by E4 (ENQA, EUA, EURASHE and ESU) and thereby facilitates a dialogue on quality assurance issues among stakeholders.

One decade after the adoption of the first EU Recommendation on quality assurance in higher education and the start of the Bologna process, all 46 Bologna countries have established one or more agencies that carries out systematic external reviews and puts the reports on the web (e.g. the ERASMUS supported *Qrossroads* database). Universities across the continent are now more aware of quality issues and many are engaged in internal and collegial benchmarking exercises. ERASMUS has certainly played a role in this development, even if it is not recognised by university representatives and leaders.

Another European level development where ERASMUS has played a significant part is related to the qualifications framework. Several countries, notably Ireland and Scotland, have had a longstanding experience with national qualifications frameworks. This experience was shared with others in an ERASMUS-supported project, coordinated by a ministry official from Denmark. The seminar he organised led to the inclusion of qualifications frameworks in the Bologna agenda (Berlin Communiqué, September 2003). In May 2005 in Bergen, the Bologna Ministers adopted the Framework for Qualifications of the European Higher Education Area. The Commission included it in the Lisbon Agenda for Growth and Jobs (Education and Training 2010 Work programme) in 2004. In April 2008, the Parliament and Council adopted a Recommendation on a European Qualifications Framework for lifelong learning (EQF). All Bologna countries are now working on their National Qualifications Frameworks and attempting to integrate the European references provided by the Bologna process and the EU.

The role of ERASMUS in these developments was not limited to the initial launching but also supported several subsequent initiatives. Particularly influential in this respect is the ERASMUS-supported project 'Tuning Educational Structures in Europe' which started in 2001 and still continues. In this project, professors from across Europe define the competences of graduates in a series of subject areas,

including subject specific competences and generic competences such as teamwork and intercultural communication. The Tuning descriptors will serve as an input for the *Sectoral Qualifications Frameworks* (in areas such as law, engineering, arts). The Tuning approach will also be used to define competences in the Assessment of Higher Education Learning Outcomes (AHELO, a feasibility study of OECD).

Also, ERASMUS supports several initiatives that have a potential to become trendsetters for European higher education in the future. The Lifelong Learning Programme supports new developments in the area of transparency and comparability in European higher education, e.g. the pilot projects that test the feasibility of European systems of *classification* (U-map) and *ranking* (U-Multirank) that would do justice to universities' different missions as regards education, research, internationalisation and community outreach. ERASMUS-supported projects will also contribute to setting up a sustainable data collection system on higher education institutions.

The effect of ERAMUS crosses the borders of Europe. There are several examples of how it has inspired countries outside Europe. The Japanese government launched a policy to establish an Asian version of ERASMUS for academic credit transfer and accumulation as from 2009 (Daily Yomiuri Online, 2008) and the ECTS system serves as a model in many countries (in Africa and Asia).

Besides these European level effects, earlier studies suggest some evidence about the direct impact of ERASMUS on national policy developments. According to a stakeholder survey, ERASMUS led to a reflection on domestic internationalisation policies (Brakel et al., 2004). Growing internationalisation activities of both students and higher education institutions (connected both to ERASMUS and other internationalisation policies and programmes) increased the awareness of national governments regarding the importance of internationalisation. ERASMUS has helped to make internationalisation a part of mainstream higher education policy. As a specific example, it has influenced the policy of portability of student financial support and offering additional mobility funds for students within and outside the programme.

The effect of the programme on internationalisation has been particularly strong in the first years of its existence and in countries where internationalisation was not highly developed. In those countries where internationalisation was already high on the agenda of either the government or the higher education institutions (for example Sweden, Norway and UK), the impact of ERASMUS was considerably less (Brakel et al., 2004). However, in these countries ERASMUS contributed to a move towards Europe. For example, in Sweden it meant a move away from prioritising co-operation with the US; in Ireland, the focus before was on other Anglo-Saxon countries; in Portugal, many internationalisation activities were geared towards Latin America; and in Liechtenstein the focus was on their German-speaking neighbours.

ERASMUS has also inspired 'clone programmes or initiatives' at the national level. Some examples of the links between ERASMUS and specific national policies can be identified. Cross-border co-operation policy in The Netherlands, Flanders and a few German states and the NORDPLUS initiative of the Scandinavian countries are examples of such clones (Brakel et al., 2004). ERASMUS has also inspired mobility within the regions of the same country. The ERASMUS BELGICA

programme in Belgium, for example, aims at encouraging the mobility of higher education students between the three communities of Belgium, applying the general principles of the European ERASMUS programme.

In sum, ERASMUS has triggered significant developments on the European scale. One can see that earlier initiatives that grew out of necessity to facilitate mobility, such as a small scale credit system, were gradually taken up as more large-scale organised initiatives, such as harmonisation of higher education systems, a shared qualifications framework and a quality assurance system.

4.5 CONCLUSIONS

In this chapter, it is argued that through ERASMUS, the European Union has had quite a considerable effect on higher education in Europe. Some 25 years ago, the programme started as a student exchange initiative. Strictly speaking, it is still functioning within the borders of its original mission and in the limits as prescribed for the European regulation in the education area, i.e. mobility and international cooperation. On the other hand, we do see that its indirect role has been mode intensive and wide-spread. For example, the ERASMUS supported Bologna process has made European countries revise their entire degree structure, work towards a more common Qualifications Framework and change considerably the existing approaches to teaching and quality evaluation.

Though ERASMUS is not the 'mother of internationalisation' in Europe, it is an interesting case study that illustrates an interplay between transnational exchange, EU-rules (loosely defined), supranational organisations and institutional as well as individual behaviour. Through the programme, the European Commission has promoted transnational exchange in the Member States. As witnessed by university representatives, the regular ERASMUS initiatives, such as student and staff mobility and network development have triggered significant changes in institutions. The developments are primarily related to various aspects of internationalisation, such as facilitating mobility in institutions, improving student services for mobile students, establishing internationalisation policies and international offices, and increasing the number of 'internationalisation' staff. But institutions also increased their international visibility and think about their internationalisation strategy as well as the quality of teaching and research. Universities have become significantly more 'transnational'. University representatives perceive a smaller effect of ERASMUS on curriculum development, teaching styles and research activities, but the indirect effects seem to be much broader.

As universities have become more 'transnational', a greater need for supranational governance mechanisms has emerged. To facilitate a smooth mobility of students, higher education systems need to be compatible, educational quality must be transparent, and qualifications need to be comparable. Such needs have triggered major developments in European higher education, such as the Bologna degree reform, the ECTS, the European Qualifications Framework, and changes in quality assurance systems. As a result of these developments we also see new supranational organisations, such as ENQA and European Quality Assurance Register. As predicted by

the conceptual framework of transnational societies, the cycle does not stop here but feeds further transnationalisation. As a result, there will be need for more regulation at the European level and greater roles of supranational organisations.

Whether this will lead to greater legal authority of the EU over (higher) education policies remains to be seen. Although the competencies of the European Union in the higher education sector are defined quite narrowly, its influence on institutions and systems is increasing, predominantly in an indirect way. So far, the indirect steering through stimulating internationalisation has given the EU – through the backdoor – quite some impact and influence on the development of European higher education. Next to ERASMUS, there is a variety of indirect mechanisms by which Europe influences the sector. These include influential programme documents (e.g. Lisbon agenda), prominent funding mechanisms (Framework Programmes and the European Research Council) and rulings of the European Court of Justice. For 25 years; ERASMUS has been the EC's 'flagship' programme in the area of higher education. It is probably the most visible hand in bringing Europe to European universities, but it also triggers 'invisible' processes towards greater Europeanisation of the higher education sector.

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FRANS VAN VUGHT

5. RESPONDING TO THE EU INNOVATION STRATEGY

The Need for Institutional Profiling in European
Higher Education and Research

5.1 INTRODUCTION

In this chapter I will focus on the content of the innovation strategy of the European Union (EU) and its potential consequences for the European higher education landscape and more particularly on its higher education and research institutions. The EU innovation strategy is being developed and implemented in response to the ongoing process of globalisation, which, in the economic sense, is characterised by increasingly interconnected markets. Innovation is seen as a crucial response to the global economic crisis. And in innovation processes knowledge is assumed to be the new strategic production factor. Like elsewhere in Europe, the creation, transfer and application of knowledge are assumed to be of prime importance for a process of economic reorientation and further social and economic development. Higher education and research are interpreted as cornerstones of the larger overall European innovation strategy. To allow Europe to create stronger, sustainable lasting growth and more and better jobs, the EU has set an innovation agenda to which the higher education and research organisations must contribute. Hence, the EU has become more active and assertive in its efforts to influence the behaviour of these organisations and some major effects of this are already becoming visible. As I will argue in this chapter, this implies that European higher education and research organisations are being challenged to develop their 'institutional profiles' in an increasingly competitive European higher education and research system.

5.2 THE INNOVATION SYSTEMS PERSPECTIVE

Since the early 1980s the literature on the economics of innovation has reflected the emergence of a perspective on innovation policy being promoted by international organisations like OECD and the World Bank. This perspective takes an explicit policy position which emphasises the interactive character of the generation of ideas, scientific research and the development and introduction of new products and processes. Innovation perspectives have been discussed under various rubrics—the evolutionary approach (Nelson & Winter, 1977), the technological paradigm (Dosi, 1982), the technological innovation systems approach (Carlsson, 2002) and the concept of sectoral systems of innovation (Malerba, 2002). In this chapter I will

use the term 'innovation systems approach', inspired by authors such as Freeman (1982) and Dosi (1984) and which was further developed by Lundvall (1992), Nelson (1993) and Edquist (1997).

In the innovation systems approach the basic assumption is that the key to international competitiveness is national 'factors that influence the development, diffusion and use of innovation' (Edquist, 1997, 14). This perspective argues that industrial innovation is decidedly non-linear. Instead, innovation is an interactive, reciprocal process involving different actors and organisations (Nelson, 1993). From the outset, academic institutions were identified as playing a critical role in the innovation systems approach and the evidence suggests that, if anything, their influence has grown over time (Mowery & Sampat, 2004). However, while the tangible outputs of academic research—publications and patents—remain important, equally significant to successful innovation is the production of highly skilled human capital (Cohen, Nelson & Walsh, 2002). Most importantly, and in sharp contrast to the linear assumptions of the traditional 'science-push model', the innovation systems perspective stresses the role of linkages between the various actors and organisations in the overall innovation process (Edquist, 1997; Nelson, 1993). These linkages include not only formal knowledge transfer arrangements between universities and industry, such as science parks and joint university-industry research ventures, but also soft linkages – the many channels of communication by which knowledge is exchanged.

In the last decades, the innovation systems approach has clearly influenced policies and reforms in higher education and research (Laredo & Muster, 2001; Lundvall & Borrás, 2004; Rammer, 2006). Many countries are now implementing policies that aim to improve the effectiveness of higher education and research in the context of innovation. The EU's innovation strategy clearly fits into this general picture. In several 'Communications' of the European Commission the innovation systems approach can clearly be recognised as a major source of inspiration. According to the theoretical bases of the innovation systems approach, innovation processes are assumed to be founded on both new knowledge and larger numbers of employable knowledge workers. In the EU innovation strategy the creation of knowledge should lead to new products and services, as well as to higher levels of productivity. The increase in trained knowledge workers should allow the EU to address the skills needs of the knowledge economy. The EU innovation strategy thus addresses higher education and research organisations both in terms of the ways knowledge creation processes are organised and as the producers of skilled human capital.

5.3 THE EU POLITICAL CONTEXT

The European policy domains of higher education and research are embedded in the broader European integration process. To analyse these policy domains one must first look at the broader European political context.

In the aftermath of World War II and during the onset of the Cold War, the wish to create peace and stability in Europe became a common aim, and the idea of pooling European countries' interests seemed highly attractive. The results were the gradual

creation of a supranational policy context, with the European Council (the heads of state and government and the EC-president) and the European Commission (EC) as the major supranational entities with political scope. The EU operates on the principle that decisions are taken as closely as possible to the citizens of Europe. The EU is assumed not to take action, except in areas that fall within its exclusive competence, unless the member states cannot themselves achieve the intended results – the principle of subsidiarity.

In terms of content, the most crucial recent phase in the European integration process to have had a major impact on developments in higher education and research policy was the 'Lisbon process' which began in 2000. At their Lisbon meeting, EU leaders decided on a process to boost the Union's competitiveness and growth. Inspired by the ideas and concepts of the innovation systems approach, they wanted to create 'a Europe of knowledge' and formulated the goal that, by 2010, the EU should be 'the most competitive and dynamic knowledge-based economy in the world, capable of sustainable economic growth, with more and better jobs, and greater social cohesion' (European Council 2000, paragraph. 5).

As was shown in the evaluation report of a special high-level group (European Communities, 2004), by 2005, the ambitious political goals of the Lisbon summit appeared to be very difficult to reach. While weak economic growth in the larger member states had been a major factor, the design and implementation of a policy to reach the targets which relied strongly on the efforts of member states and industry were also identified as major reasons for the failure of the Lisbon process (Weber, 2006).

The European Commission re-launched the process in 2005 with the New Lisbon Partnership for Growth and Jobs (EC, 2005c), identifying 'knowledge and innovation for growth' as one of the main areas for action. In addition, it developed integrated guidelines for the preparation of three-year National Reform Programmes (NRPs) by member states, as well as the Community Lisbon Programme consisting of a set of Actions for Growth and Employment (EC, 2005a), building a new, overarching community-member states partnership. With this new partnership, the EC created the foundations of the EU innovation agenda, known as the Lisbon agenda.

More recently the EU has embarked on a further renewed innovation strategy: 'EU 2020'. In this new long-term policy strategy, the EU intends to create the sources for sustainable economic growth and employment by focusing more strongly on knowledge and innovation. The EU 2020 Strategy, which forms the basis of the work for the current European Commission, builds on the achievements of the Lisbon Strategy and intends to renew it in order to meet the new global challenges. Key priorities of the EU 2020 Strategy are:
– creating value by basing growth on knowledge
– empowering people in inclusive societies
– creating a competitive, connected and greener economy (EC, 2010)

The EU 2020 strategy is the EU's most recent answer to the pressure of globalisation and the challenges of the economic crisis. And it clearly shows a strong belief in the potential strengths of Europe's higher education and research. The EU innovation strategy.

The supranational EU innovation strategy that has emerged during the last decades includes a number of inter-related policy fields. Two major policy domains are higher education policy (including doctoral education policy) and research policy (including knowledge transfer).

Since the re-launch of this agenda in the 2005 New Lisbon Partnership, the EC has tried to develop a general strategy that provides a solid base for the further development of the EU. Europe has recently been confronted with a sharp economic contraction and an unemployment rate rising to double digit figures. As a reaction, the EU is increasing its internal cooperation to successfully exit from the crisis and build a new, sustainable social market economy for which knowledge will be the key input. 'The Commission's aim is for Europe to lead, compete and prosper as a knowledge-based, connected, greener and more inclusive economy, growing fast and sustainably, creating higher levels of employment and social progress' (EC, 2010, 4).

The Union sees it as a major task to develop a comprehensive innovation agenda, and higher education and research policy has become a crucial element of this broader agenda. According to the EC, 'knowledge and innovation are at the … heart of European growth … public authorities at all levels in the member states must work to support innovation, making a reality of our vision of a knowledge society…more investments by both the public and the private sector spending on research and development are needed … our universities should be able to compete with the best in the world …' (EC, 2005c, 4–9).

5.3.1 EU Higher Education Policy

Generally speaking, higher education has come to the supranational European agenda only slowly. Although some educational activities were developed at the European level during the 1970s (in particular in the field of vocational training and the education of migrant workers' children), the education sector was for a long time 'taboo' for European policy initiatives (Neave, 1984, 6).

However, since 2001, the political view has developed that the EU can contribute to quality education by encouraging cooperation between member states through a wide range of actions, such as promoting the mobility of citizens, designing joint study programmes, establishing networks, exchanging information, and teaching languages to all citizens of the EU. The basic idea is that, although legislative power for education in general and higher education in particular remains at the level of the member states, the Union has a complementary role to play.

The main tool for implementing this ambition was the Socrates programme. The first phase ran from 1995–1999 and the second from 2000–2006. The Socrates II programme supported European cooperation in eight areas, from school to higher education, and from new technologies to adult learners. The higher education section of the programme continued the older Erasmus programme, established in 1987. Like the higher education Action of Socrates II, the Erasmus programme aimed to enhance the quality and reinforce the European dimension of higher education by encouraging transnational cooperation between universities, boosting mobility, and improving the transparency and recognition of studies and qualifications.

However, the roots of the current European higher education policy are to be found in a broader, intergovernmental European political context: the Bologna Process. In 1999, 29 European ministers of education signed the Bologna Declaration to create the European higher education area (EHEA), promote mobility and employability, and increase the compatibility and comparability of European higher education systems. It also emphasises the need to increase the 'international competitiveness' of Europe's higher education and its 'worldwide degree of attraction' (Bologna Declaration, 1999). The process has accelerated since the Bologna conference. Follow-up conferences were held in Prague (2001), Berlin (2003), Bergen (2005) London (2007), Leuven (2009). The 'Bologna ministers' (47 nations in 2010) added new actions on lifelong learning, on a common framework of qualifications, on a coherent quality assurance and accreditation mechanism, and on an additional focus on the doctorate level (third cycle) of the Bologna process. In 2009, the 'Bologna ministers' met in Leuven and decided that 'transparency' should be an important additional aspect of the Bologna Process.

Parallel to this Bologna Process, the European Commission initiated a debate in 2005 on the 'place and role of European universities in society and the knowledge economy' (EC, 2003, 4). Since the European universities are at the heart of the European knowledge society, being responsible for 80% of Europe's fundamental research, the EC intended to explore the conditions under which Europe's universities would be better able to play their role in the knowledge society and economy.

The Commission's analysis was stern: 'the European university world is not trouble-free, and the European universities are not at present globally competitive'. They should realise, the Commission continued, that the traditional model of Wilhelm van Humboldt no longer fits the current international context and that the high degree of fragmentation of the European university landscape prevents Europe from responding to new global challenges. These challenges go beyond national frontiers and have to be addressed at a European level. 'More specifically, they require a joint and coordinated endeavour by the member states…., backed up and supported by the European Union' (EC, 2003, 10).

According to the EC, European universities have failed to unleash their full potential to stimulate economic growth, social cohesion, and improvement in the quality and quantity of jobs. In a policy paper in 2005, the EC identified several bottlenecks: a tendency to uniformity and egalitarianism in many national higher education systems, too much emphasis on monodisciplinarity and traditional learning and learners, and too little world-class excellence (EC, 2005b). European higher education remains fragmented into medium or small clusters with different regulations and languages; it is largely isolated from industry; graduates lack entrepreneurship; and there is a strong dependency on the state. European higher education is also over-regulated and therefore inefficient and inflexible. In addition, European universities are underfunded. This leads to low enrolment rates, failure to prepare students for the labour market, and difficulties in attracting and retaining top talent.

In the view of the Commission, the quality and attractiveness of European universities need to increase, human resources need to be strengthened both in numbers and in quality, and the diversity of the European higher education system

needs to be combined with greater compatibility. In this sense, the Commission subscribes to the general philosophy of the Bologna Process. But it also developed its own policy tools. In 2004, the Commission launched the Integrated Lifelong Learning Programme (2007–2013) with the general objective of contributing to the European knowledge society. The Lifelong Learning Programme consists of four sub-programmes, one of which is the Erasmus programme. One of its prime aims is to reinforce the contribution of higher education institutions to the European innovation agenda (EC, 2004a).

5.3.2 EU Doctoral Training Policy

A crucial dimension of the overall European higher education policy is the growing attention paid to the importance of doctoral training, including at several Bologna ministerial summits. The ministers emphasised the importance of research and research training in enhancing the competitiveness of European higher education and called for greater mobility at the doctoral level and stronger inter-institutional cooperation (Berlin Communiqué, 2003, 7). They urged European universities 'to ensure that their doctoral programmes promote interdisciplinary training and the development of transferable skills, thus meeting the needs of the wider employment market'. Also, the number of doctoral candidates should be increased to contribute to the needs of the knowledge society (Bergen Communiqué, 2005, 4). At their London (2007) and Leuven (2009) meetings, the ministers invited universities to reinforce their efforts to embed doctoral programmes in their institutional strategies and develop career paths for doctoral candidates and early-stage researchers.

Doctoral training is beginning to feature more prominently on the European research and education agendas. It is assumed to be able to play a major role in creating a highly trained labour force for the knowledge society, which is understood to need professionals who have the competencies to work in highly complex, knowledge-intensive environments. Europe indeed seems to have discovered the full potential of the third cycle in higher education (Bartelse & Huisman, 2008). Doctoral training is considered to be the major link between the Bologna Process and EU policies (Aghion et al., 2008), and, more specifically, between the European higher education and research areas. Not only has it become an official part of the European political agenda in the Bologna process, it is also a crucial point of attention in the EU innovation strategy. The EC strives for an open, single and competitive labour market for researchers with attractive career prospects and incentives for mobility. In the near future, it is assumed that doctoral graduates will find their careers not only in academia and government, but also in private sector R&D laboratories and general management positions.

5.3.3 EU Research Policy

Although the EU has been active in research policy from the outset, EU research policy has only developed fully since the 1980s. A crucial step was the creation of the multi-annual research and technological development framework programmes (FPs) which have developed into the central EU instrument in research and technology

policy. They have become *the* strategic documents describing broad strategic EU research priorities, each to be implemented through specific programmes. In addition, they address the overall EU budget for the duration of the programme, the breakdown of this budget into priority areas, and how funding will be made available to projects (Caracostas & Muldur, 2001).

However, while the financial and political strengths of the FPs are considerable, the share of their research investments on a Europe-wide scale is limited. In the sixth framework programme, it was only 5%. The other 95% came from the member states. The overall European research landscape suffers from fragmentation and unnecessary duplication of efforts and resources (Andersson, 2006). The major challenge in the European research and policy domain is to create a critical mass and joint investment schemes. This is the challenge that is being addressed in the proposals for the European Research Area (ERA).

The ERA was formally launched in 2000 (EC, 2000). The Lisbon summit of that year endorsed the creation of the ERA as a key component of the Lisbon agenda. However, it was only in 2002 that the ERA took further shape. The EC noted that European research represented a jigsaw of 15 often very different national scientific and technological policies. The FPs seemed to be no more than a 'sort of 16th research policy, coming on top of [the then 15 member states'] national effects, but not dynamic enough to have a truly integrating effect' (EC, 2002a, 8). The result was compartmentalisation, dispersion and duplication, as well as a failure to assemble the critical mass of human, technological and financial resources that major scientific advances now demand.

The EC also stated that the only way to reach the ambitious targets was to increase general investment in research to 3% of GDP and that a substantial part of this effort should come from business and industry. In March 2002, the 3% figure (of which two-thirds were expected to come from private funding) was accepted as the target to be reached by 2010. But this seemed difficult, with European R&D expenditure by business and industry lagging well behind the US, and, at mid term, the EU was far from its target. It was concluded that 'halfway to 2010 the overall picture is very mixed and much needs to be done to prevent Lisbon from becoming a synonym for missed objectives and failed promises' (European Communities, 2004, 10). There was a large gap between the political rhetoric about the knowledge society and the realities of budgetary and other priorities. Action was urgently needed.

The most recent FPs (FP6: 2002–06; FP7: 2007–13) address this issue by improving the coordination of national research funding programmes. They underline the need for an EU research policy framework that creates incentives for the member states to contribute to the joint EU innovation strategy. Without the active involvement of member states the EU cannot succeed in building the European knowledge society.

The current FP7, with a budget of €53.2 billion, is a major programme for achieving the ambitions of the EU innovation strategy. It is the current chief instrument for funding research and innovation and is creating a dialogue and cooperation with industry (in the Technology Platforms and Joint Technology Initiatives) and with the academic world through the creation of the European Research Council (ERC) which provides support for the best European 'frontier research'.

With FP7 the ERA's scope has broadened from a focus on how to improve the effectiveness and efficiency of the fragmented European research landscape to an awareness that more public and private investment in research is needed and that research policy should be related to other EU policies to achieve coherence and synergies in the context of the overall Lisbon strategy. According to the Commission, the expanded ERA must comprise six features: (1) an adequate flow of competent researchers with high levels of mobility among institutions, disciplines, sectors and countries; (2) world-class research infrastructure, accessible to all; (3) excellent research institutions engaged in public-private cooperation, attracting human and financial resources; (4) effective knowledge-sharing between the public and private sectors and with the public at large; (5) well-coordinated research programmes and priorities; and (6) the opening of the ERA to the world, with special emphasis on neighbouring countries.

5.3.4 EU Knowledge Transfer Policy

The basic philosophy of the EU research policy is that excellence in research can be promoted by increasing cooperation and further investments. But stronger links with business and industry are also needed and knowledge transfer processes must be strengthened.

In 2006, the EC published a policy paper to stimulate 'putting knowledge into practice' (EC, 2006) and to frame policy discussions on innovation at national and European levels. It outlines the most important planned and ongoing initiatives, identifies new areas of action, and in particular introduces a more focused strategy to facilitate the creation and marketing of innovative products and services in promising areas—'the lead markets' (EC, 2006, 3).

According to the Commission, there are major barriers to greater knowledge transfer in the EU, including cultural differences between the academic and the business communities, legal barriers, fragmented markets and lack of incentives. Some member states have set up initiatives to promote knowledge transfer, but these largely ignore its international dimensions (EC, 2007b).

In this context, a number of measures are suggested by the Commission, including creating a workforce of skilled knowledge transfer staff in universities (and a professional qualification and accreditation scheme), developing a more entrepreneurial mindset in universities, and providing for exchanges of staff between research organisations and industry. In addition, voluntary guidelines to help to improve knowledge transfer cover issues such as intellectual property management, incentives for researchers to participate in knowledge transfer activities, and the development of knowledge transfer resources (EC, 2007c).

5.4 ISSUES FOR EUROPEAN HIGHER EDUCATION AND RESEARCH INSTITUTIONS

From the previous sections it becomes clear that higher education and research institutions are increasingly addressed by EU- and related national policy initiatives.

The political expectations regarding their performances are rising. In combination with other changes in the environment of higher education institutions, these institutions are increasingly confronted with major challenges. Will higher education and research institutions be able to live up to the rising political expectations? What are the major issues that, from the perspective of the EU innovation agenda, will have to be addressed by these institutions? In the following sections I will present an inventory of issues that may be expected to affect the policy and management agendas of the European institutions for higher education and research in the years to come.

5.4.1 Enrolments and Labour Market Needs

The first issue to be discussed concerns demographic developments in Europe that affect the educational role of higher education institutions, particularly with respect to the challenge to produce sufficient numbers of qualified professionals for the labour market.

In the EU innovation strategy, higher education institutions are confronted with the demand to educate large numbers of professional knowledge workers, able to contribute to an increase in the EU's overall innovation capacity. This is already a major challenge. But it becomes even larger if the current demographic developments in Europe are taken into account.

The projected demographic situation in Europe creates special problems for its innovation capacity. Projections by EUROSTAT show that the population of the EU will rise gradually from 495.4 million in 2008 to 519.9 million in 2030, and will gradually decline to reach 505.7 in 2060. Moreover, the EU population is becoming older, with the median age projected to rise from 40.4 years in 2008 to 47.9 years in 2060. The working age population (15–64 years old) is expected to fall to 56% of the total population in 2060, while the share of people over 65 is expected to increase to 31%. Hence, the old age dependency ratio is expected to increase substantially from its current level of 26% to 54% in 2060. In 2008, there were 4 persons of working age for every person aged 65 or over; in 2060, this ratio will be 2 to 1 (EC, 2009).

In the last 20 years or so, the number of young people in the EU has declined steadily. Between 1985 and 2007, the population aged 0–9 decreased by 17%, the population aged 10–19 by 19%, and the population aged 20–29 by 8%. The pupil intakes in primary and lower secondary education will fall substantially until 2010, and then slowly increase (EC, 2009). These trends have different impacts on the different levels of education. While primary and lower secondary education are directly impacted by smaller cohorts, increases in participation rates in upper secondary and higher education may counteract a demographic decline.

Between 1960 and 1980, enrolments in European higher education increased by a factor of ten. Rising social demand and the absorption capacity of the labour market created a massification of higher education leading to a substantial expansion of the EU higher education systems and a changing position of these systems in society from elite training to manpower production. However, in 2008, the higher educational attainment level of the EU adult population (ISCED levels, 25–64 year old) is still

limited (24.3%) and is outperformed by both the US (39%) and Japan (40%) (EC, 2009).

The combination of a potential future decline in the traditional age cohorts enrolling in higher education and the still relatively low higher educational attainment level of the adult population confronts the EU with a major challenge for its innovation agenda. The labour market in industrialised countries shows that the 'race between higher education and technology' (Tinbergen, 1977) is still being lost by education: the demand for higher education graduates keeps increasing beyond the increase in supply. Like many other nations in the world, the EU member states will have to reduce the gap between the demand and supply of graduates. Raising higher education enrolment rates, particularly in undergraduate higher education, is not only a matter of social cohesion and stability, but also a necessity in a knowledge-based economy. The EU needs more graduates who must be directly employable. So the massification of European higher education will need to continue and enrolments will need to continue to grow. Recent skills forecasts for the EU indicate that the demand for skills and qualifications is growing in most occupations. The total employment increase in Europe between 2006 and 2015 will be around 13.5 million new jobs, comprising over 12.5 million additional jobs at higher education level and almost 9.5 million jobs at medium education level, while the demand for jobs requiring low qualifications will fall by 8.5 million (CEDEFOP, 2008). In 2015, some 30% of jobs in the EU will need higher education qualifications. To address this demand, the undergraduate education systems of the EU member states will have to grow and larger numbers of first degree students will have to enrol. However, given the demographic trends, the EU urgently needs to address new recruitment areas such as international students and adult learners. With a shrinking labour force (the population aged 15–65), it becomes crucial to ensure that people on the labour market have the right skills. In addition, the rapidly growing share of people over 65 increases the need to address the future demand in the care sector.

In addition to increasing higher education enrolments, 'access and equity' will also need attention. Despite the rapid expansion of European higher education, students from lower socio-economic groups continue to be underrepresented. An important dimension of the 'European model' is the political wish to ensure that talent rather than socio-economic background counts in admission to higher education. While this objective has been kept in mind during the massification of European higher education, lower socio-economic under-representation remains a problem. In particular, the children of immigrants with low or no educational attainment have difficulty in reaching higher education. While these participation rates have been increasing, they are still below those of the original population. Increasing them is important for social cohesion and to address the problem of future shortages of higher education graduates (Ritzen, 2010).

The challenges for EU higher education institutions are clear: they will have to find ways to expand their student bodies, particularly by enrolling non-traditional students. Hence, they will have to diversify their educational programmes and adapt them to new categories of students. A second challenge is to strengthen the employ-ability of their graduates in the context of the knowledge economy. The future labour

market will ask for high qualifications levels and high-level skills. With a shrinking labour force, there will be increasing pressure to relate graduates skills to labour market needs.

In doctoral training, universities will have to recognise the need to offer candidates a broader experience than core disciplinary research skills. They will have to introduce courses and modules that offer transferable skills and train and prepare candidates for career opportunities in labour market sectors beyond academic institutions. The traditional Humboldtian doctorate may have to be supplemented by a variety of new professional doctorates.

5.4.2 Research Excellence and Knowledge Transfer

The EC has characterised the quality of the EU research output as 'generally good on average, but with a very limited basis of universities at world-level' (EC, 2007a, 50). In terms of total number and world share of scientific publications, the EU is the world leader. In 2006, its world share was 37.6%, compared to 31.5% for the US, 8.4% for China and 7.8% for Japan. However, the picture changes when publications are compared to population. Then the US leads, with 1.047 publications per million population, compared to 756 in the EU (EC, 2008b).

There are indications that the EU's scientific impact lags behind that of the US in almost all disciplines. The data on the field-normalised Citation Impact Score per scientific discipline show that the EU's scientific impact is around or below world average in almost all disciplines. The EU scores above world average in only 6 out of the 37 fields and has lower scores than the US in 35 of the 37 disciplines.

An institutional citation impact analysis per discipline shows that of the universities that are world leaders in at least one discipline, only 26% are EU universities, whilst 81% are US universities. In addition, the number of disciplines in which an EU university is the world leader is on average substantially lower than that for US universities. A number of EU universities are considered among the top universities in the world, but their top is generally less broad than that of US universities (EC, 2007c).

To increase their performance in terms of world-class research excellence the European universities and research organisations will need to strengthen their research base. The brain drain of EU graduates and researchers, particularly to the US, will need to be curtailed. Currently, some 5% to 8% of the total EU researcher population are working in the US. Many are reluctant to return to Europe, primarily because of a lack of attractive research conditions and career prospects. Universities will need to focus on their relative research strengths and create attractive conditions for top-level researchers. They will need to profile their research portfolios using investment and cooperation strategies and develop joint research networks with attractive research infrastructure and academic career paths. The current EU research policy (particularly FP7) offers broad opportunities to address these challenges.

The EU also needs to increase its performance in the process of knowledge transfer. The number of full-time equivalent (FTE) researchers per thousand labour force participants amounted to 6.3 in the EU in 2007, compared to 10.8 in Japan

(EC, 2009). The EU deficit in the proportion of researchers in the labour force is mainly found in the business sector. In the EU in 2003, 49% of all researchers were employed by the business sector, compared to nearly 69% in Japan and over 80% in the US (EC, 2007a).

In 2005, EU patent applications accounted for nearly 31% of the total number of patent applications in the world. The US has more than 33% of all patent applications and Japan over 16%. Between 2000 and 2005, the applications from Asian countries increased dramatically (India 241%; China 137%), which resulted in a decline of the world share of both the EU and US. In the enabling technologies (biotechnology, ICT, nanotechnology), the EU share of patent applications is lower that that of the US, indicating a concentration of US inventions in these areas (EC, 2008b, 69).

The European higher education and research institutions have recently increased their knowledge transfer activities. More and more have established technology management and technology transfer offices. The number of patents applied for by higher education institutions in the EU has increased by more than 28% in the last decade (EC, 2008b, 132). Yet the EU higher education and research institutions will have to further increase their efforts in this field. The links with business and industry will have to be intensified. Regional knowledge application clusters need to be developed and 'soft knowledge transfer' processes (applied research, internships, guest lectures, projects) will have to expand.

5.4.3 Public and Private Funding

The ideal of public financing of higher education and research is still widely shared in Europe. But the EU innovation strategy implies a major challenge to this ideal. Government finance is simply unable to provide sufficient funds for the new challenges that European higher education institutions are confronted with. If European higher education is to contribute to the innovative capacity of the EU, provide professional and academic training for growing numbers of students, and perform world-class research, it cannot be funded solely from the public purse. The increasing demands on higher education institutions in terms of numbers and quality on the one hand and the limitations of public finance on the other will not allow the EU to close the present funding gaps between the US and the EU.

EU R&D intensity (Gross Domestic Expenditure on R&D as % of GDP) lags behind the US and Japan. In 2006, it was 1.84%, significantly lower than that of Japan (3.39%) and the US (2.61%). Government expenditure on R&D as a percentage of GDP was 0.63% in 2005, which is 15% higher than in Japan (0.55%) but 21% lower than in the US (0,76%). Business expenditure on R&D in the EU as a percentage of GDP stands at 1%, compared to 2.62% for Japan and 1.69% for the US (EC, 2008). In terms of R&D expenditure, the EU is still a long way from its ambitious target—3% of GDP (EC, 2008b),

EU investments in higher education show a similar gap with the US and Japan. Total investments (public and private expenditure) in higher education institutions in the EU (2006) is 1.2% of GDP, while in the US and Japan it is 2.9% and

1.5% respectively. The difference between the EU and the US and Japan is largely the effect of a much higher private investment level in both the US and Japan compared to the EU (EC, 2009).

Given these funding gaps in research and higher education, the differences in performance and attractiveness between the US and the EU systems are likely to remain. If the EU wants to be a world-class higher education and research performer, it needs to boost its expenditure in these domains. And for this there seems to be only one solution: to increase private finance for higher education and research.

These funding differences have become a major concern of EU policy. The EC has pointed out that the funding gaps are a serious obstacle to meeting the innovation goals and has emphasised the importance of fiscal rules enabling the increase of private investments in both higher education and research. The EC also points to the need for cost-sharing and suggests that member states critically examine their current mixes of student fees and support schemes in the light of their efficiency and equity outcomes.

EU higher education and research institutions are therefore confronted with the challenge of increasing their private income in education and research. In education, the major option is the introduction of tuition fees, coupled with the adoption of student financial support systems. In OECD countries, private contributions to higher education (household expenditure as a percentage of total higher education expenditure) increased on average by 5% between 1995 and 2005 (with large increases in Japan and Australia). However, most EU countries remain very hesitant in this respect and there is considerable ambiguity over whether tuition fees should be charged.

An increase in private income for research can result from closer cooperation with business and industry, including in knowledge transfer processes. While further developing their research portfolios, universities and research institutions can diversify their funding base by responding to the knowledge needs of business and industry and prioritising their research programmes in accordance with major clients in sectoral or regional clusters.

5.4.4 Multi-Level Governance

Unlike in the days before the innovation strategy, the EU has become a major higher education and research policy actor and many universities and academics have experienced its conditions and effects. The supranational EU policy level has become part of the multi-level governance system that European higher education and research organisations are dealing with. There seems to be an increasing alignment of EU higher education and research policies with the various national policies. The recent EU-2020 strategy will only create extra pressure on member states to align their national policy efforts to the EU innovation agenda. As a result, higher education and research institutions are working in a multi-level policy context in which the focus is increasingly on the roles institutions can play in enhancing innovation.

Two effects of the dynamics of this multi-level governance system ssem to create important challenges for EU higher education and research institutions. The first can

be described as the academic stratification of the European higher education system, with increasing vertical diversity. This is the combined result of the changing participation processes of European higher education institutions in the research Framework Programmes (FPs) and the counterproductive consequence of the reinforcement policy on the interaction between higher education and industry. With regard to the former, it has been noted that past success in the FPs seems to be an indicator of successful future participation in these programmes (David & Keeley, 2003). What appears to be emerging is the well-known Matthew Effect, with research groups that have been successful in obtaining funding appearing to increase their chances of obtaining future funds. The other process is the counterproductive effect of the EU's push towards closer links between higher education and industry. It seems that institutions in a relatively weak financial position are increasingly forced to accept industrial funding for often routine contract research. Faced with the impossibility of charging real research costs, they are confronted with a further weakening of their financial situation and a decrease in their capacity to undertake academic research (Geuna, 1999). The combined outcome of these processes is a greater differentiation between academically and financially stronger and weaker institutions, and hence a growing vertical diversity in the overall European higher education and research system.

The second unintended effect is a growing regional differentiation in European higher education and research. This seems to be the outcome of three interrelated processes emerging from EU policies (Frenken et al., 2008). The first is the preference of researchers in 'excellent regions' to collaborate with each other rather than with colleagues in lagging regions. EU research policy appears to stimulate the concentration of talent in the richer and academically better-equipped regions of Europe. Lagging regions find it difficult to participate in successful EU research networks and seem to have to cross a threshold of quality and size before they can do so. Secondly, the EU policy objective of the free movement of people appears to not only lead to greater mobility of researchers, but also to the concentration of talent in a selected number of excellent regions. The most talented researchers compete for positions at the most prestigious universities, rendering it difficult for lagging regions to retain talent. Thirdly, the sectoral structure of the poorer European regions is usually characterised by a dominance of low-tech and medium-tech activities that do not fit the thematic priorities of EU research policy. The FPs almost exclusively concern high-tech sectors, thus creating a situation in which the research subsidies are concentrated in the richer regions. The result is an unintended but nevertheless real effect of regional differentiation. The geography of European higher education and research is changing from one based on the priority of national borders into one based on the clustering of talent. Wealthier regions are increasingly able to profit from the general European innovation policy, while poorer regions are left with the resources of the cohesion policy. This process also seems to contribute to the growing academic stratification in the EU higher education and research system.

Academic stratification and regional differentiation confront European higher education and research institutions with the challenge to acknowledge and profile their position and role at the European level. The innovation agenda seems to have

increased competition for funding and reputation. Higher education and research institutions cannot ignore the effects of the multi-level processes by which they are governed.

In the context of the EU innovation strategy, the European higher education and research institutions are confronted with a number of major challenges. The need to increase enrolment and graduate numbers, the levels of access and equity, research performance and knowledge transfer capacity and private income and to react to the processes of academic stratification and regional differentiation are crucial challenges that force higher education and research institutions to consider their strategic positions. In the concluding section I will argue that, in order to be able to play a role in the new dynamics of EU higher education and research together with their national governments, higher education and research organisations will need to design and implement their 'institutional profiles'.

5.5 INSTITUTIONAL PROFILES

In recent decades, the higher education and research systems of Europe have become increasingly integrated. Because of the Bologna Process and the EU innovation strategy, European higher education is no longer only a fragmented collection of larger and smaller national systems, but increasingly also a European-wide system. The alignment of national and EU policies regarding higher education and research has created a European system in which national systems still play major roles, but in which the system dynamics are also recognisable on a European scale. The processes of academic stratification and regional differentiation mentioned before are manifestations of effects taking place on a European scale, often with important repercussions at national and institutional levels.

As a result of the newly developing system dynamics of European higher education and research, the positions and roles of individual higher education and research institutions are changing. Both national governments and individual institutions realise that they must react to these new developments and find answers to the challenges resulting from the processes of academic stratification and regional differentiation. In several European countries (e.g. Denmark and Germany) the recent higher education and research policies show that these challenges have been recognised and that the new national policy efforts focus on (re)positioning (a number of) national higher education and research institutions on a European (and even a global) scale. National higher education and research systems are increasingly being diversified in order to allow institutions to find (or perhaps conquer) prominent positions in the European (and global) competition for funding and reputation.

Not all higher education and research organisations in the various national systems will be able to position themselves in the same way in this process of increasing diversification. Some (but certainly not all) will be able to develop into major comprehensive, research intensive institutions that are able to compete internationally. Others will be able to capture a strong role as regional innovator or as a major provider of high-level professionals. Both national governments and higher education and research organisations are increasingly finding out that 'institutional profiling'

will have to be a crucial answer to the new European higher education system dynamics.

The development of 'institutional profiles' will also allow the European higher education and research institutions to respond to the various issues emerging from the EU innovation strategy discussed before. Developing their institutional profiles should, in other words, enable them to identify and propagate their specific institutional strengths, specialisations and orientations and hence their contributions to the EU innovation agenda. .

Institutional profiles are to be seen as the empirically determinable reflections of the specific institutional efforts and performances regarding their core activities (education, research, knowledge exchange). Two new European 'transparency instruments' (U-Map and U-Multirank) are being designed that intend to exactly bring out these institutional profiles. They[1] allow the empirical determination of the profiles of an institution's efforts and of an institution's performance in its core activities.

With their institutional profiles, higher education and research organisations will be able to provide transparency and accountability regarding their various activities and choices. With these profiles, they will also be able to show how they address the various challenges emerging from the EU innovation strategy: the relationships between educational programmes and the labour market, the composition of the student body, graduates' employability and quality, the orientation and performance of research, the links with regional development, the international orientation, etc.

In the years to come, institutional profiling may become a major tool for institutional management. Institutional profiles can be the basis for internal budget allocations, external benchmarking, inter-institutional cooperation, external networking, or simply for effective communication. The institutions will profit from clear and realistic choices in all these applications.

The EU innovation agenda confronts the European higher education and research institutions with the challenges to show how and to what extent they can contribute to the newly arising 'Europe of knowledge'. Clear and realistic institutional profiles are probably the best answers to these challenges.

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AREND ZOMER AND PAUL BENNEWORTH

6. THE RISE OF THE UNIVERSITY'S THIRD MISSION

6.1 INTRODUCTION

The last decades have seen a fundamental upheaval in the organisation of modern life, and the university as an institution has been as widely affected by these changes as business, governments, and civil society groups. Higher education has been confronted with increasing marketisation of the State and aggressive re-regulation of the public sector. Internationalisation has created new potential markets for students, alongside increasing access to research collaborators, but it opened universities up to competition with and comparison against institutions in other countries. The growing importance of knowledge production and innovation for economic life has created new potential roles for universities and challenged the traditional societal privileges and monopolies which they have long enjoyed. But these changes have come at the same time as an evolution in the process of change: a growing role for the State in creating and regulating markets in public services has come with a greater role for the State in guiding this reform process.

This reform process has created both the opportunity for and the necessity of questioning the meaning of 'university'. In particular, the question of what are the appropriate tasks, duties, privileges and resources for higher education and universities has been asked. In the 1970s, the idea that universities were bedrocks of democratic society, providing citizens with resources to take advantage of better societal opportunities prevailed. The institution emerged as a reaction against the corporatist post-war State, something made clear in the 1968 social protests (Daalder & Shils, 1982). The societal duties of what Delanty called the Democratic Mass University (2002) were clear: to provide an independent intellectual space where citizens as students and researchers could develop their agendas and orient society towards their interests, thereby freeing society from its dependence on corporatist interests which favoured private over public interests (Daalder, 1982). The corollary of the Democratic Mass University was universities positioning themselves as semi-detached from their host societies which provided very generously to support these institutions and their independence.

But the 1980s marked a sea-change in the willingness of societal partners to pay for independent universities. Economic stagnation in the West during this decade (Preston, 1994) led national governments to fear losing their economic lead to emerging economies, which at the time included Japan, Taiwan and Brazil (Reich, 1991). The European Commission argued for a revitalisation of technology programmes to create competitive European industries, with universities contributing alongside businesses in increasing investments in research, development, and

innovation activities (Delors, 1988; Sharp, 1990). Universities also emerged after 1989 as increasingly important players in regional development activities, which became oriented towards stimulating innovation-based growth (Landabaso, 1999). As higher education resources were the most evenly distributed of territorial innovation assets, governments at all levels were keen for universities to make a greater contribution to their national innovation systems and competitiveness (Goddard & Chatterton, 2003).

With so many external stakeholders pressuring universities to do more, the 1970s position of semi-dependence became unsustainable (Delanty, 2002). Universities responded by opening up to external agencies and actors, becoming more engaged with society and increasing their economic contributions, the emergence of the 'third mission' (Benneworth & Jongbloed, 2009). But these direct pressures for involvement and relevance were not the only pressures to which universities were subjected.They also included legitimacy, governance, marketisation, internationalisation and commodification of higher education (Jongbloed et al., 2007).

When we talk here about the 'third mission' of universities, we are talking about how universities consciously and strategically make these societal contributions and it is clear that the last quarter-century has seen increasing emphasis on improving the performance of their 'third mission' activities. This emphasis has clearly been driven by the wider environmental changes which universities have encountered. But at the same time, their proactive involvement in third mission activities has also contributed to changing stakeholder expectations of what universities can achieve.

In this chapter, we study this relationship between the rise of the university's third mission and the wider university reform process, analysing the third mission as neither independent from nor subject to the wider reform process. Rather, we characterise it as a semi-autonomous but also interdependent element of a more fundamental transformation of higher education which universities have both shaped and been subject to. To develop this argument, we adopt the following structure. In section 2, we study the drivers that incited universities to engage in third mission activities. Section 3 shows how these drivers have put pressures on universities and how they responded. In section 4, we discuss the rise of third mission activities in The Netherlands to illustrate our central argument. We argue that the rise of the third mission (Molas-Gallert et al., 2002) was initially regarded as something peripheral to universities besides the core idea of a university encompassing teaching and research. However, the increasing centrality of this third mission makes it vital to understand its relation to other university tasks. This leads us to section 5 and our contention that any comprehensive understanding of higher education reform must also include these formerly peripheral, but increasingly central engagement activities in the idea of a 21st century European University.

6.2 MODERNISATION AND THE UNIVERSITY INSTITUTIONAL LANDSCAPE

It is now common to acknowledge a 'third mission' for universities that deliver benefits for host societies. It has been defined as social, enterprising, innovation activities that universities carry out alongside their teaching and research activities

whereby additional benefits are created for society (Montesinos et al., 2008). The third mission in its current form was first identified by the OECD CERI think tank in 1982, which recognised a number of innovative practices in a range of entrepreneurial universities such as Leuven and Warwick. The basic contours are well-understood, although sometimes in a slightly reductionist form, as a concern with commercialisation and profit takes precedence over the creation of wider societal value added (*cf.* Clark, 1998; AWT, 2007). But the idea of the third mission did not emerge from outside the system. Rather, it emerged from universities' responses to a wider set of drivers. Exploring these drivers in more detail provides greater insight into the dynamics of the third mission and its interrelation with the evolving idea of a university. These interrelations are set out in more detail in Table1.

6.2.1 The Perpetual Funding Crisis of the 'Endless Frontier'

The first driver for the rise of the third mission was higher education's perpetual funding crisis in the 20th century. The watershed for the recognition that universities are increasingly important for national economic success and social stability (Greenhow, 1831; Fawcett, 1924, Hutchinson, 1975; Shinn, 1980) came with World War 2. This was decisive in formalising universities' developmental role in advancing economic wellbeing by establishing a link between university research and business innovation which culminated in Vannevar Bush's 1945 blueprint for the university-industrial complex, *Science: the Endless Frontier* (Etzkowitz, 2008). This created an expectation of endless expansion of scientific research.

But at the same time, this entrenched a funding crisis for universities with unlimited expectations and limited resources. They faced an environment of perpetual resource scarcity (Martin, 2003; Ziman, 1994). Since the 1980s, this situation has been greatly exacerbated by changes to higher education funding. This period saw a shift away from governmental block grants (Geuna, 1999; Slaughter & Leslie, 1997), reduced core funding for researchers (Slaughter & Rhoades, 1996) and a shift towards policy instruments that were oriented towards thematic priorities (Lepori et al., 2007). Universities sought to fill this funding gap by generating new revenues from their existing asset bases, including by increasing commercialisation activities (patents and spin-offs) and income-generation activities such as consultancy (OECD, 2004).

Government regulation and legislation were critical in conditioning the landscape for the commercialisation mission, as governments generally extended universities' latitude to benefit from their discoveries and more incentives to aggressively commercialise their findings. In the US, the archetypal reform was the 1980 Bayh-Dole Act, which allowed universities and businesses to retain the ownership of patents originating in federally funded research in place of federal agencies. The German Federal Government passed a law in 2002 obliging researchers to report inventions to employers and mandated shared intellectual property rights between academics and universities (Kilger & Bartenbach, 2002). In France, laws in 1982 and 1999 sought to promote the transfer of publicly- funded research to industry,

permitting state employees to create companies and undertake consultancy (Kilger & Bartenbach, 2002).

A second area which has drawn much attention is the promotion of university spin-off companies as a means of revenue generation and technology transfer (OECD, 2001; Rogers et al., 2001). The United Kingdom created a £40m fund in 1999, the University Challenge Fund, to foster spin-offs. In Canada, the Industrial Research Assistance programme, which supported spin-off company creation and growth, funded nearly 40% of Canada's early stage university spin-off companies. In Finland, TEKES and the Ministry of Trade and Industry started providing loans for new spin-off companies, whilst France created several seed capital funds to support early-stage university spin-off companies. The rise of the third mission can therefore be regarded as an attempt by universities to secure necessary resources and by policy-makers to stimulate universities to support strategic economic well-being. These two tendencies came together to lead universities to make strategic investments with stronger financial management supporting third mission activities.

6.2.2 Liberalisation and the Commodification of Scientific Knowledge

The second societal change was the rise of neo-liberalism with its dual tenets of deregulation for the private sector and re-regulation for the public sector. Great emphasis was placed on introducing private sector methods to public sector delivery, seeking to spur innovation and reform by creating markets and a competition mechanism (Grit, 2000). At the same time, the State attempted to enforce competition by increasing the regulation of public services, creating markets in areas that would be considered as natural monopolies (Ferlie et al., 1996; Ackoff, 1999). This was seen in the rise of the 'new public management' philosophy, which seeks to reduce free-riding and satisficing activity by public services by developing formalised contractual centre-service relationships which regulate the provision of resources but also reward output performance. On the one hand, NPM is based on performance improvement philosophies in which performance data are gathered as part of a continuous improvement process. But on the other, data are also used to reward outputs and therefore provide a direct stimulus to deliver desirable outcomes. These approaches have been applied in different ways with varying intensity to the higher education sector, at an increasing tempo as from the late 1980s (Grit, 2000).

The impact for the higher education sector was an evolution in government steering and financing of teaching and research. National governments granted more organisational and financial autonomy to academic institutions, withdrawing from detailed control of universities (Neave, 2000; Van Vught, 1989). They emphasised national priority setting and resource provision, granting institutions autonomy to allocate resources internally (Neave, 2000). Universities were given clear signals from governments across Europe that it was acceptable for them to set priorities for their missions and tasks that were dependent on clients' capacities to pay for their services. Greater autonomy in combination with the financial pressures already mentioned increased incentives for universities to meet the demands of external bodies that were able to pay them directly for their services, including the business sector.

At the same time, national governments and the European Commission signalled the importance of technology transfer, knowledge exchange and university-business partnerships (EC, 2005). Universities were encouraged to work more closely with the private sector to enhance the relevance of their research and facilitate the use of research results by industry (OECD, 2004). Governments provided small and medium-sized enterprises and high-tech firms with funding to help them better utilise public sector research in their innovation efforts (Larédo & Mustar, 2004; Rothwell & Dodgson, 1992). These trends came together to create a situation where universities were increasingly held accountable by governments for their impact which was measured in terms of their third mission performance.

6.2.3 The Changing Nature of Knowledge Production

A third shift in universities' environment emerged with the increasingly complex nature of knowledge production. On the one hand, the speed and complexity of the advance of the scientific frontier meant that individuals were increasingly pressured to specialise in narrow disciplinary areas in order to remain at the forefront of the field. But on the other, scientific problems were becoming more and more complex, requiring experts from a diverse range of backgrounds – often with different and not necessarily cognate theoretical assumptions—to work together to solve these problems (Ackoff, 1999). New kinds of discipline, role, discursive spaces and institutions are being created to facilitate the integration of experts and expert knowledges into solutions to these complex knowledge problems.

There have been important consequences for universities operating in these environments, changing the scientific environment in which researchers work, involving specialisation and the creation of disciplines evolving from existing fields (Bonaccorsi, 2008). These new disciplines are characterised by greater diversity of research topics and offer policy makers a tool to address this diversity at different levels (Bonaccorsi, 2008). Funders have responded by shifting research away from core theoretical research towards research 'at the boundary', fields addressing many issues which combine knowledge and technology across disciplines.

The rise of the third mission in universities can therefore also be understood as an evolution in disciplinary organisation, creating disciplines and multi-disciplinary fields that include non-academic users. These fields can function in increasingly multi-disciplinary environments to address polarisation and specialisation in existing domains. Universities have created institutes and centres to accommodate the rise of new scientific fields. Furthermore, they have opened to stakeholders that are willing to fund scientific research. This has made universities' more sensitive to 'steering policies' and has therefore often been encouraged by governments as a way of ensuring the wider success of their steering policies.

6.2.4 Competitiveness and the Urgent Imperative of Usefulness

The final societal change was the emergence of the knowledge society, with the increasing importance of knowledge capital as a foundation of economic success,

embodied in individuals as knowledge capital and people's ability to work together to create knowledge (Romer, 1994; Solow, 1994; Gibbons et al., 1994; Temple, 1998). A connection has been drawn between capacities for economic success and capacities to innovate, with innovation representing the mechanism whereby stocks of knowledge are translated into economic growth (Van der Ven et al., 1997; Boschma, 2005; Moulaert & Sekia, 2003). Hence, there is a recognition of the growing importance of co-operation between actors who possess the requisite knowledge to create new kinds of knowledge, which include new co-operative mechanisms, new kinds of innovation, new innovation actors, and new roles for existing innovation actors (Chesborough, 2003; Von Hippel, 2003; Benneworth, 2007). Universities play a pivotal role here.

Policy-makers have become increasingly aware of the economic and political value of universities in contributing to stimulating innovation (Salomon, 1985; EC, 1995).They have pushed for universities to accept broader, explicit societal responsibilities complemented with more explicit societal expectations, such as contributing to the Lisbon Agenda of making Europe the most competitive global knowledge economy (EC, 2005). A Commission report of 2003 illustrates this shift in accountability:

> Given that they live thanks to substantial public and private funding, …, universities are also accountable for the way they operate and manage their activities and budgets to their sponsors and to the public. This leads to increasing pressure to incorporate representatives of the non-academic world within universities' management and governance structures. (EC, 2003).

The rise of the third mission in universities can therefore be understood as responding to the demand for useful knowledge by seeking to create different kinds of knowledge through engagement with other kinds of (commercial) knowledge producers. This, in turn, has changed the internal university calculus around what constitutes appropriate kinds of knowledge. This has had wider institutional implications for universities concerning the suitability of particular institutional forms of teaching and research that are necessary to create and support this knowledge.

6.3 UNIVERSITIES AS DRIVERS OR RECIPIENTS OF CHANGE?

These pressures have radically altered the environment in which universities operate compared to the environment just three decades ago. In the heyday of the Democratic Mass University, the societal role was seen as universities' contributions to creating and developing well-rounded and critical democratic citizens. In contrast, universities are now increasingly expected to be able to demonstrate their societal role. On the one hand, universities and funding agencies have placed great effort in attempting to develop accountability mechanisms and reporting techniques that are able to objectively measure and steer universities' societal impacts. On the other, universities are mobilising their partners to convince politicians and policy-makers that they are valuable institutions for competitive knowledge economies. These changes have altered the nature of universities as institutions and the framework in which the reform agenda is carried out. It is this wider set of changes we seek to analyse.

We highlight three important changes which have emerged as part of universities' responses to increasing their engagement activity:
– The fact that universities need to speculate and take risks in managing their capital base has necessitated increasingly centralised management structures to ensure that risk levels are suppressed at the level of the university.
– The fact that universities are encouraged to capitalise on intellectual property rights has made them increasingly institutionalised as private actors which can exclude actors on the basis of an inability to pay.
– The need to generate a return from their intellectual property through science parks, incubation units, technology transfer organisations and spin-offs has seen universities become more and more concerned with the relevance and openness of the knowledge they create.

We argue that it is not enough to consider the rise of the third mission as a discrete and isolated event. Certainly, the wider reforms to higher education of the last quarter century have made it easier for universities to become more externally-facing and to respond to and interact with new kinds of societal stakeholders. But at the same time, these reforms have been pulled towards ensuring that universities can become increasingly entrepreneurial, engaged and open to particular kinds of stakeholders. This has taken a hold because certain kinds of innovative and experimental institutions have made the potential of a university to drive innovation a reality.

We are not arguing that higher education reform has been consciously and rationally driven by a desire to create entrepreneurial universities. Our argument is more subtle – the success of some exemplar universities in engaging with society and generating economic benefits has made engagement – the third mission – an ongoing reference-point for reform. Reform has been attracted towards more engaged models of higher education and what is a university. This leads to our central argument: higher education reform attempts to accommodate increasing university engagement have influenced other elements of the systems, including governance, funding, accountability and expansion. Whilst we primarily talk about research as a driver for this process, its manifestation and influence are also visible in teaching, with students increasingly regarded as individual consumers rather than as collective beneficiaries, the imposition of a pay-wall around teaching activities (and the end of continuing learning) and the removal of student co-determination from decision-making in university governance structures.

The reforms which paved the way for universities to trade on their own account do not just have implications for the way they carry out engagement activities. They have also enabled a much wider institutional evolution. To some degree, the rational university reform process is an attempt to complete a set of reforms begun intuitively in the 1980s to unlock universities' potential now that more is known about the various characteristics of successful universities. These inter-relations are presented in Table 1. If our contention is true, then far more attention will have to be paid to the evolving environment and structures for university engagement.

To illustrate our argument, we offer a case study from our country, The Netherlands, where there have been pressures on universities to engage with society.

These pressures have focused on business engagement. With larger sums of government funding attached, business engagement is an increasingly determining principle in institutional decision-making. We ask how the Dutch example of whole system evolution can best be understood. We begin by specifying our overall research question in terms of the Dutch case study as follows: *How are the wider changes in Dutch higher education linked to specific changes in Dutch HE that are related to improving the usefulness and impact of university research?* To address this question, we specify further operational sub-questions, which structure the rest of this chapter:

– How has Dutch valorisation policy emerged in the last quarter century and what are the incentive structures in place for universities to become more actively engaged with external stakeholders?
– How have universities reacted to the opportunities created by this policy framework and how has this changed the nature of the university in The Netherlands?
– How has the success of universities in the field of innovation led to changes in the way the national government has sought to regulate the higher education sector in order to maximise the societal benefits produced by the institution?

6.4 THE RISE OF THE THIRD MISSION IN THE NETHERLANDS

Since the early 1980s, Dutch policy-makers have been concerned with increasing universities' societal contributions. Instead of talking about third mission activities, they used the word valorisation to discuss societal, enterprising and innovation activities. Panic responses to the 1980s crisis gave way to attempts to invest in the knowledge infrastructure in the 1990s, and this evolved into the 2000s' emphasis on innovation as a structuring theme of successive governments. Universities' behaviours have likewise evolved from very limited, project-led responses in the 1980s to more systematic and competitive attempts to obtain funds in the 1990s and to becoming increasingly entrepreneurial and socially engaged in the 2000s. However, a Dutch case study highlights the fact that in this broad evolutionary narrative of a shift away from the democratic mass university towards the entrepreneurial university, institutions have evolved at their own pace. Despite the general direction of change, one can make a clear distinction between institutions whose success has informed policy developments (leading policy) and those which have lagged, but which have nonetheless evolved to become far more entrepreneurial than democratic mass universities.

6.4.1 The Emergence of Valorisation Policy in the Netherlands

The Dutch economy experienced a period of 'stagflation' in the late 1970s, primarily as a consequence of the oil shocks that created a large domestic surplus. This surplus drove currency appreciation at the same time as competitors' markets were slumping, leading to a collapse of exports in one of Europe's most open and export-dependent economies. The short-run impact of this competitive crisis was that, as from the 1970s, public spending was extremely pressured and governments sought to find cheap ways to stimulate economic growth. In the longer run, the principle of investing

Table 1. The inter-relation between societal pressures, the rise of the third mission and European reform processes

Societal shift	Societal manifestation	Implication for HE	HE response	Involvement with wider reforms
Perpetual funding crisis of the 'endless frontier'	Increasing pressure from funders on universities to diversify activities, finding new funders and sponsors.	Increasing relevance of science means that always more activities than can easily be funded	Strategic institutional investments in capacity Stronger centralised financial management	Managing own risks, taking own responsibility Privatisation of funding for universities
Liberalisation and commodification of scientific knowledge	Universities in competition for privileged position with other kinds of organisation; 'unbundling the university'	Leading to new forms of accountability, new management systems and relationship management	Management & strategies to hit targets Centralisation of data collection	Changing accountability relations and control New public management: by targets, results
The changing nature of knowledge production	Blurring of roles in knowledge production: increasing emphasis on what works, matters.	Individual specialisation and problem complexity → new disciplines/ co-operative norms emerging	Creation of new institutions and centres Opening to external paying stakeholders	Shift from core to line-item HEI funding Steering by networks by policy-makers
Competitiveness and the urgent imperative of usefulness	Pressure from policy-makers to contribute to solving urgent societal problems	Need to be sensitised and responsive to societal pressures	Creation of new commercialisation roles, infrastructure Investment/ stress on revenue generation targets	Alternative sources of revenues, cost-sharing Funding research at disciplinary/ academy margins not core

89

Dutch hydrocarbon income exclusively in productive infrastructure was established so as to prevent the recurrence of a similar inflationary bubble.

The first wave of Dutch valorisation policy took place against this extremely bleak fiscal picture, with ministries seeking inexpensive policies which leveraged value from past investments to create economic benefits. The Science Ministry developed two experimental programmes which have continued to this day. The Innovation Oriented Research Programme (IOP) aimed to encourage knowledge exchange between firms and universities and the Open Technology Programme (OTP) sought to encourage nearer-to-market university research (details on funding programmes in all three phases are provided in Table 2). The OTP was overseen by the Foundation for Applied Sciences (STW), founded in 1981 to stimulate excellent utilisation oriented technology research (Van der Meulen & Rip, 2001). The Ministry of Economic Affairs became interested in the potential of research spin-offs, and in the mid-1980s it funded all 14 Dutch public universities to create technology transfer offices to promote university companies. However, the unimpressive results led to the cessation of the subsidy, whereupon all but one of the universities closed their technology transfer offices. The funds released were invested in the creation in 1989 of Syntens, an agency to promote innovation in small businesses (Benneworth & Hospers, 2007). The Dutch Organisation for Pure Scientific Research (ZWO) became the Dutch Research Organisation (NWO) in 1988.

By the mid 1990s, Dutch public finances had stabilised, but so much of the hydrocarbon funds had been invested in public physical infrastructures that further investments seemed senseless. The rules were amended to invest in knowledge capital that was eligible for the '*aardgasbaten*', provided that those investments contributed to national competitiveness and well-being. This opened the door for the creation of the three Economic Reinforcement funds (1994–1998, 1998–2002 and 2002–2009). This stimulated the second wave of valorisation policy, providing research funding that was targeted at encouraging university-public-business co-operation. This also saw the introduction of sectoral research policies such the Biopartner programme created to support the emerging biotechnology industry, or Microned, which provided the investment to allow the transformation of Dutch research strengths in materials science into a nanotechnology industry.

The third wave was marked in 2003 by the Programme for Government of the Balkenende-II cabinet in which 'innovation' became one of three government principles (alongside administrative streamlining and norms and values). The 2003 Science Ministry budget ('*Wetenschapsbudget*') stated that 'Universities should be a breeding ground of new knowledge and insights. At the same time it is essential that there is an intensive interaction between universities and society' (MOCW, 2003). The Ministry of Education, Culture and Science reaffirmed the general position in 2005 that outreach activities were a task for Dutch universities which not only encompassed education, training and the communication of research results, but also collaboration with private and public actors, the pursuance of intellectual property, the creation of spin-offs, and the encouragement of entrepreneurship.

In addition to the continuation of the Economic Reinforcement Funds (which received a huge boost with higher oil prices in the wake of the second Gulf War), a

*Table 2. Policy instruments facilitating knowledge transfer
with societal organisations*

Instrument	Description	Budget	Date
Phase 1: prompting university valorisation			
Innovation-Oriented Research Program (IOP)	Competitive grants for innovative research projects in public-private cooperation	€66m 2006–09	1980–present
Open Technology Program (OTP)	Competitive grants to stimulate projects in universities with a potential for application and commercialisation	€43m pa 2000–08	1981–present
Transferpunt (Industrial Liaison Offices)	Funding for universities to operate a single contact point (industrial liaison office) to facilitate SME knowledge access	*f.* 21m (c. €10m)	1983–1987
Phase 2: investing in knowledge infrastructure			
(ICES/ KIS 1 - Economic Reinforcement Fund)	Subsidies for cooperative research alliances involving public research institutions and private companies	€113m	1994–1998
(ICES/ KIS 2 Economic Reinforcement Fund)	Subsidies for cooperative research alliances involving public research institutions and private companies	€211m	1998–2002
Biopartner	Subsidies, seed funding and venture capital for start-up companies in the life sciences	€21.2m 2006–09	2000–2004
Phase 3: innovation as a defining policy principle			
ICES/KIS 3 - Bsik	Knowledge and Research Capacity: Subsidies to set up public-private research consortia	€802m	2003–2009
Innovation vouchers	Subsidies for SMEs to commission contract research at universities and other public research institutions.	€25m pa *	2004–present
Technopartner	Subsidies and venture capital for private start-ups	€21.2m 2006–09	2004–present
Valorisation Grant – SBIR	Subsidies for feasibility studies and seed funding	c. €1.5m pa	2004–present
Casimir	Incidental grants to foster staff mobility between universities and private companies	€2.8m (2007)	2005–2007
Smartmix	Subsidies for cooperative alliances, creating innovations and developing focus and mass in excellent research.	€100m pa	2007–present

Source: Zomer et al. (2010).

number of new programmes were established to encourage regular contacts between universities and SMEs, such as the Innovation Voucher scheme, Technopartner and SmartMix. These policies aimed to disseminate university research to businesses and create the absorption capacity in businesses for that knowledge, such as the resources to pay for that knowledge or the skills and expertise to participate in co-creation activities. This phase drew to a close following the fall of the fourth Balkenende cabinet and the final reporting of the Dutch Innovation Platform in the run-up to the June 2010 elections.

The overall effect of these changes was seen in the substantive shift in the funding environment for Dutch universities. According to Lepori et al. (2007), whilst around 50% of project funding research instruments were academic-oriented in 1970, by 2002 this had fallen to around 18%, the remainder consisting of either thematically-oriented or innovation-oriented research instruments. Table 2 presents an overview of the key policy instruments and programmes that promote entrepre-neurial activities and knowledge transfer between scientific researchers and other societal organisations in the period under consideration.

6.4.2 The Engagement of Dutch Universities in Third Mission Activities

The history of Dutch university valorisation activity in the last three decades can also be divided into a similar set of periods which overlap with but are not completely identical to those of the evolution of valorisation policy. All Dutch universities have identifiable societal missions, from the founding of Leiden University in 1575 in response to the fall of Leuven to Spanish occupation to the creation of Maastricht University in 1976 to revitalise the mining regions. This meant that Dutch universities have always been sensitive to policy pressures, but their responses have also been shaped by their internal cultures and perceptions and opportunities and demands from other external stakeholders. This is evident in the way that universities have responded to the stimuli provided by ministries responsible for scientific research and economic affairs.

The first phase of government valorisation policy did not arise exogenously, but was a specific response to a university which had been successful in its valorisation activities. As from 1978, the University of Twente (Van den Kroonenberg, 1996) began to stress its regional territorial contribution to a crisis in the textiles industry in the East of the country. As from 1976, it was active in an early science council valorisation experiment, 'Project Industrial Innovation', which worked with about 10 companies to understand the (then-poorly understood) process of technology transfer. In 1979, it established a *Transferpunt* (transfer point, or industrial liaison office) to provide a single point of contact for firms wishing to access university knowledge. The university identified that it had already created a number of spin-off companies from its research base and was persuaded by the Ministry of Economic Affairs to undertake more research into the opportunities in that field. This led to its inclusion in the White Paper which put forward the idea of technology transfer offices for universities, which formed a key part of the phase 1 government policy for valorisation.

An important influence in dictating universities' responses in the second phase of government policy was the EU Regional Development Policy, and in particular, its increasing orientation towards supporting innovation activities. In 1989, 12 experimental regional pilots were carried out across Europe, developing regional technology plans for these 12 regions, including South Limburg. The success of the policy and its expansion through RITTS, RIS, RIS+ and RISI programmes offered an alternative source of income for universities that would orient themselves towards innovation activity and were located in eligible areas. Because European Funding was largely restricted to deprived former industrial and restructuring agricultural areas, only a few Dutch universities were eligible. But in those regions (including the north, south and east), the eligibility of innovating funding provided an incentive for universities to produce an ongoing stream of valorisation projects which absorbed these funds and the University of Twente was certainly active in this area of creating valorisation projects (Schutte et al., 2001). The other external influence at this time was the 'dot com' bubble, when all high-technology firms, even those with question-able plans structures and prospects, were temporarily able to obtain substantial venture funding from investors, many of whom were soaked when the bubble burst. After 2001, universities were much less sanguine about the prospects for high-technology investments, in part because a number had suffered losses in investing in high-potential businesses which proved useless.

The third wave of government policy can also be regarded as an attempt to restore momentum to universities which had become more risk averse and less willing to support business innovation. The 2004 Innovation White Paper ('*Pieken in de Delta*') argued for the creation of three spin-off hotspots around the universities of Delft, Leiden and Twente, as well as further support for the valorisation complex involving Philips and the Technical University in Eindhoven. The substantial sums involved and the increasing allocation of funding to scientific infrastructure rather than to staffed transfer projects allowed universities to think up ways of using these funds to invest strategically in their science base. An alternative reading of the third wave of valorisation policy was an attempt to extract concessions from universities to contribute substantively to the flagship Innovation Agenda in return for significant infrastructure investments.

Between 1990 and 2003, third stream income of universities rose significantly, with industry–funded research rising from some €50m to €160m, underlying greater collaboration between universities and other societal organisations. Whilst in 1996, 10 of the 14 Dutch universities lacked support structures to create spin-off companies (Tilburg & Kreijen, 2003), by 2005, 12 universities had created holding companies or technology transfer offices to support technology transfer activities (VSNU, 2005). Yet, it is not fair to portray this as a one-way increase in univer-sities' commercialisation activities. Both patent data and spin-off numbers peaked in the 1990s and have subsequently stagnated or declined. Dutch universities in-creased their patent output from approximately 80 applications in 1981 to over 330 by 1998 (Tijssen et al., 2006). But after 1997–1998, there was a decline to around 240 annually. This highlights the fact that the final stage of university involvement in commercialisation was more oriented towards maximising the benefits that it

had brought for those universities than increasing the amount of activity undertaken.

6.4.3 The Dutch University Valorisation Journey 1978–2010

The Dutch case neatly illustrates the central plank of our argument that university valorisation and the third mission did not evolve as uniform or straightforward responses to external pressures, and certainly not to government policy instruments. Rather, universities were active in shaping – and in some cases pre-empting – those responses. Only 14 universities had a public role in basic research. They have some capacity to capture policy makers' demands, even though there are other non-university public research organisations. There has been a pattern of reform in the higher education sector by consent because of the relatively small sectoral size. The third mission of Dutch universities has evolved through an ongoing negotiation process between government and universities which has shaped policy and action, producing outcomes which have become the basis of subsequent negotiations. But university interests in this process are neither uniform nor straightforward, with universities paying attention to their capacities and internal stakeholders' interests, in this case their researchers. Dutch universities have evolved through three distinct phases of valorisation towards an end point that could not be anticipated—nor was that desired—at the start of this journey.

The first stage of the engagement in third mission activities by Dutch universities was when they became sensitised to the idea of applied research. In the 1970s, the Dutch academy responded to societal unrest by going back to its historic societal missions, i.e. to ensure that people from particular social groups (the 'pillars') could access higher education (Daalder, 1982). Even in the Technical Universities, it was very difficult for professors – when they so desired – to engage with business, partly out of a fear that business engagement was a cover for the development of weapons and nuclear power (Van den Kroonenberg, 1996). In the first phase, subsidies were made available for collaborative research. A new institution, STW, was founded to oversee the allocation of these subsidies and the focus of the Dutch Science Council was extended beyond pure research. It was not compulsory to collaborate with business, but researchers who wanted to engage with business were provided with appropriate opportunities. Universities were also given incentives to develop infrastructures to support business engagement. This helped to mobilise a community of engaged researchers in some universities who benefited from accessing additional government research funds, conditional on business engagement.

The second phase began when universities became institutionally interested in the idea of engagement and started to develop projects to bring money to the university as a whole rather than to particular researchers. The availability of European funds provided them with a means to develop technology transfer infrastructures, including transfer offices, incubators, spin-off programmes, venture capital funds, and IP management activities. A few high-profile successes abroad, notably Leuven's technology transfer activities, encouraged universities to try to manage their knowledge base more proactively and profitably. In this phase, emphasis shifted from the

individual to the collective. The first university innovation strategies began to be articulated, not only explaining how particular projects worked, but how innovation and its attendant funding streams contributed to and supported the wider life of the university (Schutte, 2000). In the first phase, the engagement was remote from the managing centre, whilst in this second phase, it was often increasingly remote from academic units via a technology transfer infrastructure which functioned autonomously to create funding benefits from existing knowledge resources and university infrastructure.

In the third phase, engagement with business developed to become a more central and strategic university element, with university structures stimulating and encouraging academics to engage, as well as supporting engagement projects within a strong infrastructure. This phase was identified as early as 1998 by Burton Clark in the University of Twente, where he highlighted the five characteristics of the entrepreneurial university, including a 'strong managing centre' and an 'extended development periphery'. But a key part of this phase was the recognition amongst universities of a need to bring the engagement mission under control in order to maximise the benefits which it brought to institutions. There was a growing reluctance to engage in endless new research projects – much more thought was given to how particular projects fitted into strategic frameworks, determining the overall evolutionary direction (or 'profile') of the whole university. Science parks became far more intertwined with universities' evolving estates needs, offering incubation and business engagement space rather than commercial real estate opportunities for businesses.

At each stage of this development, universities had to respond to external drivers, but they also had some latitude to shape the direction and outcomes of that particular step. The third mission for Dutch universities did not simply evolve as successive governments developed policies that sought to exploit universities' knowledge bases. Universities, the Dutch university system and the wider environment in which universities operate evolved as a consequence of these changes. The public law on universities' mandate was revised to encompass a more specific societal duty for universities. Understanding the third mission, its relation to universities' other missions, and the impact of the range of reform processes to which Dutch HE has been subject therefore requires an understanding of this multi-stage evolutionary process whereby universities evolved from democratic mass universities to hosting communities of applied researchers, to organising technology transfer projects and finally to becoming commercially engaged institutions.

6.4.4 Engagement as an Outcome of a Complex Policy Development Process

A further complexity is the fact that different universities have played different roles in the evolution process, as their relative power and influence in the process evolved. Early on in the process, the University of Twente found itself leading policy ideas, proposing the creation of the Transferpunt, and creating a spin-off company support programme. This was because it had been founded in 1961 to support industry in the Twente region, and because, as from the mid-1970s when that industry collapsed, it had striven to reinvent itself as a source of new industries for the region.

At the same time, members of the university perceived the opportunities for business collaboration to create revenues that could enhance its research capacity. In 1987, the university adopted the strap-line 'the Entrepreneurial University'. The daring nature of that decision can be better appreciated if one remembers that when it created a consortium of like-minded universities, they chose the name 'European Consortium of Innovative Universities' (ECIU) because of the *avant garde* associations of the entrepreneurial university idea in the 1990s.

But the University of Twente was not the only university to influence governmental policy. Particularly noteworthy was the role of the Innovation Campus at Eindhoven, led by Philips and involving the Technical University of Eindhoven, which was strongly supported by the municipality and strategic bodies for the Eindhoven City region, south east Brabant and the Province of Noord-Brabant. Other developments which caught the attention of policy-makers in the Hague included the Life Sciences cluster around the Leiden University Medical Centre and the Technical Services cluster located next to the Technical University of Delft. The potential of these clusters to contribute to national economic success encouraged policy-makers to tailor their valorisation policies to ensure that they stimulated these emerging valorisation complexes.

The third mission in Dutch higher education evolved at different paces in different institutions within a commonality in the direction of evolution. The University of Twente was a leader during this period, seeking to use the idea of being an entrepreneurial university to offset its weaknesses as a relatively new university with few students, a limited disciplinary offer and no medical school. In contrast, the (ancient) University of Utrecht was far more of a laggard in the development of an entrepreneurial culture, only engaging with the idea of commercialisation when it was clear that there was a sufficient match with its assets, strategies and interests to offer a real opportunity to generate new resources to support its core interests. In the mid 1990s, the University of Utrecht and its research institutes started to create support structures for spin-off companies and patenting. An incubator facility for life science companies was established in 2004, which is relatively late compared to other universities in The Netherlands. The reason why the University of Utrecht is more of a 'laggard' is partly because it has been such a strong recipient of core government funds and partly because its culture traditionally valued basic research and discouraged engagement with business. Therefore it saw no need to pursue external funding and it has been much more careful in ensuring that the conditions for external funds did not outweigh the benefits attached to enhancing its research capacity.

When mentioning the 'third mission' in Dutch higher education, the different pace of progress through the journey should be acknowledged. It should be appreciated that the contemporary landscape for the 'third mission' involves tensions between leading and lagging institutions mediated through policy-makers seeking to achieve their own goals and initial aims. Figure 1 shows how the evolving 'idea of a third mission' can be seen as a landscape of interrelations between leading and lagging universities. These tensions create a dynamic and evolving policy environment in which national policy makers and leading universities attempt to increase the engagement of researchers in third mission activities, while lagging universities

are encouraged to adhere to norms that stress the engagement in third mission activities not to risk the loss of legitimacy. It is important to underline with this diagram that the locus of change is not entirely dictated by the leaders. It is the centre of gravity between leaders and laggards, or what the sector as a whole can achieve, that frames the overall locus.

These changes did not happen in isolation, nor can the evolution of the third mission – shaped as it is by changes in universities – be distinguished from the broader process of evolution through which universities have progressed in response to the Reform agenda. The Dutch example illustrates our broader argument that the rise of the third mission is often taken for granted as a response to external drivers or policy stimuli, overlooking the role of universities in the construction of the response and activities by which the 'third mission' has been delivered. At the same time, its interconnection with other key elements of the reform process (Table 1) highlights how leading universities have been constructing the reform process to their own benefit. Governments have encouraged this approach because of the successes of the leading universities. These have become adopted as best-practices and norms towards which the rest of the sector should converge. We therefore contend that this demonstrates the value of continuing to study the university third mission as a lens to understand and reflect on universities' societal contributions and the continuing effects of reform on the institution and the idea of a university.
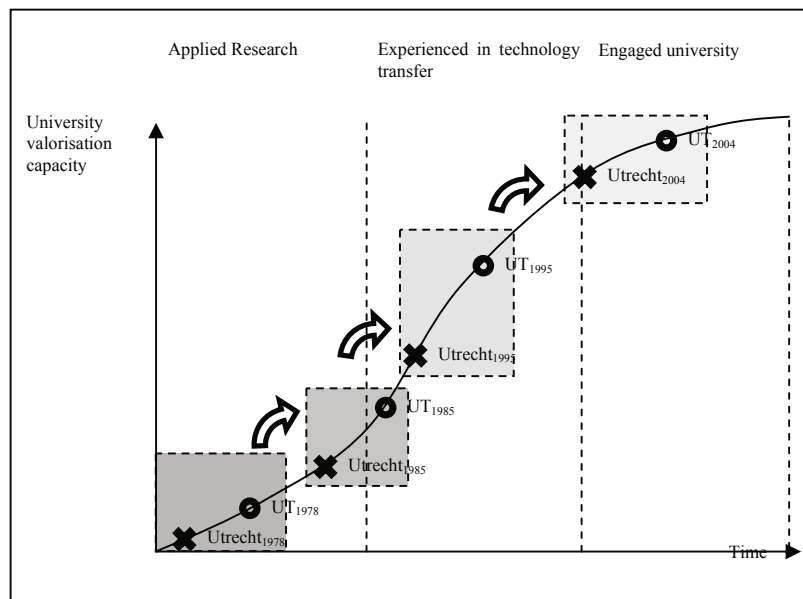

Figure 1. Dutch university and HEI system progression towards engagement 1978–2004.

Source: authors' design.

6.5 UNIVERSITY COMMERCIALISATION AND
THE CHANGING INSTITUTIONAL IDENTITY

In this chapter, we have argued that commercialisation has become an intrinsic part of what universities do. This has a number of consequences for the academic study of higher education. The third mission was a response to demands from government, industry and other societal actors for universities to become more self-reliant as institutions (covering their costs) but at the same time creating benefits for a range of societal actors, principally by supporting business innovation and boosting national competitiveness (Clark, 2004). The idea of a third mission for universities—as currently understood—emerged at a particular time and place within a changing society. Over time, it has acquired a degree of autonomy as something shaping not only debates about universities' societal impacts, but also the meaning of university. The third mission has emerged from this evolutionary process to become a mature additional mission of universities, supported by individual universities as well as at a national policy level. The idea continues to evolve, with successes being extended and failures leading to evolutionary dead-ends and policy lacunas, as policy-makers distance themselves from those failures.

The 'third mission' has become one of the key threads of the higher education system, entangled with governance, research excellence, quality assurance, funding and other key lines within the contemporary landscape. As systems evolve, these threads influence the configurations and capacity which emerge, because they are salient in the debates and decision-making processes whereby resources are allocated and the system functions. The implication is that a more detailed understanding of the third mission and its relationship to other elements of the reform process is neeeded. This must not just be limited to understanding how government attempts to reform higher education have stimulated the third mission, but also how the institutions that have emerged seeking to becoming more commercially engaged have in turn shaped governmental attempts to reform university governance, funding and curricular and research structures.

The Dutch story is not unique. In other countries, universities are leading the emergence of the third mission at the same time as they are progressing through the broader reform process. Many of these institutions are well-known from the literature, as well as for the reasons why they have this leading position. Leuven in Flanders has this position on account of the success of patents managed by Leuven R&D which generated substantial income for the parent university. Warwick University has generated a unique profile as a university that focuses on high-technology manufacturing, despite strong national disincentives. Lund University has used reach-out activities to build local political support for its wider scientific ambitions, culminating in its recent award of the €10bn European high-energy laboratory, the European Spallation Source. Tampere University in Finland has also worked with its regional partners to position its region as a high-technology centre worthy of further investment and as a counterweight to investment in Helsinki. Karlsruhe University has recently merged with a research centre to create a strong commitment to commercialisation in order to maximise its benefits from the *Exzellenzinitiativ* in which it has been remarkably successful.

We conclude our chapter with a call to researchers and policy-makers to be more aware of the complexity of the role of the third mission in contemporary higher education. Commercialisation and engagement are no longer add-ons that are peripheral to the university research and teaching enterprise, but represent an additional enterprise for the academy. This means that university societal impacts are not only dependent on small commercialisation projects, but are also shaped by the wider institutional and regulatory environment in which they operate. At the same time, university efforts to engage and commercialise their research shape the wider higher education system. Those seeking to understand or shape higher education systems, or indeed both, must recognise the progress made by universities in responding to society's demands, problems and strictures and be aware that this complicates, rather than simplifies the networks with which governments seek to steer higher education.

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EGBERT DE WEERT

7. TRANSFORMATION OR SYSTEMS CONVERGENCE?

The Research Profile of Universities of Applied Sciences in Europe

7.1 INTRODUCTION

In many European countries, the distinction between universities and other types of higher education institutions has been a key characteristic of national systems. Although there are overlaps between these main sectors, government maintains a basic distinction as a guarantee of systemic differentiation. The slogan 'equal but different' gained the widest currency in typifying binary systems. In most countries, other types – for example polytechnics (Finland, Portugal and formerly in the UK), Fachhochschulen (Germany, Switzerland, Austria), institutes of technology (Ireland), hogescholen (The Netherlands, Belgium) or university colleges (Norway) – have been established to provide vocational programmes at degree and sub-degree level. In order to distinguish it from universities, the higher vocational sector has commonly been termed the 'non-university sector' (Lepori, 2008), 'higher education institutions outside the university sector' (Kyvik & Lepori, 2010), 'alternatives to universities' or 'second type institutions' (Teichler, 2007), 'the other institutions' or 'dual arrangement of theoretical and vocational studies' (Meek & Davies 2009). Most of these terms are derogatory, as they do not do justice to the important place these institutions occupy in national higher education systems and the changing environment in which they function. The sector itself perceives that it is not punching its weight or achieving adequate recognition internationally and therefore have joined forces by establishing a European Network (UASNET) and adopted the name 'Universities of Applied Sciences', a term that will also be used in this text.

Universities of Applied Sciences (UAS) have been assigned a special role by tuning their educational provision to the requirements and needs of the world of work. Compared to universities, the education they offer is more interdisciplinary and prepares students for a variety of professional areas. In recent years, research has been playing an increasingly important role alongside their teaching obligations. In many countries across Europe, the UAS see it as their professional education mission to accommodate societal demands by linking professional practice and education through innovative practically-oriented research. Many institutions have developed a variety of research activities in order to contribute to regional innovation and improve professional practice.

At the national level, governments in several countries are following the Bologna Process and more particularly the Lisbon agreement which focuses on a strengthening of professional higher education by:
– acknowledging the important role of these institutions in knowledge transfer, knowledge circulation, and innovation; and
– broadening the research activities, mainly in applied research.

These developments may suggest a further blurring of boundaries and an undisputable move towards what Guy Neave once called 'the blessed state of integration' (Neave, 1983). This is endorsed by the view that the distinction between graduates with a first cycle degree from UAS and from universities has diminished compared to the pre-Bologna era. For many, the binary higher education system is waning and will shift towards seeing higher education as a comprehensive collection of heterogeneous institutions, rather than as divided into two binary camps.

In several policy documents, however, it has been stressed over and over again that it is critical to preserve the differentiation of mission between the university and the UAS sector. In several national thematic reviews of tertiary education, OECD applauds the strengths of systemic diversity in countries with a binary structure, arguing that this framework should be maintained and if necessary strengthened. For example, in the *Review of Tertiary Education in Ireland*, OECD advocates reforms in areas of funding, governance, human resources, quality and accreditation to 'create a policy environment in which professionally orientated polytechnics can create a sustainable future that is distinct from traditional universities' (OECD, 2006). The success of the UAS-sector needs to be nurtured so that its differentiation from the university sector is not seen as conferring lower status, but defining it as an equal partner in a dynamic higher education system which covers a diverse range of functions. In a similar vein, the Dutch Committee on the future of the Dutch higher education system (Committee Veerman, 2010) considers the binary divide as a first-order diversification and profiling of institutions in the university and the UAS sectors as a second one. At the same time, the Committee recommends strengthening the research function of UAS as a quality boost to professional education. This may put pressure on the binary system. The challenging question arises of how to foster diversity by preventing institutions from converging in a single preconceived 'golden standard' of what is proper higher education.

This contribution aims to examine whether the growing research function of UAS leads to a further blurring of boundaries or whether it would justify a preservation of the binary system. This depends on the extent to which research being shaped in the UAS sector can be delineated from university research. Are we talking about a distinctive profile of research activities in UAS and, if so, in which conditions will it be maintained? Would this require, as Donald Schön puts it in *The Reflective Practitioner* (1991), a specific 'epistemology of practice' based on the ways in which knowledge is constructed when one is engaged in the activities of professional service or practice? If there is a distinctive profile, how can this research be directed towards a transformation process of professional education that leads to a greater

rather than a lesser diversified higher education system as a whole? It is not our aim to give a blueprint for the future, but to explore current practices in several countries which are indicative for future developments.

The structure of this chapter is as follows. First, we will touch upon both some general characteristics of the UAS sector in Europe as the contexts in which the research function evolves and some experiences in the past. Next, attention will be paid to the forces that are driving the UAS research ambition across Europe, followed by an overview of the nature of the research framework in several countries on the basis of which a distinctive profile research can be denoted. Finally, we discuss how such a profile can be instrumental in strengthening the components that constitute the core identities of the UAS sector.

7.2 STRUCTURAL DIFFERENCES AND CONVERGENCES ACROSS EUROPE

A comparison of research at UAS in the European context cannot ignore the large structural differences that exist across countries, differences that must be taken into account to compare its nature and scope. In most countries, the sector has a long history with established values and identities, mostly originating from an upgrading of vocational colleges and an amalgamation into larger institutions. Elsewhere, the sector has a much shorter history with the foundation of new institutions. Examples are Finland and Switzerland where the UAS have developed very rapidly and have become firmly established in the national system. Some countries with a pre-dominantly unified system are in the process of upgrading vocational education by establishing vocational higher education institutions (e.g. Sweden and some East European countries).

According to OECD, 'a highly developed model of binary system' can be found in The Netherlands where 65% of students are enrolled in the UAS sector, against 35% in universities. In most other countries, the balance is the opposite. In Germany, the UAS sector comprises 29% of the students, in Austria 12%, and in Switzerland 34%. Also, the number of students per institution differs considerably both between and within countries. In Austria, the mean number of students is rather low, Finland, Germany and Portugal have a general mean and The Netherlands have a high average. In the latter, the number of students varies from 2,000 to over 30,000 in comprehensive institutions.

Related to the size of the sector are the provision of subject areas and the variety of study programmes. There are no general rules or schemes as to what belongs to what sector. This gives the binary divide a rather arbitrary character in an inter-national perspective. In some countries, the UAS are more narrowly based, with a high concentration on engineering and technology fields that have high potentialities for research and development activities. In other countries, the sector encompasses a broad range of subject areas. In the Irish institutes of technology—originally regional colleges of technology—engineering is the largest area, although several other fields such as health, social sciences, economics, law, humanities and arts are well represented. Moreover, subjects like teacher training, nursing, paramedics,

and fine arts are part of the UAS in some countries, whereas in others they belong to the university sector or constitute a type in its own right, such as art colleges.

Another important feature is that access policies differ from a widening access with different routes of secondary education to more selective entrance. Switzerland, Austria and France have entrance thresholds and sometimes apply very strict selection mechanisms. In some cases, only a third at most of the applicants has been admitted. Hence, the number of students can be kept small, mainly because of labour market considerations, whilst universities must accommodate the mass of students. Elsewhere, the sector has an open admission system with different access routes from secondary and vocational streams and a focus on maximal participation. The Dutch committee on the future of higher education (Committee Veerman 2010, p. 31) would welcome a smaller and more selective research university sector, expecting Dutch UASs to accommodate an ever growing number of students.

A last notable feature is the relative closeness or affiliation with the universities. In some countries, there is increasing collaboration between both sectors, such as in the knowledge centers in Denmark, the associations in Belgium and more particularly in France where the Instituts Universitaires de Technology (IUT)—which are part of the UAS network—are in the university. Their research agenda is mainly determined by the affiliated laboratories or research teams who work at the same time in the IUTs.

These structural differences between and within countries are important when comparing the nature and scope of research in UAS across Europe. It matters for research whether an institution has to absorb a large and very heterogeneous group of students or a selective group of high quality students.

However, some convergent trends also become apparent. Mainly because of the Bologna Process, the length of the programmes has been harmonised, with the first degree varying between three and four years, generally the standard qualification for the labour market. The Bologna Process elicited much debate whether the two-cycle structure could also apply to the UAS sector, thereby creating an equivalence point in the grade structure. In the meantime, several UASs have been entitled to award (professional) masters degrees in addition to the bachelor degree, often on an experimental basis but, in principle, eligible for public funding (Beerkens-Soo et al., 2010). Compared to university masters, UAS masters are usually not consecutive and candidates must have a minimum of three years of work experience before being admitted to them. When the cycles are consecutive, the total study duration normally does not exceed five years. The fact that some institutions have been permitted to award masters degree has stimulated others to seek similar powers and the sector as a whole is engaged in fostering studies to the doctoral (PhD) level and granting faculty the *ius promovendi*. Doctoral programmes in the Fine and Performing Arts have already been recognised in some European countries and it is expected that they will follow in other areas in due course. This movement towards masters and PhD programmes in the UAS sector goes along with the evolving research function. The creation of a 'research mindedness' in the UAS requires research being carried out at higher levels. The Bologna Process has apparently boosted this process.

7.3 ACADEMIC OR POLICY DRIFT?

This upward movement towards higher levels of education and the endeavour to expand the research ambitions have been criticised from various directions. It is often seen as an incremental and mutually reinforcing policy process between the sector itself and the policy environment. A critical issue is that the sector is so obsessed with the higher levels of learning that this ambition may neglect its primary mission, which is to prepare a diversity of students in the bachelor phase for a genuine labour market qualification. This critique also comes from the employment sector stressing the importance of qualifications below degree level including work-based learning (Arthur, Brennan & De Weert, 2007).

Traditional universities react skeptically, as this would imply that available resources for research should be allocated to a larger number of institutions. More-over, there is concern with nomenclature and titles and a feeling that there is not a parity of esteem between the two sectors of higher education. In order to qualify for research funds, criteria would apply that would make it difficult, if not impossible, for them to compete with the university sector in terms of research infrastructure and the research qualifications of UAS staff.

From a sociological point of view, the increasing educational levels can be interpreted as the outcome of an ever raising of requirements to obtain a job. Randall Collins and Pierre Bourdieu are among the scholars who emphasised the dynamics of the 'credentialing of society' whereby professional groups struggle to redefine the world of work in order for titles and degrees to ensure the 'professionalism' of their interests. As educational attainment has expanded, the social distinctiveness of that degree and its value in the labour market have declined. This, in turn, increases demand for still higher levels of education. For Collins (2002), credential inflation is 'the dirty secret of modern education' which, together with educational expansion, could go on endlessly until janitors need PhDs and household workers will be required to hold advanced degrees in household appliances.

Higher education researchers conceive this process of degrees and titles as academic drift, where the UAS sector emulates the university model and tends to become a university sector, thereby undermining the binary divide. The views expressed by Pratt & Burgess in the 1970s about the British polytechnics have dominated the tone of the debate ever since. Among the original reasons for setting up polytechnics were the expansion of cheaper higher education, greater access to a wider community of students and meeting the demand for courses that were vocational and professional in character and industrially based. Another was the fact that the international competitiveness of England demanded that the non-university sector be given a boost to increase its effectiveness (Pratt & Burgess 1974). Although the policy papers at that time identified the importance of accepting a wide student body, including students seeking a qualification below degree level and those requiring part-time courses, the share of these students rapidly dropped. This major shift towards degree courses and a substantial expansion at postgraduate level were, for Pratt and Burgess, a clear evidence of academic drift. The shedding of full-time non-degree and part-time courses reflected the self-elevation whereby the poly-technics sought to emulate universities by concentrating on degree level work.

Other views on the British polytechnics are more positive. Whitburn, for example, stated that polytechnics have succeeded in creating a genuine expansion of opportunity. They have succeeded in extending their academic potential without sacrificing any group of students (Whitburn, 1976, p. 176). In other words, the inclusion of degree-level courses are less a symptom of academic drift, than an opening up of new opportunities to students who, hitherto, would have had little possibility to study at degree level.

Much can be learned from the rise and fall of the British polytechnics for the current position of UAS in Europe. It offers lessons for the maintenance of systemic diversity. Possibly, the UAS sector in continental European countries is in a similar position and its postgraduate degree level and research aspirations may be judged accordingly. It is interesting to add that the British polytechnics had a research mandate from the start and increased their commitment to research, if only as the necessary underpinning of the taught programmes or in order to obtain additional resources. The validation council for the polytechnics (CNAA) took the view that research was 'one of the essential elements in the academic health of institutions' and institutions were expected to continue its development to support CNAA courses (Pratt 1997, p. 312).

Another observation can be made about the British experience. The fact that polytechnics have drifted away from their original goal of being vocationally-oriented is less of a feature that is limited to polytechnics than a failure inherent in the British style of policy-making. As Donaldson put it, the policy mechanism that called it into being failed …'to develop sufficiently stringent controls which would, by their very nature, be resisted by interest groups both within the system and in the wider context of society' (Donaldson, 1975, p. 164). In other words, the drift within the higher education system simply reflects the pluralism and drift of the wider political, economic and social system. In his later study on the polytechnic experiment, Pratt comes to a similar conclusion when he refers to a combination of events. 'Britain did not exactly transform its higher education system by accident, but it could hardly be called planned' (Pratt, 1997, p. 306). In his view, the problems of governance and the failure to establish adequate governing arrangements led to the abolition of the binary policy. A limited steering capacity at government level may well lead to the erosion of the mission of the two sectors.

History repeats itself, as can be seen in recent developments in California. This much celebrated diversified higher education system which served as a model for other states and countries offers universal access to quality higher education opportunities at every level –certificates, associate degrees, baccalaureate degrees, and beyond – through an integrated system of public and private institutions. Several comprehensive reviews of this system, however, revealed concern about the primary missions of the different institutions and described 'a system dominated by segmental rivalries and poor planning and coordination' (Taylor, 2010). According to the Legislative Analyst's Office, the differentiation of the higher education system as a whole has deteriorated. Because of limited steering and weak coordinating mechanisms, institutions were able to act unilaterally and set their own priorities. In other cases, they secured approval from the government, even though their

actions seemed to breach the core of the original Master Plan principle. The effect was a 'mission creep' in the range of programmes offered. The report argues for strengthening coordination mechanisms, capacity for policy leadership and active government steering in the harmonisation of institutional priorities and programmes to policy aims (Taylor, 2010; compare also Committee Veerman on this issue, 2010, p. 23).

It is worth taking note of these lessons from Britain and California. Below, we will discuss the directions in which such steering arrangements may be sought for research activities in UAS. First, we shall examine the driving forces for research and the distinctive research profile.

7.4 DRIVING FORCES FOR THE RESEARCH FUNCTION IN UAS

Although the UAS sector is, by its very definitions, primarily concerned with teaching and education, a number of forces have fuelled its research function across Europe.

7.4.1 Meeting the Needs of the Knowledge-Based Economy

Most countries place the research mission in the context of the 'Lisbon' agenda to make the European Union the most dynamic and competitive knowledge-based economy in the world by 2010, with more and better jobs and greater social inclusion. Increasing international competition is creating pressure for improvements in quality and productivity and a growing need for innovation. A national system of innovation policy has become a major strand of government policy in several countries.

Part of the development of a knowledge economy is the increase of public investment in R&D and the creation of mechanisms to ensure that this investment is turned into commercial value as far as possible. According to policy makers, the university sector shows important shortcomings when it comes to the application of research results. The term often coined in this context is the 'European paradox', referring to the failure to commercialise public science and translate research results into knowledge utilisation and valorisation (OECD, 2008). By taking part in the innovation agenda, UAS will have an important role in unlocking untapped potential. By its mission and nature, the UAS sector works closely with industry and can conduct R&D geared to the needs of business and industry. Because of these ties, it can contribute to transform scientific knowledge into new products and services. This potential has been recognised with increased research capacity.

7.4.2 Boosting Regional Innovation

Traditionally, innovation policy has concentrated on high tech manufacturing and national priority areas, but awareness is growing that innovation strategies must build on each region's distinctiveness. Most countries are witnessing a policy shift from giving state aid to disadvantaged regions to supporting indigenous development through skills and promoting entrepreneurship and innovation, for example through the involvement and commitment of higher education institutions. The location of

UAS in the country, their connection with local business and communities and their openness to working with the private and public sectors provide a basis on which progress can be built. New partnerships will drive innovation by bringing together public, private and third sector organisations to find innovative solutions to local or regional challenges. They include providing courses and student internships and meeting the training needs of the local workforce through special programmes, and supporting regional entrepreneurs.

The development of the research function of UAS fits into this regional strategy. The political request was to strengthen the regional environment. Regional engagement is often explicitly mentioned in legislation and governments see a future target to further strengthen and enhance the R&D co-operation of local companies with regionally-oriented UAS. The UAS must focus their research activities on the needs of regional small and medium sized enterprises (SMEs) and many of them have regional representatives in their governing boards. Most small businesses are unlikely to have the resources to engage in in-house research. The research mission of UAS will bring a specific small business orientation to innovation.

7.4.3 Changing Competencies for Professional Practice

The new professionalism concerns the orientation towards permanent innovation in professional practice. This is not merely restricted to the updating of skilled knowledge workers, but involves a curiosity-driven attitude focused on acquiring new knowledge and a critical-reflective attitude regarding one's method of working (Leijnse et al., 2007). Research is seen as a way of bringing together the preparation of future professionals and the improvement and renewal of professional practice. The overused phrase 'reflective practitioners' by Donald Schön (1983) is applicable in this context, as it refers to the process of continuous reflection about individual actions, approaches and methods and solutions. Professionals who have developed such an 'enquiring capacity' tend to take prevailing methods and approaches less for granted. Research informed by and linked to such a reflective attitude will play an important role in developing such an attitude, thereby continually improving and renewing professional work.

It follows that professional higher education cannot be limited to preparing students to work according to fixed protocols and standards. The reflective learning of professionals encompasses both the application of knowledge and the development of new knowledge. In a knowledge economy, graduates must have a firm understanding of research methods that are appropriate for their professional practice. More than in the past, professional practice expects graduates to acquire competencies that can be termed 'research skills': problem definition and diagnosis, curiosity, methods, and correctly inferring conclusions and interpretations. This develops and sharpens analytical capabilities which are important for all professionals (Borgdorff et al., 2007). They are not only important in research environments as such, but also in industry and society at large. As an international committee on the Dutch degree structure of UAS put it: 'Practical and professional experience of students, by preference from the start of their study and in combination with applied research,

will allow these competences to develop' (Committee Review degrees, 2005; see also Stawicki, 2007 who makes a similar point in the German context). Empirical evidence for such a view comes from Cousin who shows that students involved in research-based inquiries acquire more sophisticated levels of intellectual development (cited in Healy, 2005).

7.5 TOWARDS A DISTINCTIVE RESEARCH PROFILE

These drivers have generated much support to extend the research function of UAS in Europe and have provoked a discussion on whether research in UAS is and should be distinctive from university research. The conceptualisation of the UAS research profile is far from easy. The most common term is applied research which includes a variety of activities in the sphere of research and development. According to the OECD manual for R&D statistics (Frascati manual), applied research involves 'original investigation undertaken in order to acquire new knowledge. It is, however, directed towards a specific practical aim or objective, or the objective is to search for practical applications of knowledge' (OECD, 2002). Although OECD makes a distinction between applied and basic research undertaken by universities, it also acknowledges conceptual problems with this distinction because it seems to imply a sequence from basic to applied research. Such a linear relationship is no longer seen as an accurate reflection of the complex reality.

Several models have been suggested to typify UAS research and separate it from university research. A much cited distinction is between Mode 1 and Mode 2 type of knowledge production (Gibbons et al., 1994). Contrary to Mode 1which refers to disciplinary research that emphasises the preservation and extension of academic knowledge 'for its own sake', the Mode 2 type focuses on transdisciplinarity and knowledge production in the context of application. The UAS sector embraces the Mode 2 type as the particular niche because of the emphasis on the applied character of its research.

Lundvall (1992) offers another typology. He distinguishes two forms of innovation: knowledge-driven (STI: science, technology, innovation) and practice-driven innovation (DUI: doing, using, interacting). Where STI deals with 'know what and why', DUI starts with practical knowledge (skills, competencies) and know how (internal and external networks and the skills to make use of them). This is often tacit knowledge and most often has a specific and local character. UAS research activities correspond more closely to the second type of innovation.

Donald Stokes' classification of types of research is probably the most advanced model. He argues that the conventional labelling of research as either fundamental or basic or applied research is inaccurate and pernicious. They are not the opposite ends of a continuum which moves in a linear way from theory to its application, but can appear simultaneously. Research can be undertaken both as a quest for basic understanding (rigour) and with considerations of use (relevance). In his view, research can be evaluated according to two dimensions: (1) the degree to which a quest for basic understanding motivates it and (2) the extent to which it is an attempt to solve a practical problem or is practice-oriented. Superimposing these yields four types of researchers known as 'Pasteur's quadrant' (Figure 1).

111

		Considerations of use?	
		No	Yes
Quest for fundamental understanding?	Yes	Pure basic research (Bohr)	Use-inspired basic research (Pasteur)
	No	—	(Edison)

Figure 1. Quadrant model of scientific research (Stokes, 1997, p. 73).

The work of the theoretical physicist Niels Bohr typifies the upper-left hand quadrant: pure, basic research carried out with no practical aim, even though there are many potential applications. On the lower right hand side is the quadrant of pure applied research, carried out to develop applied uses. This is exemplified by the work of Thomas Edison who, as Stokes observes, restrained his employees from investigating the deeper scientific implications of their findings in their pursuit of commercially profitable products. Stokes cites the impressive work of Louis Pasteur in the field of microbiology as a perfect synthesis of the aims of 'understanding' and 'use'[1].

The Dutch Advisory Council on Science and Technology used this quadrant in an attempt to classify research at UAS (AWT 2005) as distinct from university research and placed UAS research in Edison's quadrant. This research is not focused on fundamental understanding but on application and ensures a clear profiling in the Dutch research system. As Leijnse et al. (2007) argue, this labelling seems to be motivated by the political desire to make UAS research not competitive with university research. It may also be argued that this would be too narrow a view of UAS research and that it would be more appropriate to place this research in Pasteur's quadrant, involving a combination of fundamental understanding and application. Rigour and relevance are not by definition mutually exclusive. Discussing the mission of professional schools, Tushman and O'Reilly argue that placing them in Edison's quadrant would be inaccurate. Professional schools that either desire to pursue knowledge without consideration of use (Bohr) or pursue use without knowledge generation (Edison) would probably not deserve that name. Professional schools are about both and therefore operate in Pasteur's quadrant. This would distinguish these schools from disciplinary departments (Bohr) and from consulting firms which they place in Edison's quadrant (Tushman & O'Reilly 2007).

It is obvious that these classifications do not represent the full range of research activities and have met with much scepticism from various scholars because of the lack of an empirical base. Just as UAS research is difficult to put in a particular box, much university research cannot be cramped in a particular box. Pestre, for example, is quite critical about the Mode 1 and 2 types of knowledge production and argues that Mode 1 cannot be accepted as an accurate characterisation for university research in the knowledge economy. Knowledge has always mattered for states and to economic elites (Pestre, 2003). Similarly, Arie Rip, a scholar of science studies, argues that the difference between fundamental and applied or relevant research is 'not a principled contrast (...), it has more to do with the institutional division of

labour than with the nature of research' (Rip, 2004). In this context, he coined the term post-modern universities, referring to a transformation process consisting of the emergence of conglomerates of research where the boundaries between institutions are more porous.

7.6 EXAMPLES OF NATIONAL RESEARCH PROFILES

Let us now turn to the question of how the research function has been specified by the UAS sector. Particular attention will be given to those countries where this research has acquired a certain substance in terms of funding, volume and research capacity.

7.6.1 Ireland: Integrated Research Continuum

After much discussion, the Institutes of Technology in Ireland (IoTI) designed the preferred research framework to encourage individual IoTs to pursue their priorities within its parameters. The framework attempts to accommodate an industry research focus with the practical realities of the current IoTs, key government policies, and the funding available. It allows for the diversity of research competencies and experiences in the IOTs. The scope of research for most IoTs is an integrated research continuum which embraces both basic and applied research. This framework as illustrated in Figure 2 aspires to enable a continuum of research from basic through to industrially-oriented and applied research.
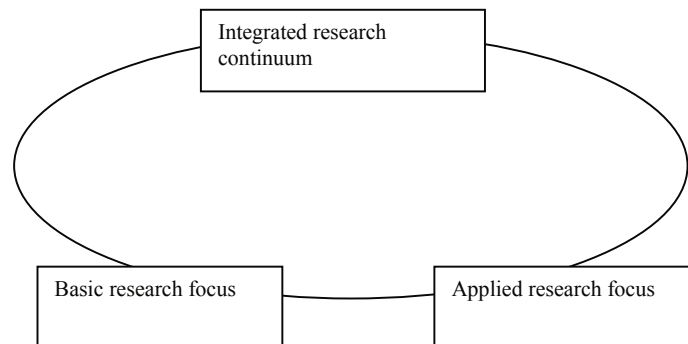
Figure 2. Research framework rationale for Institutes of Technology in Ireland (Institutes of Technology Ireland, 2008).

To achieve the appropriate research profile in the IOT sector by 2013, the current annual research programme should be broken down as follows:
– 15% of research should be industry related, i.e. funded by industry and industry schemes (e.g. Enterprise Ireland);
– 55% of research should be cutting edge applied and strategic industry-related research; and
– 30% of research should be basic research. This provides the understanding for future cutting edge applied and strategic research.

It should be added that, although most IOT priority research areas are in science and technology, they are also relevant for other areas of socio-economic activity and needs, including health, tourism, various aspects of business and social support, and design and the creative arts.

7.6.2 Germany: Applied-Oriented Research

Germany mostly uses the term application-oriented research and development. The German Rector's Conference states that application-oriented research and transfer of knowledge and technology are central tasks of the UAS. A core profile element is the transfer of results of basic research to innovative solutions of practical problems up to product development (HRK 1997). The Fachhochschulen themselves—being members of the HRK—endorse the strategy to connect fundamental and applied research and product research as a way of fostering innovations and impulses for new developing markets. The core competences of this innovation chain have been clearly assigned. Universities, UAS and enterprises all concentrate on parts of this chain. The core competence of UAS is in applied-oriented research, described as follows (HRK-Mitgliedergruppe, 2007):
– it is oriented towards utilisation and transformation of knowledge into operation;
– it is situated close to the market, is application-oriented and not in the last place focuses on a speedy transformation of research results into innovations; and
– it is theory-oriented in the sense of construction of theories, but as a rule with a view to practical soluble problems in economy and society. This means responding to concrete requests from enterprises and other societal organisations with 'product and customer-oriented' research for the short and medium term.

Applied-oriented research needs to be strengthened in the innovation chain. This emphasis is explicit in the 7th Framework of the European Commission. The German case can be illustrative to connect fundamental research and applied-oriented research by creating joint research endeavours across institutional borders. Various network structures between UAS and traditional universities have been built for this purpose.

7.6.3 Switzerland: Extension to More Basic Research

Since its creation in the mid-1990s, the UAS sector has been assigned a research role that should be applied and oriented to the needs of the regional economy and particularly the SMEs. UASs are considered to be downstream of the production of basic knowledge by universities. At the confederation level, an active promotion policy through the Swiss Innovation Agency aims to support UAS in this direction. Although the distinction between universities and UAS has always been stressed in the Swiss model and there is no sign of a weakening of this distinction, it is acknowledged that the divide between basic and applied research should not be taken as absolute. The UAS sector 'foresees some development of basic knowledge where needed for practical applications, while it is excluded that UAS engage in basic research for itself' (Lepori, 2008).
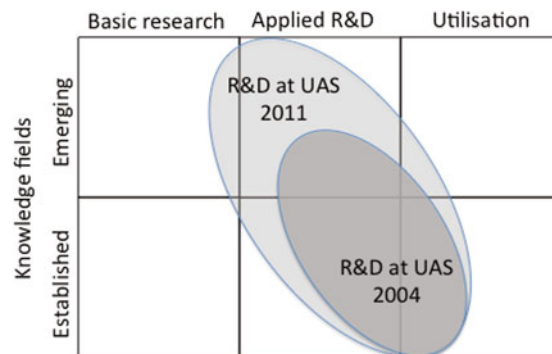
Figure 3. Development of research in Swiss Universities of applied sciences (Rektorenkonferenz, 2008).

In Switzerland, applied research and development subsumes all activities whose main purpose is to generate new knowledge and combine existing knowledge in new ways. This presupposes knowledge in its scientific and artistic contexts. The research problem formulations are based on problems that are connected with practice. The newly acquired knowledge flows back to education and practice which, in turn, will directly or indirectly benefit a circle of users and society (Rektorenkonferenz 2008).

In this view, as expressed by the Swiss Rectors' Conference of FH (KFH), there is continuous interaction between basic and applied research and no fundamental demarcation. Research in UAS is not limited to the established sciences, but increasingly seeks and discloses emerging fields. They undertake basic research insofar as this is necessary to attain applied-oriented research objectives. In Figure 3, the KFH illustrates the direction in which R&D at UAS should move in 2011.

7.6.4 Finland: Regional Strategies and Associations

The Finnish polytechnics (AMKs) have mandate to undertake applied research and development that serve professional education and the regional economic structures and employability. Research and development encompass activities to develop new knowledge and its use to explore new applications, respectively creating or improving new products, services, production processes or methods.

In the Finnish view, there is no difference between fundamental research on the one hand and research and development on the other. It is more important to know what is to be expected from institutions. The basis is laid down in joint regional strategies and development plans where the role of UAS is to contribute to the commercialisation of research results and carry out projects that foster regional innovations. The emphasis is on collaboration between UAS, universities and other actors in the R&D system. An example is the recently founded Aalto University, an association of UAS that enhances innovation by establishing 'design factories' to explore new products.

7.6.5 The Netherlands: Practice-Oriented Research

Unlike basic research in traditional universities, research in UAS should maintain and develop professional practice in society. As this practice is increasingly evidence-based and thus knowledge-intensive, innovative research and knowledge transfer play an ever-growing part in this. Several policy documents of advisory councils consider that 'design and development', and more particularly 'practice-oriented research', is an appropriate term (AWT, 2005). The latter term is preferred, as it does more justice to the professionally-oriented character of research and encompasses a diversity of practices. Research is not merely meant to carry out research for industry, but is placed in the context of knowledge development and circulation. Research has a bridging function to translate new insights from practice to education and to use knowledge to increase the innovative capacity of that practice. This is no linear process, but a continuous interplay between the development of new knowledge and insights, as well as products by professional practitioners. This mutual relation-ship has been formulated in the regulation of the 'lectorate'. It involves a relatively new position at professorial level to foster the research function by generating and leading research-oriented groups of staff within the institutions, as well as strengthening the links with the respective professional fields.

Although the UAS sector does not make a sharp distinction between basic and applied research, the term 'practice-oriented research' is most commonly used. Its central features can be summarised as follows (De Weert & Leijnse 2010):
– initiatives for research emanate from practice and new knowledge will be beneficial to that practice;
– research should be practice-driven to solve practical problems and intensify collaboration with external constituencies; and
– research should be relevant for the quality and innovation of education and the professionalisation of the teaching faculty.

Thus, primacy has been given to practical issues and to improving that practice, but at the same time to develop new knowledge that can be generalised and transferred to other practices. These two components—the scientific and societal realities—are fairly intertwined. Andriessen & Van Weert (2007) advocate an analytical distinction between the 'practice stream' and the 'knowledge stream'. The practice stream deals with particularistic issues in concrete situations. The knowledge stream is generic in the sense that it considers the knowledge and experiences distilled from individual situations that can be generated and transferred to other contexts. This implies that research starts from the 'specific' and moves to 'generic', rather than the other way round, as is most common in university research. Many UAS have been inspired by this approach.

7.6.6 Commonalities and Differences

This international exploration reveals a common understanding of what UAS research encompasses. It embraces a continuum of activities that are not clearly delineated. Hence, there are overlapping areas. Much applied research will be based on basic research findings and methods and will increasingly cover emerging aspects of science.

Nevertheless, a distinctive UAS research profile becomes apparent which consists of the following directives for action:
– meeting the needs of the knowledge economy through applied research and knowledge transfer;
– narrowing the gap between the development of knowledge and its application;
– advancing innovation towards regional SMEs;
– dictating research questions by practice ('real life' –situations) and focusing on the improvement of professional practice; and
– adequately preparing students for professional practice.

In the national profiles, research is seen as constituting a vital link between various knowledge domains and professional practice. It adopts a multi-disciplinary knowledge base by linking different areas of knowledge or combining existing knowledge. In most countries, research depends on external financial resources, which can be supplemented by government financial incentive programmes on the basis of collaboration with and knowledge use by clients. The knowledge transfer is not linear, as expressed in terms like 'market pull' or 'technology push', but is based on the interaction between higher education and external organisations. Thus, it is not a transaction from research in exchange for something else (financial). The interaction also yields new knowledge, new skills and competencies, and access to (new) networks. As Donald Schön put it, 'knowledge is constructed when one is engaged in the activities of professional service or practice' (Schön, 1983). In other words, collaboration with industry and other organisations must constitute an integral part of the mission of the institution and has to be treated strategically.

Countries vary in the extent to which the link with professional practice has been shaped. In countries where the technical sector prevails, as in Switzerland and to a lesser degree Germany, Austria, Ireland, there is a strong orientation towards the needs of the (regional) economic sector. Some UAS or departments can respond directly to external demands, especially SMEs, whilst others focus on particular application areas. This enables UAS to develop their research activities in different directions.

7.7 TRANSFORMING THE ORGANISATIONAL FIELD

The commonalities between the European countries regarding practice-led research and its distinctiveness from university research contribute to a further profiling of the sector as a whole. The view that research does not merely focus on the application of existing knowledge, but also generates new knowledge does not violate its particular profile in comparison with university research. This research is complementary and may result in a stronger differentiation between UAS and universities. In some countries, the binary divide is clearly marked and the UAS sector identifies its niche based on its expertise in the knowledge chain (Kornhäuser, 2009). The sheer magnitude of this transformation process can be ensured through appropriate steering arrangements in the allocation of financial resources for research, as well as quality assurance and accountability mechanisms. These are tuned to the following three components that make up the core identities of the UAS sector.

7.7.1 Strengthening Ties with Companies and the Professional Field

Our study of the UAS in Europe shows that much research is demand-led. The UAS must respond to a variety of demands (De Weert & Soo). Institutions are often confronted with poorly articulated and short-term problems. This demand-led research is not the most appropriate way to achieve innovation. Several institutions combine a demand-led approach with a more proactive approach. SMEs tend to avoid projects that comprise a high risk in terms of financial costs or short-term benefits. These situations offer a challenge to explore questions that lie beyond the daily worries of entrepreneurs. In this sense, innovation refers to a process of generating demand through research prior to meeting the demand. To play such a proactive outreaching role, UAS need a solid and sustainable research infrastructure.

In this context, networks in which several institutions and companies collaborate are important instruments. They are emerging in regions where many SMEs are active. For example, in Bavaria, innovation centres have been established to foster knowledge exchange between the UAS and the SME sectors. Research priorities are further defined and staff's professional competencies are enhanced through these networks. The Dutch RAAK programme (Regional Attention and Action for Know-ledge Circulation) has a similar purpose. It establishes consortia for institutions and companies to carry out joint research projects (SIA, 2009). Hence, practice-led research strengthens the ties with industry and vitalises the mission of the UAS towards the professional field. Financial resources from business and industry are crucial, but the UAS cannot fully rely on these. Different funding sources are important, particularly government schemes, as is currently the case in various European countries.

7.7.2 Research and Teaching: Where the Twain do Meet

Since UAS research is motivated by the impact on professional education and training, the link between research, teaching and learning is a major issue. Students are not everywhere involved in research activities to the same degree. This occurs mostly on a voluntary basis, in the later phases of the programme when they do an internship or practical assignment, work-based learning or professional master programmes. That research should improve the quality of education has generally been accepted, but its impact on education and the professionalisation of the academic staff needs to be proven. Because of a possible decoupling, some UAS changed their policy and organised their research activities in separate units and sought a direct connection with educational sections (Koivula, et al., 2009). This research can be used as a vehicle to keep the curriculum up-to-date by translating the outcomes into new knowledge, new teaching contents and innovative curricula, thereby achieving synergy between research and learning. Quality assurance should include the impacts of research on the improvement of teaching and learning and assess to what extent aspects of research have been translated into study programmes both at bachelor and master levels.

As indicated before, the UAS sector in some countries is rather selective, with small student numbers (Austria, Switzerland), whereas in others, such as The Netherlands, it is very large with a heterogeneous student population with different entrance qualifications. These differences may invoke different approaches to the education–teaching nexus. Sometimes it is possible to involve all students in research activities (research-based) where the curriculum emphasises inquiry-based learning. In other programmes, research-oriented learning prevails, with an emphasis on content or processes and problems. Although there is a basic level of qualification, UAS research provides an opportunity for further differentiation in programmes between UAS, as well as within institutions. Students who feel challenged can be involved in more complex research projects, for example in the context of honours programmes. Such differentiation contributes to a further diversification of the higher education system as a whole.

7.7.3 Practice-Led Research

The transformation of UAS into knowledge institutions with practice-led research is complex, difficult and potentially lengthy, 'equivalent to a generational change among the academic staff ... which could take twenty years' (Hazelkorn 2008, p. 166). It implies that teachers must change from routine to innovative professionals and that the link with professional practice must be reinforced.

The profiling of research in UAS is directly connected with the profile of a UAS researcher. In some countries, professional experience in industry is required before being appointed as a researcher. As Lepori (2008) points out, non-technical fields tend to attach less value to practical experience of their staff and mostly recruit university graduates. This makes it more difficult to identify a specific profile for UAS in these sectors. Also, in other countries, UAS tend to regard their staff as needing higher academic qualifications so as to be compared with university staff. As Pratt (1997, p. 327) points out, in Britain, there was a steady increase in the percentage of polytechnic staff with a PhD while professional expertise was at least as important as academic qualifications. This puts a case for employing staff members in UAS who have acquired relevant professional experience.

This all depends on the quality criteria applied in the assessment of practice-led research. Standard criteria used in university research such as success in (international) peer-reviewed publication would not contribute to the profiling of UAS research. Criteria and indicators derived from perceptions of clients about the quality of research, the collaboration and the utilisation of results and expert improvements to professional practice should prevail. The transformation away from traditional research assessments towards market like instruments in multiple and heterogeneous stakeholder environments does more justice to the UAS research profile. The relevance for and impact on professional practice are of overriding importance, however without neglecting a quest for understanding (rigour). This represents a challenge for UAS research staff to elaborate methodological approaches that are specifically attuned to practice-led research. Initiatives have been taken to use a broader set of evaluation schemes that take into account research that is

focused on its practical use. An initiative such as the evaluation in context project (Spaapen et al., 2007) is promising in this respect. Also worth mentioning is the view expressed by Andriessen & Van Weert (2008) that practice-led research comprises two qualities: (1) the level of individual or specific cases and (2) the search for knowledge derived from these cases that can be transferred to other situations. The validity of knowledge acquires a generic character which makes it applicable to other situations with similar problems. Such a conception of the research process will contribute to more in-depth knowledge production.

<div align="center">7.8 CONCLUSION</div>

There are good reasons to assume that the binary system is not waning, since the UAS sector is able to develop a sustainable research profile. The strengthening of the ties with companies and with the professional field, the blending of teaching and research into the professional role, and the emphasis on practice-led research are core components of this profile. One of the main challenges of the UAS sector is to incorporate its research activities and transform the traditional teaching culture into an educational environment where the development of knowledge is part of its core competences.

The national views presented here suggest that UAS research is anchored in practical issues and oriented towards the improvement of professional practice. This requires collaborative interactions with the environment and the ability to forge engaged relations with practitioners in the field. One of the major challenges is to develop a creative connection between relevance and practical use (relevance). There is a risk that rigour may prevail and that the UAS would overreach themselves if research were devoid of practical implications or use. On the other hand, too close an interaction with practice could limit the objectivity and raise particular issues that are difficult to transfer to other contexts. More thorough analyses and reflection are necessary to arrive at more high-quality applicable knowledge. It is a major challenge to develop communities that jointly value the quest for fundamental understanding and considerations of use, as illustrated in Pasteur's quadrant. Instruments in the sphere of funding, accreditation and a quality assurance system for UAS research will be necessary to set and sustain standards.

A binary system may well co-exist with the current boom in university ranking lists, hierarchies or classification schemes. In the words of Ulrich Teichler, 'there is not an alternate debate between a 'binary system' on the one hand and a 'stratified system' on the other hand' (Teichler, 2007, p. 136). The opposite seems to be the case. Some UAS may develop greater capacities in their research than others, some may focus on particular domains or adopt a particular vision of practice-led research. A fair number of institutions will probably be unable to define and attain proper standards for their research infrastructure and activities, whereas others are more ahead. The more advanced institutions will be able to develop centres of expertise in which they can define their research priorities and can accentuate their specific strengths in key areas. As a consequence differentiation in the UAS sector may increase. Too narrow a definition of research and ideological hair-splitting could

force UAS into a straitjacket that would not serve the development of practice-led research. They may aim to serve clienteles in different ways and this will probably contribute to a diversified higher education system. These differences should be encouraged to flourish.

NOTES

[1] The fourth quadrant is not empty, but contains research that explores particular phenomena without having either general explanatory objectives or any applied use against which to assess the results. Stokes refers to Peterson's *Guide to the Birds of North America*, which systematically describes the features and distribution of bird species.

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ADRIE DASSEN AND PAUL BENNEWORTH

8. UNDERSTANDING THE LIMITS TO HIGHER EDUCATION POLICY NETWORKS

8.1 INTRODUCTION

One of the characteristics of the university reform in the last quarter century has been an increasing marketisation of higher education. In response to fears that universities represent classic dominant producers, governments have sought to stimulate efficiency and innovation in the higher education sector with a mix of increasing autonomy and competition for funding. The concept on which this lies is that stimulating competition drives out inefficiency by underperforming institutions. The most successful universities can recruit more students and win more research projects, allowing them to thrive. Conversely, less successful institutions will see their funding drop. They will either have to improve service levels or witness their gradual disappearance. Whilst the empirical value of the efficiency of higher education markets remains to be proven, marketisation is an undeniable landmark of the contemporary policy field.

The rise of marketisation is part of a broader transformation in late capitalist societies. The role of government has shifted from delivering public services in accordance with the wishes of their voters to stimulating other providers to provide innovative services, thereby reducing the burden on taxpayers and bringing solutions to increasingly intractable societal problems. The market principle and competition between service providers are now unavoidable facets of public life. Formerly stable and staid institutions and services such as hospitals, public housing, and railways are forced to define their goals, missions, clients, business models and revenue streams. But unlike genuine market provision, the persistence of quasi-monopolies around many of these services has seen the rise of increasingly complex bureaucratic structures to regulate and enforce competition and contracting between the State and providers.

This immediately places governments in a dilemma, particularly when considering complex services and problems where the desirable goals and outcomes may not easily be specified. Clearly, if governments were to set targets for producers, this would incite them to focus on hitting their targets, i.e. so-called compliance behaviour. One solution would be for governments to consult with producers and try to tap into their collective wisdom about what may be appropriate policy aims and regulations. But this raises two problems for governments, firstly individual actors in these quasi-markets may be so competitive that they would be incapable of working together to articulate a common public interest. Alternatively, individual producers may come together to force governments to accept regulatory situations

which are not in the public interest, although creating benefits for the private participants.

There has therefore been increasing interest in policy circles in how governments can bring actors in quasi-markets together to develop shared solutions to problems and information for effective regulation without allowing the formation of producer groupings with excessive market power. The solution which is emerging in the literature is the idea of the policy network, something in which states can steer groups of competing actors to produce collective solutions which avoid this risk – or indeed possibility – of collusion. A policy network involves a group of actors brought together by a lead policy actor, such as a ministry, who are collectively given the power to develop their own rules within parameters specified by that lead policy actor. The idea underpinning interaction within the policy network drives out opportunistic actors whose contributions are not valued or respected by other participants, because opportunistic actors are not able to mobilise substantial supporter coalitions in favour of their policies.

Certainly, looking at the characteristics of national higher education (HE) systems, these are prone to collusive activity between universities to avoid and subvert regulation and the introduction of market disciplines. This would make them an ideal domain for the introduction of policy networks as a means of gathering the collective wisdom of the sector to identify the necessary autonomies and corresponding regulatory mechanisms to better place these institutions at the service of their host societies. The topic of this chapter is therefore understanding the relatively limited uptake of policy networks within national higher education policy streams as a mechanism to allow governments to steer universities, despite the relatively extensive introduction of the market mechanism in higher education. The chapter considers how policy networks in the so-called 'third mission' of universities (*see* Zomer & Benneworth, this volume) stimulate the development of better forms of policy, encouraging better interaction by universities.

We seek to understand three things:
– how the idea of the policy network has been applied to higher education,
– the extent to which the idea of policy networks is of use in making sense of new forms of governance in higher education policy, and
– the implications that this might have for the development of more effective forms of higher education policy, providing better steering and driving efficiency.

8.2 COLLUSION, SOCIAL CAPITAL, & PRINCIPAL-AGENTS: THE RISE OF THE POLICY NETWORK

Understanding the rising interest in policy networks can be seen in terms of the increasing complexity of societal problems and a greater understanding of how knowledge is dealt with as a product by actors. There have been two parallel trends which have converged, creating a situation in which policy networks have increasingly become regarded as an optimal solution. The first is the increasing complexity and rising costs of societal problems (Ackoff, 1999). At the same time, there has been strong pressure on governments to control their spending. This has occurred both internally through pressure from electorates for tax cuts and through multi-lateral

organisations such as the IMF, ECB and OECD, as well as global capital markets. At the same time, there has been growing recognition that governments do not have the expertise to deliver services that can meet the increasingly complex array of societal problems, and do not necessarily have the understanding to identify and commission solutions to those problems.

Governments have therefore sought to move away from solving these problems themselves to spending public funds on providers who offer to solve these problems most cheaply. But although they have a mandate to produce the best services for their citizens, this idea of delivery through providers introduces a new tension, in that it introduces a dependency between the government and the providers. Providers' main duties may be to provide maximum profits to shareholders and they therefore may behave in ways that raise costs rather than improve quality of services. The challenge for governments is to align the interests of the service providers with those of the government, without losing the incentive of market competition to drive service quality.

This is a specific case of a more general problem arising in economics, that of principal- agents (*see* Eisenhardt, 1989 for a review). The issue is that governments cannot easily judge what it is reasonable for providers to do in terms of quality or price without detailed knowledge of those providers and their organisational processes. Just as governments lack the knowledge to solve problems for themselves, they lack the knowledge to judge whether a particular proposal is value for money or not. At the same time, providers do not want to share that knowledge with governments because this allows them to discipline and regulate those providers.

This is the principal-agent problem—the principal is dependent on the agent to deliver a service; the agent can resist scrutiny of its internal behaviour by refusing to deliver the service if overly scrutinised. The phenomenon of regulatory capture is relatively well-understood; regulators become aware that they can only place so many demands on providers and therefore rather than be in a situation of perpetual conflict with zero service delivery, they resign themselves to the fact that they can never force providers to reveal sufficient information about themselves to regulate them efficiently, because the information required is ongoing, would be extremely costly to both parties to produce and would therefore impose huge costs which would ultimately have to be borne by the customer or taxpayer.

At the core of the problem in a regulatory arrangement is the fact that there is a clear misalignment of interests between government and providers. In imposing a profit motive through quasi-markets, governments make it possible for previously public services to want to behave opportunistically, to raise profits without cutting prices or raising quality. This happens in two ways; first, marketisation has in many cases involved giving these formerly public institutions the 'freedom to compete', allowing them to make a profit or to fail. The other side of this reform is imposing the market mechanism which is to reward profitable behaviour, and this penalises those institutions which transparently provide performance information to govern-ment, because it removes the possibility of rent-seeking whilst other providers may be able to do so. If institutions are given freedom to behave as they choose and strong incentives to maximise their profits, there are much weaker incentives for them

to produce in the public interest. The risk of regulating these activities is weakening the market incentives to raise quality rather than sharpening competition. Therefore there is the risk that marketisation will end up with the worst of both worlds, providers that pursue their private interest at a higher price than they would have done before privatisation.

The solution has been seen as providing the appropriate incentives for providers to agree collectively, whilst remaining in competition between the most efficient and most appropriate forms of delivery. Governments have created policy networks whose tasks are to identify reasonable outcomes and the appropriate rules of the game, targets and market mechanisms. Opportunistic behaviour is avoided because these are community networks – there is no way of achieving private interests without engaging at some level with a shared public interest. These policy networks drive the efficiency of decisions by removing the incentives for collusion or opportunism by using network partners as a way of controlling the activities of others. Actors who behave opportunistically are replaced by more trustworthy actors and the collective decision arrives at the time of the greatest public interest, providing information to governments that allows regulation of providers but also the retention of the market incentives to stimulate innovation by the providers.

In the preceding example, it is important to stress that this is not purely about the setting of prices for services, but about the agreement of an appropriate regulatory framework between providers and the State. Policy networks help to provide information to regulators to better set the rules of the game and create appropriate incentive frameworks for providers. They can then be regarded as a kind of 'smart marketisation', in which both the power of markets and social capital produce socially optimal outcomes. Of course, we should be sceptical of claims that new approaches represent panaceas. The simplicity of the processes underlying the model creates a demand to better understand the complexity behind the reality of decision-making. The principal agent problem has recurred in the last three decades of public policy, in both older and newer approaches to public management. This suggests that it may be rather more intractable than yielding to the solution of policy networks.

To explore the question of the complexity of policy networks and their functioning, we analyse their introduction in a single sector characterised by complexity, namely Higher Education (Baumunt, 1997). It is important before we do this to make a critical distinction between the theory underpinning the concept of policy networks and the ways that particular policy networks have been implemented. Part of our argument is that they have emerged as a policy solution based on a simplistic and reductive understanding of network understandings of governance and decision-making. In order to highlight this reduction, it is necessary to better understand how theories of policy networks have emerged in the literature and explore their application in the field of higher education.

8.3 AN OVERVIEW OF POLICY NETWORKS AS A TOOL

We think it is useful at this point to make a distinction between two phenomena. The first is the fact – as identified above – that governments are encountering

problems in co-ordinating public policy solutions to increasingly complex societal problems. As part of this, governments have sought new co-ordinating and steering mechanisms that avoid the problems and over-complications of hierarchical policy making. The second is the concepts of policy networks which have evolved in the literature, and in particular, the fairly detailed critiques of policy network theories which have emerged. Our argument is that, although the policy network is a useful idea to understand decision-making in complex environments, the way that it has been executed is extremely reductionist. A more nuanced understanding of how the key processes of governance networks function is required. The nub of the critique that emerges from the literature is that, whilst in some circumstances policy networks can be used to create a narrative of how certain decisions have emerged, it is never possible to say that that solution would not have been found under more hierarchical approaches to decision-making.

It is important not to overstress the value and in particular, the explicative power of policy networks, which whilst functioning as an interesting heuristic for governance reform, have frequently been found wanting when empirics are analysed via the theory. We also emphasise that the term 'policy network' has been used over time in different ways with different underlying concepts, theories and variables. Conceptually, policy networks have received increasing attention since the 1970s. However, the efforts of the past 25 years have not resulted in a unified theory and we would distinguish four distinct schools which talk about what are policy networks.

The American and British literature takes the intermediation of the interests of a variety of societal stakeholders as its point of departure and attributes a consulting role to policy networks. This body of literature related the effectiveness and efficiency of policy networks along different dimensions (Heclo, 1978; Marsh & Rhodes, 1992). It differentiates between types of networks and uses the policy network concept mainly as a heuristic device. The second literature, regarding governance, views policy networks as an instrument, a new mode of governance that goes beyond a platform of interest intermediation (Scharpf, 1994; Mayntz, 1997a). This school of thought goes beyond the metaphorical use of the policy network concept. The network management literature is mainly focused on the management of interactions and the institutional design of the instrument. underlines the ever changing nature of networks, due to the interactions, but also to the steering and shaping of the network by those that aim to employ it as a policy instrument (Kickert, Klijn et al., 1997; Koppenjan & Klijn, 2004a). Finally, social network analysis literature emphasises the structural differences between and within networks and effects on potential policy outcomes (Provan & Kenis, 2007).

The points of departure differ considerably between these approaches, thereby creating a 'Babel' (Börzel, 1998) of concepts, theories, and metaphors. Policy networks are associated with steering, but the question of who steers and who is steered, and the extent of such steering remain as yet unanswered. Explanations of outcomes, in whatever form, and their relationship to the institutional design and interactions in a network are only based on ex post analyses, and clear relationships between form and function have as of yet not been seen in the empirical work. The causal relationships between the characteristics of a policy network and the

effectiveness, efficiency, or legitimacy of its outcomes remains largely unknown. A general theory of steering in and steering by policy networks that can predict outcomes *ex ante*, despite many efforts, does not exist.

The efforts on identifying various types of policy networks in past years can be explained by the empirically relevant question of good governance. What is a good policy network and which type of policies would support its development are questions that are at the core of the policy network debate. However, if we take a look at the empirical literature it appears that the conceptual ambiguity surrounding policy networks hinders the ready identification of a policy network. There seems to be some conceptual difficulties in its definition and identification within and across, as well as at different levels.

On this basis, what can be theoretically claimed regarding policy networks is the following. They may have value in particular circumstances, but not enough is yet known to say anything meaningful about what these might be. Certainly, this is not a one-size-fits-all to solve problems of co-ordination in public service areas at risk from producer collusion. What can be asked is what is the value of policy networks in the steering at a distance of higher education, a question to which we will now turn.

8.4 PRINCIPAL-AGENT RELATIONSHIPS AND THE REFORM OF HIGHER EDUCATION

Universities have gone through deep changes in the last 25 years as governments, encouraged by multilateral organisations such as OECD, have fundamentally changed the way that they are organised and funded and the way they are held accountable by their external stakeholders (OECD, 2008; CHEPS et al., 2010). The nature of these changes is neatly summarised by OECD, which argues that they have ultimately been about increasing oversight over the sector whilst providing the freedom to contribute to these multiple missions.

> In the governance of tertiary education, the ultimate objective of educational authorities as the guardians of public interest is to ensure that public resources are efficiently spent by [universities] to societal purposes. There is the expectation that institutions are to contribute to the economic and social goals of countries. This is a mixture of many demands, such as: quality of teaching and learning defined in new ways including greater relevance to learner and labour market needs; research and development feeding into business and community development; contributing to internationalisation and international competitiveness. (OECD, 2008, p. 13).

In this section, we argue that higher education reform has created environments where there are strong incentives for universities to behave opportunistically and where there is a strong interdependency with the State on universities for the delivery of a range of policies. In short, they are classic environments where principal-agent problems may be expected, thus making them a good laboratory to study the application of policy networks.

128

The issue of university governance emerged in the post-war period following the first wave of higher education expansion to meet the burgeoning need for a highly educated workforce as managers and engineers for the mass-production economy (Neave & Van Vught, 1991). The elite higher education system had been one in which governments had tended to have a laissez faire attitude, or provide funds without placing many strings on the universities (Longden, 2001; Scott, 2007). As governments increased funding for HE, there followed increased pressures and regulations placing duties on universities to be more closely aligned with the delivery of societal goals and latterly government policies (Barnett, 2000), the so-called publicisation of the sector (Deitrick & Sorka, 2005) One problem, highlighted by Maassen (1996), was that, as more issues emerged for governments, they responded through additional regulations for universities. Universities as a consequence paid less attention to their outside environments and became focused on meeting the needs of the government as their sole stakeholder, neglecting the societal beneficiaries that government desired universities to serve.

The challenge was identified that governments wanted universities to pay attention to an increasing number and an increasingly diverse group of stakeholders (Jongbloed et al., 2007). The solution was to increase the autonomy of universities to choose their own solutions and identify which stakeholders' needs they wished to serve. To ensue efficiency in this approach, universities were to be subjected to a new form of single regulation, where in return for more simple funding streams and this greater autonomy, they would work towards clear targets (De Boer, 2002).

This first phase of change was clearly a version of marketisation, which sought to give universities freedom in return for rewarding performance. Of course, it is easy to set targets for some kinds of activity and stakeholders, such as for students, offering targets for recruitment, retention, completion and satisfaction. Indeed in a number of countries such as the UK and The Netherlands, this forms a key part of the governance system. But the issue remained that under these arrangements, universities remained focused on meeting the goals of their regulators rather than on addressing the needs of their stakeholders, except where those needs were measured by regulators as part of the regulatory approach (e.g. in the UK through the national Student Survey). Therefore, the system functioned in such a way that if a particular stakeholder was to be regarded as important, then it was necessary for governments to decide that it was important and develop a regulatory framework and target set for universities. But as the university sector retained the knowledge about the mechanisms and structures for those activities, this places the regulator at a great disadvantage with respect to the universities, raising once more the problems of collusion and regulatory capture outlined above.

Given that 'markets' in higher education can better be understood as systems connected through resource dependencies and causal chains, encouraging universities to act as independent market-following actors can create systematic deviations which lead to service offers which, whilst individually optimal for the providers, are clearly sub-optimal. In the UK, a Parliamentary Committee of Inquiry concluded that a number of highly undesirable closures of strategically-important science departments were the result of market working and institutional autonomy (S&TC, 2005).

The risk of regulation for HE was the risk that it would stifle evolution in the sector by conditioning HEIs to follow government targets rather than take risks or experiment in areas not immediately specified by government. In their chapter in this volume, Zomer & Benneworth recount at more length in their chapter the rise of the third 'engagement' mission for HEIs, but we limit ourselves here to arguing that the rise of the third mission is an interesting example of governments struggling to regulate higher education to adopt a new uncertain mission. Governments have sought to encourage universities to engage with new kinds of stakeholders in processes that are not necessarily well-understood and where system-learning is vital. It is therefore not surprising that policy networks have been adopted as an attempt to incentivise this experimentation around the third mission.

8.5 THE PRACTICE OF HE POLICY NETWORKS FOR THE 'THIRD MISSION'

The idea of policy networks has arguably formed a *leitmotif* for European higher education reform processes. It is necessary to be clear that, in many areas, Europe does not have formal policy competencies. In such circumstances, and in other areas such as territorial planning, bottom-up co-ordination has been the order of the day. In one key area of 'European' higher education policy, the Bologna process has operated by acquiring support from individual member states, eventually acquiring its own multilateral power in the Follow up Group. We are not directly concerned with the use of policy networks in these kinds of circumstances, but only where the European Commission does have formal competencies, and where policy networks have become part of an attempt to deal with the complexity of the European institutional landscape.

These attempts have not always been straightforward. Research policy, for example, has continually oscillated between formal policy network approaches, for example by creating industrial consortia, and by open calls without any attempted co-ordination. In the 6th Framework Programme, emphasis was laid on networks of excellence, but in FPVII, these were abandoned because they had not necessarily delivered what had been hoped for and perhaps promised. But research is a core higher education task where the sense of what counts as excellence and co-operation which need promoting is quite clear. At the same time, the issue of regulating the third mission through networks has certainly proven more complicated. What we seek to do is to make two distinct points about the way that policy networks in higher education have emerged, in relation to the notions of reductionism and simplicity previously outlined.

First, we find a lasting collaboration between various sectoral and cross-sectoral actors who shape the higher education landscape, both at the national and European level. But we also see an upsurge in the number of networks at a rather different level. Increasingly, academic practice networks emerge where academics form inter-national consortia to be eligible for funding. This may be at least partially attributed to reforms across Europe such as Framework programmes or European Science Foundation grants. Somewhere in between these academic practice networks and the sectoral policy networks there are also temporary issue networks which address

short-term issues and lead to new institutions, institutional reforms, or expire. At the same time, all these networks share actors, resources, and other characteristics, thereby blurring network boundaries, making the identification of 'the HE policy network' difficult.

But it is not just a question of policy networks manifesting at different yet unconnected governance levels. A second important empirical observation is that there are substantial differences within networks because of the complexity of the European environment. Although a range of interest groups has mobilised into co-operation bodies, they do not necessarily occupy common spaces. HE bodies range from quasi representative organisations such as the European University Association, through thematic bodies such as the League of European Research Universities, to more serendipitous groupings such as Coimbra and IDEA. At the same time, research and consultancy bodies influence the landscape both through their research and their work for specific client groups. The idea of a European HE policy space is complex and if it can be considered as a network, then that network is extremely dynamic and transient. In such circumstances, generalising at the network level may not be the best strategy when looking for a good network. The question of what constitutes a good policy network and what is the best way to support it is therefore much more complicated than one might first expect.

In this section, we consider one particular kind of policy network which has emerged in the last decade as a popular solution to the intractable problem of stimulating innovation in universities. There is a clear situation of sub-optimal equilibrium; both universities and firms in Europe are not investing sufficiently in knowledge transfer in the pursuit of innovation with as a consequence a failure to commercialise university knowledge creation and contribute to raising Europe's competitiveness. They therefore seem ripe for the application of 'marketisation-plus' or policy network solutions to this long-term issue. We take as an example innovation platforms, which have emerged as a policy network solution where governments have made substantial funds available for those policy networks which are able to improve valorisation. In short, this has seen platforms as policy networks which identify common actions and provide co-ordination of individuals harnessing their creativity to improve the public value of research. This provides a useful lens to understand the complexity of policy networks, and progress beyond simplistic and reductionist versions which we contend have adversely affected the way that the concept has been applied.

8.6 INNOVATION PLATFORMS AS A BOLD EXPERIMENT IN POLICY NETWORKS

The idea of the 'Innovation Platform' emerged in the European policy-makers agenda as a means of steering research in higher education because of the so-called 'European paradox'. The European paradox has long puzzled scholars and policy-makers alike, because of the relatively high levels of European expenditure on R&D and the relatively tenuous link that this has had to productivity growth (European Commission, 2005). One explanation can be found in a failure of co-ordination between firms and universities to work together on areas of common interest. The Framework Programmes for research have encouraged co-operation around

research, but have been directed in such a manner as to offer very limited incentives for collective innovation and knowledge valorisation. Networks of researchers have been created on an international scale, but there has been no corresponding measure to overcome the problems which arise in co-operating to innovate across European borders. This co-operation for innovation suffers from the same barriers and critical mass problems as the research activities to which the Framework programmes have been a solution, but without compensating policy support.

This perennial failure created a sense that top down action from the Commission could <u>not</u> create the right regulatory frameworks to incite innovation. This suggests that the complexity of the challenge creates a need to enrol producers, creating propitious conditions for the creation of policy networks to promote research exploitation and knowledge transfer. There has been a shift towards the use of innovation platforms as part of the reform of the European Research Policy that has also seen the creation of the European Institute of Technology and Europe INNOVA as central points for the promotion of innovation (CEC, 2006a). In these innovation platforms, governments set high level rules and make funding available dependent on successful outcomes, shaping the high-level environment within which sub-groups of actors attempt to come up with solutions that best deliver those socially-useful outcomes without producing market failures.

When talking about innovation platforms, an idea that barely existed at the turn of this century now occupies a significant place in the policy imagination (Consoli & Pattrucco, 2008). It could thus be argued that innovation platforms demonstrate the value of the policy network approach in stimulating university valorisation. But at the same time, they are a very specific form of network, which develops innovation instruments supporting new product development between firms, research centres and universities, following thematic lines broadly agreed by the network as a whole.

> The rationale of innovation platforms is to maximize the variety of contributions stemming from a variegated knowledge base while maintaining coherence though a minimum level of hierarchy ... Each unit exists independently according to own goals and capacity but, at the same time, responds to a collective goal through shared communication rules … the extent of contribution by each additional unit depends endogenously on the relative value of internal competences measured against the collective goal. (Consoli & Patrucco, 2008, p. 702).

In this chapter, we present these European Innovation Platforms within ERA as a case study of attempts to address this European Innovation Paradox. But what emerges from the study is not a sense of decision-making in networks where principal agent problems are avoided. Rather, there is a more traditional and hierarchical model of where governments have seen the innovation platform idea succeed and imposed it as a model. At the same time, governments have done that because a single country experimented and succeeded in its own proto-innovation platforms. The Knowledge and Innovation Communities (the policy which eventually emerged as part of the Europa INNOVA agenda), emerged, not as straightforward innovation platforms, but rather through a multi-scale process of policy-transfer, experimentation,

evaluation and exploitation. Therefore, the message of the chapter – given that theory cannot predict *ex ante* which policy networks will be most successful – is that the social life of the policy idea is important to understand how policy networks function in higher education.

8.7 THE CASE STUDY: FROM THE FINNISH INNOVATION PLATFORM TO THE EUROPEAN KICS

The purpose behind the European Knowledge and Innovation Communities (KICs) is to create a European scale of valorisation and to parallel the European scale of education and research created by the Bologna Process and the Framework Programmes respectively (*q.v.*). There are currently three KICs, focused on stimulating innovation around three societal problems, renewable energy, nanotechnology and sustainable transport. However, the preceding narrative creates the impression that the KICs have emerged from a rational top-down process which has sought to construct a European scale for valorisation.

An alternative analysis of the emergence of the idea can be that it came out of a sequence of successes and political motivations which ran up against an opportunistic need for something that could create this valorisation space. Rather than being a synoptic choice of the optimum policy approach, KICs have emerged as the preferred option because of a series of political conjunctions. This is not to say that they are not useful, but rather that the 'idea' of innovation platforms has evolved with the reality of the process of a series of implementations, and the agenda for collaboration has been shaped by successes. This highlights the issue of complex intentionality in the regulation of policy networks, and the KIC example suggests that the policy network was successful because it had been successful in smaller scale (national) contexts.

8.7.1 Bottom-up: From the Finnish Innovation Platform to the Scheveningen Conference in 2007

8.7.1.1 Finland's Home Grown Innovation Platforms

The rise of the KICs can be traced to the fall of the Soviet Union in 1991. The collapse of the Soviet Union and its support for the COMECON economic system, the collapse of the Warsaw Pact, the freedom of the Eastern Bloc States and the emergence of the Commonwealth of Independent States were accompanied by a period of restructuring across all these economies. This was sometimes characterised as a 'J-curve', in which output dipped rapidly by up to 60%, then began a slow process of recovery, in many countries taking over a decade to recover to its 1991 levels.

But the implosion of the Eastern European economy was not only a problem for countries formerly under Soviet hegemony, but also for the Soviet Union's largest trading partners. Particularly hard hit was Finland, which for both geographical and historical reasons had very close trading links with Russia which continued into the Soviet era. In the late 1980s, Finland substantially deregulated and reformed its economy, particularly the financial sector, which made it more sensitive to economic

shifts. Hence, the collapse of the USSR precipitated an economic crisis in Finland. GDP fell by 40% and unemployment rose to around 20%, calling into question the traditional Finnish approach to industrial policy, and stimulating a turn towards innovation (Romainen, 2001).

In the 1980s, Finland had begun the transition from an industrial to a knowledge-based economy, with a number of regions establishing science parks (e.g. Tampere, Oulu), and the creation of the now-renowned TEKES, providing funding for applied research and encouraging universities to co-operate with industry (Romainen, 2001). In common with other Nordic countries, Finland pioneered the use of the National Innovation System approach to try and improve economic performance. This introduced the idea of a sectoral approach, identifying all the key actors within a particular innovation system, e.g. forestry or metal processing, and working together to develop a collective action plan for that sector. However, prior to the economic crisis, there was neither the collective political will nor the financial resources to take this sectorally-based cluster policy seriously.

The Finnish response to the crisis was to accelerate this shift away from supporting industries to stimulating innovation, increasing the amount of resources devoted to innovation, but also encouraging new, more collective approaches to innovation promotion. In 1996, the Government set a target for Gross Investment in R&D to reach 2.9% of Finnish GDP by 1999, to ensure the continuation of that transition (Romainen, 2001); by 2004, that figure had risen to 3.5%, making Finland in terms of its innovation expenditures one of the most innovative countries in Europe. The other element was that the decision was taken to support 'inter-Ministerial cluster programmes' for a number of key clusters, both in forestry and metal processing, but also in the emerging sectors of ICT, telecommunications, bio-medical and energy. These cluster programmes were groups of all stakeholders in the sector who would come together and identify necessary projects to improve the sector's collective competitiveness and innovative performance.

It is at this point that two features of Finland's performance brought it to the attention of the European Union. The first was that Finland underwent an economic miracle in the latter half of the 1990s that saw it propelled to the top ten of world competitiveness rankings. This was driven in part by the success of leading Finnish firms, and notably Nokia, which benefited from the high-technology boom, and diversified sufficiently to avoid the hangover of the burst which afflicted Sweden and Ericsson. Nokia had been a key player in the inter-Ministerial ICT cluster programme and was willing to grant the government some of the credit for helping to secure its competitive position. The second was the Lisbon Agenda announced in 2000, which sought to position Europe as the most innovative and dynamic global economy by 2010 and set the target of raising Europe's GERD in GDP to 3.5% by that time, something which clearly took its lead from Finland.

8.7.1.2 From Inter-Ministerial Clusters to Innovation Platforms

These two events had the effect of casting Finland as the poster-boy of the European knowledge economy; indeed, at that time, many countries and regions sent

delegations to try to understand the Finnish recipe for innovation-led success (Veugelers et al., 2009). One of those countries was The Netherlands, with a new government desperately seeking stability after a prolonged period of political crisis. In 2002, the incumbent socialist-liberal coalition ('paars') had been unexpectedly ousted following the assassination of a rightwing radical politician, Pim Fortuyn. His party won sufficient seats in that election to participate in the governing coalition led by Jan-Peter Balkenende, but lacked the skills for coalition government. After barely three months in government, the Cabinet fell, and elections were called for in January 2003. This election returned a conservative-liberal coalition, again led by Jan-Peter Balkenende, who sought an overarching governmental theme to distance itself from the interventionism of 'paars' and the chaos of their previous short-lived administration.

The government was established under a programme characterised by three pillars, administrative reform, norms and values, and innovation. The idea was that innovation would revitalise the Dutch state and lead to economic growth, which would in turn deliver public savings. One of Balkenende's first acts in this innovation agenda was the establishment of a national 'Innovation Platform' in the Finnish mould, drawing together the leading actors in the field of innovation, and agreeing a programme to identify and address the main lacuna in the Dutch innovation system (Nauta, 2008). The Innovation Platform attempted to position itself in the already very dense Dutch landscape of consociational and corporatist networks, bodies and organs, and failed to rapidly make progress of the type anticipated at its launch. Yet, as one of the pillars of the Coalition's accord, it was important that the government should be able to identify progress in stimulating innovation and point to a successful Innovation Platform as central to the various projects and programmes which it had promoted.

The ideal opportunity came during the Dutch European Presidency in the second half of 2004. The Dutch identified five priorities for their presidency, one of which was restoring some momentum to the Lisbon agenda (*q.v.*), which, by 2004, was showing signs of unravelling at the European level. They commissioned former Prime Minister Kok (ironically enough, from the 'Paars' government) to undertake a review of how the Lisbon agenda could be delivered. The Dutch Presidency then organised a conference in Noordwijk on 11th–12th October 2004 to discuss what was euphemistically termed 'public-private partnerships' to increase European spending to achieve the Lisbon targets, and thereby follow in the footsteps of the highly successful Finland.

Part of this can be seen as an attempt by the Dutch government to gain kudos for one of its former policies for the leading research institutions (the Top Technology Institutions), in which businesses and universities had come together to undertake collective applied research in four technology areas, and later four social science areas. But part of this agenda was also pushing a Finnish style idea of Innovation Platforms as a means of both restoring impetus to the Lisbon agenda and simultaneously delivering the Dutch government accord. One outcome of the Noordwijk conference was an agreement amongst European participants that there was a need to develop pan-European sectoral innovation platforms to ensure the translation of

European research. Over the course of the coming years, this would translate into the proposal for Knowledge and Innovation Communities.

8.7.2 Top-Down: The European Valorisation Agenda

The European valorisation agenda emerged at the end of 2004 in response to a damning evaluation of the progress towards the Lisbon agenda in the period 2000–04. The Kok report on progress towards the Lisbon strategy was presented on 4 November 2004 and made a substantive claim around the failure of European and national institutions to make serious progress towards fulfilling the ambitions of the Lisbon agenda. It emphasised in particular a need to concentrate on growth and employment and downplay the social and environmental aspects of the original declaration's ambitions. The report also urged the Commission and its President to take urgent action in the following European Council to ensure that action was in time to deliver successful outcomes by the target date in the original declaration of 2010.

8.7.2.1 Innovation Platforms as a Solution to Europe's Sluggish Competitiveness

Three elements of the response of the Commission to the Kok report were to become influential in the emergence of the KICs. First was the proposal for the creation of a European Institute of Technology as a high-level European innovation platform. The second was 'Innovation Poles designed to help regional actors bring together the best scientific and business minds with the right resources to get ideas from the lab and into the workshop' (CEC, 2005, p. 8). Third, European Technology Initiatives were proposed as a means of creating concerted and focused European institutions supporting innovation and valorisation in specific technological domains. In the language used in the document, it is clear that the Dutch proposals for Innovation Platforms, in part justified by the success of the Finnish inter-Ministerial cluster programmes, were influential in persuading and shaping the idea of the Innovation Poles and European Technology Initiatives.

The proposals for the European Institute of Technology were developed by the Commission in 2005–06, and it was in formal response to this document in 2006 that the idea of the Knowledge and Innovation Communities emerged. The KICs brought together the three ideas for a European Innovation Platform, pan-European knowledge networks in priority areas, and localised exploitation networks.

> The EIT will perform its activities through Knowledge and Innovation Communities (KICs). Based on, but going beyond, a network approach, these are envisaged as integrated partnerships or joint ventures (whatever their precise legal form) between the private sector, the research community and excellent teams from research communities and universities whose human, financial and physical resources work together to promote the production, dissemination and exploitation of new knowledge products. To intensify their integrating nature, the KICs shall make use of state-of-the-art research networking and computing infrastructures. (CEC, 2006b, p. 4).

The reasons for this evolution can be understood in terms of the nature of the politics of European science and innovation policy and a tension with regional policy and territorial cohesion. European science and competitiveness policies are based on promoting excellence and concentrating resources in European leaders. By contrast, territorial development policy is focused on supporting innovation in all regions and improving performance to ensure that all regions experience the benefits of European integration. The KIC approach was designed to negotiate this tension and build a sufficiently broad coalition of support to ensure that enough countries supported the proposal to allow its passage into European law.

8.7.2.2 From the KIC Ideal to KICs in Practice

The implementation of the idea saw the creation of a formal European Institute of Technology which took responsibility for organising the creation of the KICs. This took the form of identifying both the thematic areas that those KICs would cover and soliciting and evaluating consortia proposals for communities to receive the allocated €300m. The EIT, which had become known as the European Institute for Innovation and Technology (in response to European Parliament pressure), was formally constituted in 2007. In 2009, following extensive stakeholder consultation with scientific and policy communities, the first (and at the time of writing) only call for KICs was launched (EIT, 2009).

This first call invited proposal from groups of firms, universities, and research laboratories for activities that linked excellence science, technology and innovation, helped develop human capital and fitted three priority areas, climate change mitigation and adaptation, sustainable energy, and future information and communication society (EIT, 2009). Although the term 'platform' was absent from the call for proposals, in terms of the detailed description of these KICs, the idea of innovation platform was clearly present, with the KICs playing the role of Inter-Ministerial sectoral Clusters in the Finnish model.

> A KIC is a collaborative partnership, a legally and financially structured and managed entity of internationally distributed but thematically convergent parties. (p. 2)

In response to the proposals, six consortia were shortlisted, two in each area (although KICs could have potentially been cross-thematic), and one appointed for each of the thematic areas. It is instructive to consider one of these in detail, the ICT_Labs KIC. This proposal brought together five co-location centres in Eindhoven, Paris, Helsinki, Berlin and Stockholm, each bringing together leading national partners in the field of ICT research. Each co-location centre was intended to be both a laboratory for further research and an example and dissemination centre to anchor a more general network of technology transfer and knowledge exchange in the field of ICT research. The Eindhoven co-location centre consisted of three partners, 3TU-NIRICT, Philips Research and Novay, whilst the core partners of the proposed Paris co-location centre were Alcatel-Lucent, Orange-France Télécom, Thomson, INRIA, Université Pierre et Marie Curie Paris 6, Université Paris-Sud 11, and Institut Télécom (ICT-Labs, 2009).

137

But what is interesting in the ICT-Labs proposal, replicated in the other two KICs, albeit to a much less explicit degree, is the extent to which these KICs built upon existing – national – knowledge networks and policies. The Paris co-location centre became integrated in the Paris Saclay super-campus proposal, part of the flagship French proposals to create a world-class university in France. The Eindhoven KIC brought together three partners, the three Dutch Technical Universities (3TU-NIRICT is the umbrella for their research activity), Philips and Novay. Novay used to be called Telematica, and before that, the Telematics Institute, one of the four Dutch Top Technology Institutes (*q.v.*).

More generally, there was a strong Dutch involvement in all three KICs, an academic consortium leading the Climate KIC (through Utrecht University), and through the Co-location Centre Benelux in the Climate Change KIC, which also involves Energy Centre Netherlands, an independent energy research institute. On the one hand, this reflects the reality that The Netherlands is a research-intensive country with a technological research base already oriented towards the thematic areas selected by EIT. But on the other, it also reflects the reality that the partner networks around innovation in The Netherlands were well-aligned with the vision for the EIT and the KICs, allowing the Dutch institutes to assume a substantial role in these networks.

8.8 ANALYSIS & DISCUSSION

At the outset of this chapter, we asked three questions which seemed to require answering as part of wider issues of the reform of the management of universities by the State. The example of the KICs was used as a means of exploring the limitations to the policy network approach for better managing university governance, and in particular providing market-based incentives without encouraging opportunism and collusion between institutions undermining those market disciplines. As a general observation, the KIC case makes it clear that the idea was not applied because it was a policy network approach. Rather it was applied successively by a range of partners who wanted to bask in some of the reflected glory of past experiments in more limited circumstances. This is interesting because it suggests that there will be a naturally self-selecting tendency for policy network approaches. If governments are inspired by successful examples, then they should only be inspired by situations which are comparable and have been successful.

But, of course, there is a solid literature on the dangers of institution copying, and what the KIC example shows is that success of a policy network in one environment is by no means a guarantee of success in another. If that were the case, then The Netherlands innovation platform would have been as successful as those in Finland, and, as Nauta convincingly demonstrates, this was not the case. This points back to the original argument that in the selection of policy network approaches, more attention should be paid to the comparability between the cases. An argument could perhaps be made that the Dutch Innovation Platform was less successful because it was primarily there to give a sense of something being done, whilst Finnish innovation platforms were being created to try to sustain the urgent economic

restructuring and reform process in the late 1990s. This has a set of corollaries to answer the three questions originally raised:

– how the idea of the policy network has been applied to higher education,
– the extent to which policy networks are of use in making sense of new forms of governance in higher education policy, and
– the implications that this might have for the development of more effective forms of higher education policy providing better steering and driving efficiency.

With respect to the first question, we would define the use of policy networks in the following way. Governments have sought to use them to deal with situations which are problematic, involving intractable or ill-defined problems, complex groupings of stakeholders and interests, demanding a solution with no easy end in sight. We distinguish between two dimensions or rationales for policy networks, between the experimental, in which they allow sense-making in novel situations, and between the displacement, in which governments can withdraw from having responsibility for these very different issues. The question can be raised as to whether under such circumstances, governments, by abdicating their responsibility from their own sphere to another institutional group, are not also giving out a signal that the problem is intractable and ill-defined, thereby increasing the possibility of a negative result. For those advocates of policy networks, more thought needs to be given to the possibility that adopting a policy network approach does not work against success and undermine the urgency of the solution.

Addressing the second question, the fact that governments have chosen to use policy networks in higher education gives one of potentially two strong messages regarding the way they consider universities, given these two complementary dimensions. The use of policy networks could be regarded positively, indicating that governments prioritise the issue and encourage positive solutions to emerge from within the sector. On the other hand, the use of policy networks could also be taken to suggest that universities are seen as being in some ways difficult to govern, whilst possessing untapped potential which is difficult to co-ordinate and incentivise. Reflecting on this suggestion in the light of the wider reform process hints at a scenario that the reform process—in the vernacular—may have 'bitten off more than it can chew'. The question that remains to be answered is the extent to which governments oscillate between two dimensions of policy networks, the 'experimental' and the 'displacing'. To understand the extent to which the reform process is problematic, one could consider more systematically whether experiments in governance are acquiring widespread support and becoming normalised, or whether they allow a postponement of improving efficiency in higher education.

These first two questions bring us some way towards answering the third question, and addressing the general point that policy network theory cannot of itself identify the kinds of circumstances under which policy networks are successful. Clearly, we underscore the point that this example does not suggest that they are an effective way of solving difficult problems. Policy networks can encourage a process of experimentation within limits which, if supported by later policy developments, can help a better governance of university and higher education systems. Perhaps the most interesting implication is the dynamism and evolutionary tendency of

higher education systems. Rather than attempting to create a system in equilibrium, policy-makers should think more clearly about the pathways their systems should evolve towards and ensure that policy networks are used more subtly to identify and disseminate successful improvements. Of course, such a short case study cannot validate this claim. This at least suggests an interesting avenue of future research, understanding today's governance experiments as a laboratory through which to better view, understand, and ultimately shape, the next generation of European higher education systems.

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LIUDVIKA LEISYTE AND JÜRGEN ENDERS

9. THE STRATEGIC RESPONSES OF ENGLISH AND DUTCH UNIVERSITY LIFE SCIENTISTS TO THE CHANGES IN THEIR INSTITUTIONAL ENVIRONMENTS

9.1 INTRODUCTION

The governing of publicly-funded research in the Western European countries has become multi-dimensional and multi-layered (De Boer et al., 2007, Leisyte et al., 2010, Whitley et al., 2010). Increasingly, the role of various intermediary bodies, such as research councils, has become important in external funding of university research. Competition for resources and changing state steering of research through various policy mechanisms, such as performance-based funding, accountability, quality control and performance measurement have been brought to the fore. In part, higher education and research reforms, largely inspired by New Public Management approaches, aimed to make the systems and their organisations more efficient and effective by providing more power to managers in public universities. In such a context, the initiatives and actions of external funding bodies and university managers are likely to have changed the rules of the game for researchers. It is still poorly understood how university researchers respond to these attempts to change these rules. How are their institutional environments reshaped and how do they respond?

This chapter addresses this knowledge gap by providing insights based on a comparative study on how academic units in public universities in life sciences respond to the higher education and research reforms[1]. The goals of this chapter are therefore twofold: (1) to characterise the changes and potential effects of the institutional environment for life scientists in England and The Netherlands and (2) to explore the strategic responses of life scientists to these challenges.

Our contribution starts with the theoretical framework which provides a typology of strategic action of research units. Furthermore, we describe the methodology of the study and highlight the conceptual underpinnings of understanding steering of research in public research systems. This is followed by examples of changes in steering research that life scientists face in two research systems, England and The Netherlands. The empirical evidence of strategic practices of university scientists are presented in the fourth part, which is followed by a discussion and conclusions.

9.2 THEORETICAL CONSIDERATIONS

The theoretical underpinnings of the sociology of science and the sociology of organisations prove to be helpful to understand the dynamics between the institutional

environment and the strategic action of researchers. The laboratory studies in the sociology of science in the 1970s produced a conceptual understanding of how scientists function within their institutional environment. In particular, the credibility cycle model introduced by Latour and Woolgar has been helpful in understanding academic research practices in which inputs (ideas, problems, methods) are turned into outputs (funding and reputation) in order to build academic credibility (Latour & Woolgar, 1979). It draws attention to the importance of reputation and credit within the academic community. The extension of this model in later accounts points to the shifting audiences that academics address and the possible conflicts this may cause. Changing institutional environment may mean different expectations from academics of what and how to research. In essence, what counts in the end is the academic's ability to convert the work in order to make it count for different audiences (Knorr-Cetina, 1982; Lehenkari, 2003). Thus, the creation of credibility occurs in several areas that interact – research sponsors, the scientific community, regulatory authorities and university management (Leisyte, 2007). These audiences are important in the institutional environment, as they influence the rules, norms, values, and beliefs that may either facilitate or obstruct the credibility building process of research groups.

Oliver's (1991) typology of strategic action is useful to understand how research groups react to changes in their institutional environment. According to her, based on the resource dependence and the neo-institutional theories of organisational sociology, research groups act through particular strategies created and implemented in response to the changes in the institutional environment. Based on her typology, we derive the following strategies that research units can use:

– Conformity to external rules and norms and interests of stakeholders. The conformity strategy means adherence of research groups to the myths and ceremonies within their institutional environment, even if it means changing their core activities.
– Symbolic compliance. The symbolic compliance strategy means the buffering of research groups' activities from the formal structure, de-coupling the core activities from the requirements in the institutional environment.
– Pro-active manipulation and negotiation of the environment. This strategy is seen as a high level of resistance to an institutional environment and influencing the environment according to the research group's preferences.

The type of strategy pursued in action implies the ability or inability to maintain the status quo in the researchers' activities. If a research group follows a conformity strategy, it may imply a change of the core activity, such as setting the research agenda according to the requirements of the institutional environment and thus restraining academic freedom to a certain extent. On the other hand, if researchers choose a manipulation strategy, it can determine their own research agenda and even influence the agenda setting within the institutional environment.

9.3 METHODOLOGY

The empirical data come from the documentary evidence and interviews with the four biotechnology research groups. The selection is based on theoretical sampling

of research groups in research universities in The Netherlands and England (Yin, 2003). The contrasting cases were selected to account for the different institutional environments of research groups. The major criterion was the estimated research quality of the biotechnology groups. It is based on the assumption that the reputation of a research group based on its quality may influence the knowledge disclosure behaviour. Therefore, we distinguish between 'high achievers' and 'middle achievers' among the research groups in life sciences, based on the available RAE evaluations and the evaluations of Dutch visitations to account for the different levels of academic capital. We called the English research groups A and B and the Dutch research groups C and D. Table 1 provides the overview of the selected cases.

In our study, the unit of analysis was research groups in departments, institutes or research centres that have their own administrative, physical, and academic existence. These research groups have their own organisational behaviour and setting and are supposed to act on the basis of the group's interests and those of its individual members. Life sciences are considered to be a typical Mode 2 field of research, as noted by Gibbons et al. (1994) in their study of the relationship between policy and developments in academia. The major characteristics are fluidity; problem-oriented transdisciplinary knowledge organised more loosely in changing teams; applying relevance criteria for research; and networking with corporations and their research units, hospitals, and non-university public research institutes (Rip, 2002, p. 46). More concretely, biotechnology is a relatively young sector that has boomed in the last three decades.[2] Modern biotechnology[3] may date from the development of gene slicing techniques. The new technology experienced a honeymoon in the 1970s and 1980s, during which many of its scientific pioneers and innovators concurred with speculation over the dramatic benefits for human health and welfare to be achieved in the coming decades. Life sciences are at the core of this research field, but they go alongside informatics, physics, material science and engineering (Enders & Schmoch, 2010).

The data collection implied using multiple sources of evidence under the rationale of triangulation (Yin, 2003). The study used documents, literature, and semi-structured interviews. The documents and the literature address the period since the 1980s. The interviews took place from October 2005 to January 2006 and were repeated from March to November 2008 in The Netherlands and England. 66 interviews were conducted with researchers, university managers, and policy-makers. During the follow-up visits, most interviewees were the same people as during the first visits (except for postdocs who have mostly changed). However, in the Dutch D research group (weaker group), we could not access the same group. We therefore

Table 1. The cases

Field of research	England	The Netherlands
Biotechnology	Case A (strong case)	Case C (strong case)
	Case B (weak case)	Case D (weak case)

interviewed a group with similar standing and which was also working in life sciences in the same institute to ensure similar institutional environment conditions. This will have to be taken into account during the analysis stage and we will label D1 the group visited in 2005 and D2 the group visited in 2008.

<div align="center">9.4 CHANGING INSTITUTIONAL ENVIRONMENTS OF RESEARCH GROUPS</div>

The steering of public research systems can be pictured in terms of five governance dimensions: state regulation, academic self-governance, managerial self-governance, competition for resources and stakeholder guidance (Schimank, Kehm & Enders, 1999, De Boer, Enders & Leisyte, 2007). State regulation concerns the traditional notion of top-down authority vested in the national government. In the context of research, this dimension can be understood as state programming of research at universities. Academic self-governance concerns the role of professional communities in determining the course and outcomes of the game. Managerial self-governance concerns hierarchical steering by university leaders. Competition for resources refers to a market competition where the invisible hand of the market influences the quality and allocation of goods and services. Stakeholder guidance refers to the activities that are carried out through goal setting and advice by the relevant stakeholders in the public research sectors.

In higher education and research systems these dimensions can no longer be seen as mutually exclusive options – they coexist (Enders, 2002). We will use the dimensions of research governance to understand the institutional environment of the research groups under study.

9.4.1 Research Programming by the State

England was an early adopter of the changes in higher education and research governance and related authority relations in the 1980s, whilst the reforms in The Netherlands took place somewhat later and in a lighter fashion (De Boer et al., 2007, Leisyte et al., 2010) Traditionally, in England, the public research system was not strongly regulated by the state. Less than half the university budgets comes from the State. Most of the funding comes from tuition fees, research performance related funding and contract research (Leisyte, 2007). However, state steering started to change with the introduction of new funding and quality assurance schemes which strengthened the regulative authority of the State (Leisyte et al., 2006).

The idea of national research programming by the research councils is particularly interesting in the field of life sciences where everything changes rapidly. Life sciences knowledge is quickly outdated. New significant insights rapidly follow each other. This requires continuous investment in equipment and teams of people with different kinds of expertise working on particular problems (Freeman & Barley, 1990; Orsenigo, 1989; Kenney, 1986; Houwink, 1989; Enzing, 2000). A certain level of research programming is indicative in life sciences in England, since this field very much depends on external research grants and is expensive. The strengthening of research councils has meant a certain programming of research, since funding is

distributed according to thematic areas. An important intermediary body in life sciences was established in 1994. The Biotechnology and Biological Sciences Research Council (BBSRC) has become the leading funding agency for academic research and training in the life sciences in universities and institutes throughout the country. It aims to invest in science in universities, better fund students and infra-structure, and wants universities to be more transparent and accountable to it. The BBSRC invests some €448 million annually in biosciences, the major beneficiaries being the universities.[4] This funding is competitive, most of it being distributed according to the responsive mode (e.g. €139 million in 2007–2008). Interestingly, the BBSRC suggests that, before applying for these grants, researchers should check its priority list where they can find both research and policy priorities. The website displays the full range of BBSRC's strategic priorities. Examples in 2010 include research on ageing, bio-energy, global security, bio-nanotechnology, systems biology, animal health and crop science. As indicated in our interviews, life scientists read these priorities as 'guidelines' which need to be followed and as overall themes into which they need to fit their research in order to be funded.

In The Netherlands, we see a growing interference of the State in research policies. Specifically, biotechnology research has been encouraged since the early 1980s. The ambition of the Dutch government is to be one of the main players in the fields of genomics and bio-informatics.

Research programming was first included in the policy agenda in 1979 and gradually gained in importance through an increasing variety of policy instruments, such as thematic funding and national initiatives such as BioPartner[5] to boost, among other disciplinary fields, life sciences,. Besides the two Ministries – that of Education, Culture and Science and of Economic Affairs – , intermediary bodies such as the Research Council (NWO) and the Technology Foundation (STW)[6] have played an increasingly important role in providing funding for certain areas of life science research. The Dutch life sciences innovation policy focused on incentives for life sciences research and the transfer of knowledge. In the following decade, emphasis was placed on creating favourable preconditions for business activity. Partly on the basis of a comprehensive benchmark with countries abroad, an action plan was set up at the end of the 1990s which resulted in the BioPartner programme which began in 2000 and encouraged entrepreneurship of universities and created a specific infrastructure to support life sciences spin-offs.

In 2001, with the creation of the Netherlands Genomics Initiative, a large financial impetus was provided for the life sciences. This five-year priority programme was funded by a consortium of five ministries and located in NWO, although it was not controlled by it. New centres of innovation and research clusters have been developed at universities and many programmes and projects have been introduced. Another example of a governmental programme to foster life sciences comes from the Ministry of Economic Affairs. In the period 2001–2007, it contributed €205 million to strengthen the knowledge infrastructure of the life sciences and offered €86 million for subsidies through the BSIK programme. BSIK aimed to strengthen the research infrastructure by giving competitive grants to public-private consortia that conduct research in selected priority fields, such as genomics and life sciences, micro-

systems, and nanotechnology (Leisyte, 2010). Additionally, it aims at reducing and simplifying the rules, strengthening international networks, and clear communication to society and encouragement of university entrepreneurialism. Each of these plans is accompanied by financial incentives.

9.4.2 The Second Governance Dimension: Competition for Resources

The 'value for money' and other market-related logic have slowly penetrated into the political discourse and the subsequent reforms of university governance and funding. In particular, the strengthening of funding and research councils which increasingly distribute money on performance-based criteria (via the Research Assessment Exercise, as of 2014 – the Research Excellence Framework) has started to play an important role for universities since they increasingly need external research funding to support their activities. The dependency on external funding in life sciences in England has been further accelerated by the full economic costing (Leisyte, 2007), which suddenly made the other external funders, such as trusts, less attractive. Charities, such as the Wellcome Trust, the Cancer Research Campaign, or the Imperial Cancer Research Fund, which are important for life scientists in England were no longer very welcome funders, since they do not cover full economic costs for universities.

Given such a context, the competition for research council funding has reportedly been increasing in universities in England, where roughly one third of their income comes from the funding council and the rest from tuition fees and external grants and contracts (Ibid.).

In The Netherlands, competition has been increasing through contract research at universities and increasingly competitive research council funding. An important element of various state initiatives mentioned earlier is to enhance competition. Although, historically, universities have largely been funded through the first stream of funding and according to the number of students, the funding mechanisms have gradually changed over the years towards more output-based funding, where the income from research councils (the second stream of funding) and third stream (contract research) have gained in importance (Jongbloed 2007, Leisyte 2007). However, this change was more gradual than in England, since competitive funding makes up to one third of university budgets and university income from the state remains relatively stable.

Steadily decreasing availability of institutional funding for PhD students and equipment has meant greater competition for external funding for interviewed life scientists in The Netherlands (Leisyte, 2007). They found themselves in a situation where a constant upgrading of very expensive infrastructure was vital for them to be able to carry out research which required external funding sources (Ibid.). Taking the above into account, the conclusion must be that academic units are increasingly functioning in a competitive funding environment, where obtaining external grants for research project, infrastructure, materials and student scholarships, and participating in prestigious national schemes has become the name of the game.

*9.4.3 The Third Governance Dimension: Maintaining the Academic Core
Intact – Academic Self-Governance*

Traditionally, in both countries, academic self-governance was strong, both in internal and external governance of universities. Life scientists played a strong role in setting research agendas in their own respective academic communities.

In the English higher education and research system, the power of university life scientists has been prominent when it comes to external governance (Leisyte et al., 2006). Since the inception of national research evaluation and research councils, the interviewed senior scientists have been active in ensuring membership in the key RAE committees, in the BBSRC committees, as well as in the professional groups, such as big infrastructure or life sciences national programmes. Hence, their power in setting research priorities externally has been reinforced through active participation and shaping research funding priorities. However, when it comes to internal governance, academic self-governance seems to play a lesser role, with fewer committees at universities which have less say in strategic management issues. Academics find themselves in the layers of rules, action plans, strategies that come top down from the university management. However, informal negotiations within the institutions still have ground. Thus, academics have less power within the institutions (Fulton 2003).

In the Dutch context, the participation of senior academics in national research evaluations who also have a say in funding distribution committees of the research council (NWO) and shaping national priority funding schemes in negotiation with the Ministries shows that academic self-governance still holds in the system (Hessels, 2010, Leisyte, 2007, Van der Most, 2009).

*9.4.4 The Fourth Governance Dimension: Stronger Demands from University
Management*

A further challenge for life scientists comes from their leaders and managers. Traditionally, university governance has been strongly influenced by the logic of the professional guild of academics. Academic self-regulation as a coordinating device has been central. But with the advent of New Public Management-inspired reforms, including attempts to rationalise university processes (De Boer et al., 2007, Krücken & Meier, 2006), university leaders and managers have started to streamline decision-making processes and to foster accountability and incentives schemes geared towards performance and efficiency. Overall monitoring and 'carrot and stick' policies have become increasingly commonplace (Leisyte, 2007). As part of the rationalisation, university attempts to profile themselves and individualisation in large part meant reorganisation of the institutions, separation of teaching into departments and research in institutes, interdisciplinary structures and further encouragement of fluidity and flexibility in the university as an organisation. The power of managers has been further strengthened by the national 'clubs' of university managers, such as Universities UK or VSNU. Furthermore, a new type of professional manager has appeared, such as deans who are appointed and not elected and do not necessarily come from academia. Their goals and interests are not necessarily the same as those

of the academic staff. For life scientists, this trend, which is pronounced both in England and in The Netherlands (although one can argue, more extreme in England, especially in the post-1992 institutions) has meant more performance reviews which, in turn, have led to awareness of the importance of producing outputs and acquiring external funding (especially in the case of the RAE-driven UK system). Organisational restructuring, encouragement from the management to obtain external grants and visibility, and collaboration with the region and industry, and at the same time, cut back on institutional funding seem to be a reality in both higher education systems (Leisyte, 2007).

9.4.5 The Fifth Governance Dimension: Demands from External Stakeholders

Academic research planning increasingly incorporates the participation of external stakeholders either through university governance arrangements or through account-ability to society. The number of stakeholders playing an active role in biotechnology is large: the government (e.g. for the public health and economic reasons), society (e.g. for moral issues), the public knowledge providers (e.g. universities), and private knowledge providers and users (e.g. multinationals and SMEs). They all seem to have good reasons for being engaged in biotechnology matters. Life sciences have not only academic and economic relevance, there are also moral issues attached, such as the production of genetically modified foods. In other words, there are academic, economic and political drivers at play.

Stakeholder guidance is visible in the governance of universities in England. For example, the board of governors, policy formulation and discussions of the RAE criteria all include lay members. In life sciences, lay members voice concerns about ethical issues and have been very powerful in voicing concerns about certain types of research in biotechnology. In the 1990s, biotechnology policies were rather incremental. But when genetically manipulated food became a public issue, this changed all of a sudden: there was strong political action and a rather comprehensive policy was rapidly formulated. The key outcome was that the benefits of biotech-nology could only be achieved with the help of an informed debate that reflects the concerns of different stakeholders. The government opened up the proceedings of its expert advisory committees and developed the advisory network on biotechnology (Leisyte, 2007).

In The Netherlands, stakeholder participation is visible in supervisory boards of the universities which consist only of external stakeholders. The authority of stake-holders in life sciences and university governance is more important today, since they are the source of the 'third money stream', that is, contract research which may be an important alternative for scientists to broaden their financial base. In life sciences, societal concerns are also voiced about biotechnology. Like in England, the government is not only aware of the economic benefits of biotechnology, but also of the potential dangers and the resistance or hesitation in society.

To summarise, in both countries life scientists are facing various changes in the institutional environment. However, we can see certain differences in terms of challenges. The striking difference between the two countries in the context of

our study is the specific functioning of the RAE and its importance for public funding, reputation, the capacity to attract other research-related funding and promising talent, and its impact on institutional strategies. The English research units clearly perceive the RAE and its nested effects as a key determinant of their standing and future prospects. The Dutch research units identify traces of similar elements in their changing environments, but nothing compared to the comprehensive and striking effects of the RAE.

Life scientists perceive different changes in their institutional environment concerning the need to seek external funding, and the competition for resources and publications. Collaboration and competition for resources are ingrained in their field and form part of the well-established realities of their work environments. However, they are concerned about increasingly fierce competition for funding and staff positions which are partly attributed to changes in their institutional environments and partly to the sheer growth in their field of research. Moreover, as seen from the interviewee opinions they are dissatisfied with what they experience as increasing management intrusion in their work practices and related restrictions, the encouragement to commercialise their knowledge base, and the constant monitoring of their outputs (ibid.).

9.5 STRATEGIC RESPONSES OF THE LIFE SCIENTISTS TO THE CHALLENGES OF THE RESEARCH REFORMS

Researchers in the four investigated research units were using a range of coping strategies. Their strategic action has been part and parcel of the micro-politics of the departments and the faculties under study (Enders et al., 2009). Both the Dutch and the English life sciences research units largely preserve their self-steering mechanisms that are based on their own incentive system and are linked to scholarly advancement, peer review, and academic rewards. Academic affiliations, their routines and the knowledge society's dependence on academic expertise help research units to resist change. They do this by de-coupling their core activities from formal requirements. Apart from symbolic compliance, the most frequent strategy we witnessed from research units was the use of pro-active strategies to influence their environments to decrease their dependencies. Research units also make use of ambiguities of their research environment. For example, research councils may be active in 'steering' research in certain directions and concentrate on 'fashionable' mainstream research areas. We find evidence in our study that such programmes tend to be designed in such a way that quite a variety of themes can 'fit' such programmes. Equally, university management can assume the role of a buffer that cross-subsidises different research units and gives them leeway to improve their research performance with the help of different incentive mechanisms, such as matching funds. We shall now present and discuss the use of the three strategies by life scientists in the four cases.

9.5.1 Symbolic Compliance

The most popular strategy among the life science research units was symbolic compliance. Life scientists live in constant pressure to secure external funding

both from their departments and from central university management. This makes researchers cautious about preserving their freedom of choice of research topics and mostly makes them seal-off the attempts to steer their research interests. Their professional autonomy and standing in their academic communities are paramount. For their problem choice, they value their own agenda and academic peers' opinions more than the research programmes and themes of the external and internal financial backers. They are also aware of the potential costs of major changes in their problem choice in terms of losing part of their expertise and reputation. Striving for academic reputation certainly still fuels the credibility cycle. They attempt to preserve their long standing research lines and adhere to the norms of the academic world, where mutual exchange within the academic community and peer-review are expected to provide guidance in problem choice (Henkel, 2000). In practice, however, the major providers of resources, such as external sponsors, also affect their problem choice. These external sponsors have their own research agendas even though these are partly negotiated with representatives of the academic community. We have found evidence that researchers try to strike a balance between their own research interests and the thematic priorities of their sponsors and use strategies of 'fitting' their interests into the broader themes of external financial backers. In many cases (especially in England), the research groups institutionalise mechanisms that support researchers to write proposals in a strategic way in order to increase their success rate. This collective attempt to ensure the crafting of proposals that 'fit' the priorities of the external funders highlights again the importance of these external resources. It is also an example of the possibility of academics to pursue their own topics. In some cases, the research units see no alternative but to follow the 'prescribed' research topics, which, in fact, can be considered a threat to their long standing research lines.

Our findings show that the capacity to resist externally prescribed research agendas depends on the research unit's and individual researcher's credibility. The high credibility units are more likely to resist external research agendas and have been able to carry out research of their own liking. This capacity is also related to the stage of a researcher's career. Junior researchers and their senior colleagues admit that there is not much room to manoeuvre when academic credibility is low and there is not much experience to back up the research proposals. Past performance is important for academic autonomy and because junior researchers usually do not yet have a very strong track record, they are more likely to follow the externally determined research agendas.

We also found nearly inexhaustible creativity of researchers in 'fitting' criteria of 'relevance' of external sponsors and simultaneously maintaining their own research interests. Life scientists in the studied research unit are familiar with 'selling' their research, i.e. making it relevant. For instance, one research group focuses on a bacterium which is widely used in dairy products and helps the digestion process. They point to wide applications and links with industry and the health care sector. Such strategic responses to the growing expectations regarding the relevance of research have also been observed by others (Morris, 2004; Ziman, 2000).

They do this mainly by strategically writing project proposals and manipulating research agendas. Such behaviour implies resistance to change and mediates external

attempts to influence internal research agendas. At the same time, funding opportunities mediate the problem choice of the units and their researchers who need a certain flexibility and capacity to adjust their topics to increase the chances of being funded. Research units and researchers are more likely to be affected by such resource dependencies if they face high uncertainty and possess low credibility. When this is the case, the likelihood of changes in problem choice increases and researchers will either adapt to the requirements of their resource environments or will be forced to do this by 'managerial intervention'.

9.5.2 Pro-Active Manipulation

All research units use pro-active manipulation to diversify their funding base. The professors of the groups make sure they participate in research council panels or national life sciences programmes in order to influence research agenda setting and reassert their academic power. This is especially true of the top performing groups, where the leaders that form the national elite encourage their colleagues to participate in research council peer-review panels and committees. The research units actively extend their funding portfolios by tapping into the national life sciences funding, EU funding and industrial funding. The lower scoring units have formed many alliances with hospitals and other industrial partners to obtain both credibility and funding. This strategy aims to achieve a threefold goal of gaining more legitimacy in the eyes of the university management, positioning themselves better among competitors, and freeing their hands from teaching. In the case of the top performing units in England, the funding they secure in such ways gives researchers the opportunity to remain within their preferred areas of research and follow their interests. It is made very clear by the department management, however, that if a certain area can no longer be funded, they must turn to a different area or to teaching and administration. The key goal is to secure public funding directly or through alliances. For example, one of the Dutch research units was active to enter a strategic alliance with a bigger national research institute in order to facilitate contracts with industry and obtain more stable third flow of funds. The other Dutch research unit became part of a network of excellence which secures remarkable funding for equipment. This move gives them credibility and strengthens their position in the university. Finally, the research units also partner with other units in the same university to unite forces in external funding initiatives.

9.5.3 Conformity

Life science units in both England and The Netherlands show conformity to the increased workloads in teaching and research. They work overtime to maintain the legitimate routines of research, to continue building their research reputation, and not to lose out in their credibility building processes. At the same time, they acknowledge the need to 'earn money' for the department and loyally carry out their teaching and administrative responsibilities, even though these do not count as much for their research credibility, but are seen as a common economic good for

the department. For example, the lower performing English research unit had to comply with university management requirement to shift the practices of researchers from research only to half research and half teaching. Moreover, it also had to comply with industry secrecy requirements and was unable to publish some of its research. The compliance with industry's publishing requirements is seen by the research unit as a lock-in for their academic credibility

The speed and rhythm of producing outputs are also increasingly influenced by changes in the institutional environment. Expectations regarding a certain quantity of respected outputs have risen and the research units need to balance this with their major academic criterion – quality – that remains at the forefront of their considerations about outputs. Life scientists must deal with a precarious balance between the norms and practices in their field, the need to satisfy the requests of external and internal evaluations, and the expectations of their financial backers.

Irrespective of the credibility and level of uncertainty of the research unit, all of them comply with the demands to speed up their production cycle, especially those requests linked to the further fundability of their research. In fact, this is changing the routines of output production of all units, including those with high credibility: they all produce the expected number and type of publications more rapidly. Changes in their institutional environments certainly affect the resource base of the groups, speed up the production processes, and increase competition in the race for the greatest impact journal articles.

In one of the cases, the lower performing English research unit also uses conformity strategy when choosing research problems. Some researchers in this unit comply with the priorities of funding bodies by adjusting to fundable topics and thereby compromising their research lines. This was the case when the area of research was no longer fundable by research councils or no longer fitted into the contract requirements of industry. The research unit also complies with the demands of the internal quality monitoring that is imposed by the university management. As a consequence, they opt for a twofold publication strategy. On the one hand, the team targets high impact journals and on the other they try to publish as often as they can.

9.6 REFLECTION AND CONCLUSION

The analysis has shown that respondents use strategic action when it comes to 'playing the game' of university management or receiving external funding from financial donors. The life science research units are using certain dominant strategies. More precisely, the strategic choice depends on the research units' positioning and the conditions they face. The high credibility research units can pro-actively influence their institutional environments, using manipulation strategies to obtain further stability and enhance their position. They are able to keep their core activities intact. In high credibility and high uncertainty cases, the research units retain stability in most of their activities, using predominantly symbolic compliance strategies. Conformity strategies are largely found among low credibility research units that cannot fully mediate pressures to change.

On the other hand, all three types of strategies are being used by all research units, irrespective of their credibility or financial viability. In reality, we see that all groups are trying to protect their academic core activities by de-coupling their technical core from trouble in the environment, albeit with different success. As argued earlier, the widespread attempt of the research units to symbolically comply with the change in their institutional environment is in line with the neo-institutional theory. We also observe that the groups cannot ignore changes in their environment when they concern their funding base and their reputation. This forces weaker units to change their activity profile. At the same time, these show a capacity to 'play the game' even if they have high uncertainty in the environment and try to be pro-active, even though they are less successful in this respect. All the groups play with the fact that they have multiple stakeholders and sponsors in their institutional environment. They also hold multi-task work portfolios they can try to use to counter-balance the increase of uncertainty in their environment. Thus, the need to reduce uncertainty and obtain resources does not necessarily lead to conformity strategies and change in the work practices of 'weak' research groups as they use multiple means and ends to boost their resource base as well as credibility. This provides means that allow even 'weak' research units to be more active and to try to avoid conformity to changes in their institutional environment.

In academe, we deal with multiple resource dependencies. At the same time, we see that 'strong research units' need to comply with some aspects of their institutional environment to ensure future stability if needed. In this way, they try to reduce uncertainty in their environment even further. Thus, we have found that the strategies that are employed are not necessarily mutually exclusive. Strategic responses are more a matter of degree and likelihood of success than a matter of either/or.

NOTES

[2] One might argue that biotechnology is a very old field (agriculture). The selective breeding of plants and animals has been carried out for a long time. However, with the 'global introduction' of molecular biology, a new age has arrived. In this memo, we mean 'modern' biotechnology.

[3] Biotechnology is defined in various ways. The term was coined as early as 1919 by a Hungarian engineer Karl Ereky and has been developing with the rapid advances in the field. The most encompassing definition is probably formulated by the UN 'Convention on Biological Diversity': 'Biotechnology is any technological application that uses biological systems, living organisms, or derivatives thereof, to make or modify products or processes for specific use. See http://www.wordiq.com/definition/Biotechnology

[4] See http://www.bbsrc.ac.uk/organisation/spending/analysis.aspx

[5] BioPartner was an entrepreneurship promotion programme established in 2000 by the Ministry of Economic Affairs (currently the Ministry of Economy, Agriculture and Innovation) and ran until 2004. Its objective was to contribute to the entrepreneurial culture of the Dutch academy and help to create 75 life-sciences companies. As a result, 109 life sciences companies and six incubators were established and in many cases were linked to the universities (Leisyte, 2010).

[6] Technology Foundation (STW) was established in 1981 by the Ministry of Economic Affairs (Van der Most, 2009). Currently, it is funded by the Ministry of Economic Affairs, Agriculture and Innovation, the Ministry of Education, Culture and Science and by NWO. STW's funding schemes are geared towards the utility potential of the proposals as can be seen in their research programme descriptions.

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HARRY DE BOER AND JON FILE

10. OLD WINE IN NEW SKINS

The Long Evolution of Supervisory Boards in Dutch Higher Education

10.1 INTRODUCTION

Governance systems in higher education have been 'modernised' in many European countries. Far-reaching changes have been made to 'the steering and coordination of interdependent actors based on institutionalised rule systems' (Benz, 2004). We observe changing relationships between the State, society and universities and many reforms, mostly initiated by national governments, which aim at increasing the efficiency, effectiveness and responsiveness of internal university governance. The recalibration of governance in accordance with 'modern' standards has involved changes in the tasks, positions, roles and composition of many internal governing bodies and sometimes the creation of new governing bodies.

The resultant European higher education governance landscape has become exceptionally diverse. A recent European study (Eurydice, 2008) makes a distinction between university decision-making bodies that are responsible for long-term strategic decisions and advisory or supervisory bodies that oversee or monitor the university's operational, educational and financial activities and are composed solely or largely of external stakeholders. The most common model is a collegiate academic body (senate or academic board) as the senior decision-making body. Some countries have limited external stakeholder representation on this academic body, whilst others have an advisory body which includes external stakeholders in order to strengthen relations with society or to bring in external expertise in financial and real estate matters. The next most common model is the decision-making body that includes substantial external stakeholder representation and no separate advisory board.

A study by EUA on university autonomy (Estermann & Nokkala, 2009) found that most European higher education systems now have dual governance structures. They comprise a board or council (rather limited in size), and a senate (although terminology varies considerably, it is often a wider and more representative body, including the academic community and to some extent other categories of university staff), with some kind of division of power between them, with the senate typically the senior decision making body on academic matters. 28 of the 34 countries studied have external stakeholder representation in internal university governance, 22 of them in dual governance structures. Despite this diversity and deep and nuanced differences between governance systems which, on paper, seem to be within the same general model, it is clear that external stakeholder involvement in internal university governance is on the rise and that this is perceived as an important element of the modernisation agenda for European universities.

In this chapter, we hope to shed more light on some of the challenges this entails, not by creating another categorisation of European internal university governance systems, but rather through a longitudinal Dutch case study. We find this case study interesting because it goes against the widely held view that external stakeholder representation is a 'modern phenomenon' and secondly because the Dutch university governance system has some unique elements that may provide an interesting mirror on governance dynamics in other European countries. The contemporary element in the governance structure that we have chosen to trace back in time is the '*raad van toezicht*' (literally, board of supervision). We will tell the story of Dutch supervisors, allowing for a comparison of stability and change over time. Our focus is on public universities, i.e. we leave aside the governance structures of the private universities and of the universities of applied sciences. It will show that, with two exceptions (the Napoleonic period and the years between 1970 and 1997), supervisory bodies have been part of Dutch university governance since the foundation of the first university in Leiden in 1575. For most of this period, the role and position of supervisory boards have been a subject of debate.

As more countries introduce supervisory boards with external stakeholder representation, we hope that this case study will illustrate some of the potential tensions, such as who should serve on a supervisory board, what should be their main roles and what kind of relationships should exist between the supervisory board, the ministry, society and the university community, in particular its top management (De Boer, Huisman et al., 2010). [1] Should board members represent a particular constituency or should they be chosen for their expertise in the art of governing? Should the minister appoint the board members or should the academic community elect its own supervisors? Should these boards 'steer or control from a distance' or should they be proactively engaged in strategic thinking? Should supervisory boards monitor and control the performance of university management or should they support university management as sparring partners and (strategic) policy advisers? Are supervisors mainly the pawns of powerful university mangers or ministers, are they highly effective watchdogs for the ministry or society, or are they highly effective advocates and guardians of university interests? These tensions are the leitmotif of our chapter.

10.2 DUTCH SUPERVISORY BOARDS IN THE PERIOD 1813–1945[2]

In 1813, after Napoleon's defeat, the Dutch developed a national higher education law that, in theory, marked a new era, but, in practice, restored the pre-Napoleonic era (De Ranitz 1938, p. 59). Public universities were part of the state bureaucracy. Internal university governance was formally regulated by the State (Donner, 1978). On the ground, from the point of view of the universities, the position was less clear-cut (De Ranitz, 1938, p. 213). The State's authority over the public universities was exercised by a board of curators consisting of five members. Formally, the Crown appointed and dismissed these members but in practice curators were consulted in the case of a vacancy. Jensma & De Vries (1997) refer to this as a system of cooptation. These unsalaried curators had many tasks: ensuring the university's

compliance with various laws; teaching quality; university buildings and property; and financial affairs. They were also involved in staff appointments and in directing non-academic staff. The board was expected to take any measure that, in their view, 'would increase the utility and reputation of the university' (Jensma & De Vries, 1997). The curators' responsibilities also extended into the academic sphere: for example, they had to approve the curriculum ('series lectionum'). The president-curator, assisted by a paid registrar, formed the board's executive.[3] The board members were compensated financially (travel reimbursements and meeting attendance fees).

In those days, the Dutch universities had a dual governance structure, known as the 'duplex ordo'. Besides the board of curators, there was the academic senate, the university's general assembly made up of the university's professors. The senate, the expression of academic self-governance, dealt primarily with academic matters which were not regulated by the State.[4] It was chaired by the *rector magnificus*: a university professor nominated by the senate and appointed by the Crown for a one-year term. The rector was assisted by a registrar and four 'assessors' (vice-rectors). These vice-rectors were appointed by the senate. They each represented one faculty, except the 'rector's faculty'. Hence, all the faculties were represented in university governance.[5] The rector and the vice-rectors ('*college van rector and assessoren*') can be regarded as the executive committee of the senate.

In the 19th century, the board of curators had a strong local and regional character; its five members were drawn from citizens of the city or the province where the university was located and the city's mayor was an *ex officio* member. Curators were appointed for life and a significant number died in office—42% in the period between 1815 and 1940! (Jensma & De Vries, 1997, p. 87) After the introduction of a new national Act on higher education in 1876, some of these rules changed. The mayor was no longer by definition a member, local or regional residence was no longer a requirement and appointments were made for five years, although the fact that there was no limit on the number of terms meant that the curators remained in office for many years. The average term between 1876 and 1940 was around 12 years.

From a bird's eye view, it is clear that this 'honourable and prestigious job on the side' was filled by gentlemen of a certain standing and age[6] with good networks in the capital. Many were university alumni and had an academic background in law. Their professional backgrounds were mainly in the judiciary, business and banking, and politics. 44 curators were previous ministers in the period between 1813 and 1940 (38 of them after 1876 – an indication of the shift from a regional to a national focus (see below)). During this period, there was not a single female curator. The first woman was appointed in 1946 (in Utrecht) (Jensma & De Vries, 1997, p. 83).

In the late 19th and early 20th century, the role of the board of curators gradually changed. From the beginning, they had acted primarily as university representatives at the ministry, advocating their university's interests. For example, in the 19th century, the three Dutch public universities faced declining student numbers and, more particularly, the University of Groningen feared for its existence. The government intended to reduce the number of universities from three to two and Groningen was seen as the prime candidate for closure. Its curators clearly took the university's

side and successfully pursued its interests at the national level through intensive lobbying (Smit, 1989, p. 106).[7] In later years, growing government interference in higher education reduced the policy space available to university boards and curators increasingly started to act as the ministry's representatives at the university (Jensma & De Vries, 1997, p. 81). More and more, they found themselves implementing ministerial decisions, whilst at the same time, the government's grip on board member appointments increased. A situation where the local and regional elite as curators ran the university together with the academic senate shifted towards governance by a national elite that had rather strong ties with the ministry.

The board's role as a buffer between the central authorities and the university community was far from simple, given the dual nature of its mandate. On the one hand, it was expected to supervise the university on behalf of the minister and advise him and on the other, it should promote and protect the university's interests at the ministry (De Ranitz, 1938, p. 206). The result of this awkward position 'as an outpost of the government' was that curators did 'too much harm and too little good' (Huizinga, 1951, p. 22). This ambivalent position worsened from the beginning of the 20th century, as higher education became more complex (growth of the system in terms of institutions, staff, students and budgets).

10.3 DUTCH SUPERVISORY BOARDS IN THE PERIOD 1945–1970

Immediately after the Second World War, the Dutch government faced a dilemma. Should higher education be restored or reconstructed? In 1946, it installed a national committee named (after its chairman) the Reinink Committee. Its proposals included replacing the board of curators by a university board consisting of five persons: two members appointed by the academic senate; two members nominated by university graduates and appointed by the Crown; and one member appointed by the Crown and representing the government. This latter member should not be the chair of the board, but should have a veto on some matters. This composition would bring together three stakeholders: the academic community (senate), society (graduates) and the State. The university board should work in close cooperation with the senate, the board being responsible for non-academic affairs and the senate for academic affairs. (This is an early example of the dual governance structure which is now prevalent in Europe). As with similar earlier discussions, this proposal was severely criticised, particularly for having two captains on one ship: the board of curators and the senate. Such a dual system and a board including two senate members would be confusing and would potentially lead to conflicts in terms of loyalty.

Whether to separate responsibility for academic and non-academic affairs and, if so, how best to make the separation remained tricky issues.

The successor to the Reinink Committee, the Van der Pot Committee (1949) introduced the composition of the board of curators into the debate. The fact that board members were still 'eminent local citizens' who saw their lay membership mainly as a mark of esteem, created dissatisfaction. The gap between the governors and the governed was increasingly seen as a serious issue.

Despite rigorous debate for more than a decade, the new national act on higher education in 1960 made very few changes to the position of the board of curators: it

was expected to govern the academic affairs of the university together with the senate; it remained responsible for the university's non-academic affairs; and it continued to be accountable to the minister. Specific responsibilities included financial matters (approval of the annual budget, development of a 4-year 'strategic' plan and a 4-year financial plan) and personnel matters (hiring and firing of academic and non-academic staff, and proposing professorial appointments to the ministry after consulting the rector and the faculties). The board consisted of five to seven persons, appointed by the Crown for a 4-year term, with the rector and one or more members of the senate attending the meetings of the board. The president-curator was the legal representative of the university. The board was assisted by a university secretary, a powerful person responsible for the implementation of the board's decisions.

In the 1960s, like in many other countries, Dutch higher education changed dramatically. Its rapid expansion confronted the 'organisation' of higher education with major challenges. In this context, the effectiveness, decisiveness and efficiency of an internal university governance system in which lay curators and academic senates ruled together were questioned. Many held the opinion that the existing structure showed clear signs of wear and tear and the demand for reforms increased rapidly after the implementation of the 1960 national act on higher education. As the chair of the Academic Council,[8] Jansen, said in 1967: 'the opinion that it is necessary, for several reasons, to strengthen the governance and management of the universities has nowadays become common sense (…) Opinions differ however about how to achieve this strengthening.' (Academische Raad, 1968, p. 5) He was to be proved right but had little idea of the nature of the changes that would happen after 1968!

Many reform proposals were discussed. All aimed to increase the university's decisiveness in policy-making and professionalise its management. The size and complexity of the higher education issues at stake could no longer be addressed by well-intentioned amateur governors at the top-level of the universities. The separation of responsibilities for academic and non-academic affairs in two governing bodies (senate and board of curators) was seen as a further hindrance to effective university policy-making. One of the most talked-about proposals came from the Academic Council (the Maris Committee, named after its chairman). Once again, the case was made for the abolition of the board of curators and the replacement of the dual structure of board and senate by one governing body—the presidium—consisting of three full-time governors, responsible for all university matters and accountable to the minister. This proposal, a good fit with present day new public management approaches, was blown to pieces from different quarters simply because it completely misread 'the signs of the times' (De Gaay-Fortman, 1968, p. 109). Academics argued that such an autocratic and hierarchical governance structure was, to say the least, at odds with the professional nature of a university. Students were even more outraged and, according to Arriëns (1970, p. 155), the Maris proposal fuelled further radicalisation of the student movement in the late 1960s which, in turn, led to a turning point in the endless discussions on internal university governance reform. 'All of a sudden' the reform demand was not (just) driven by an ambition to increase the effectiveness and decisiveness of university policy

making but by the desire to democratise the internal university governance structure. It also heralded the 'fall of the curators' who had survived for centuries despite all the criticisms. As we have shown, policy makers had looked for alternatives several times, but none of the proposals were successful. So, for want of anything better, the board of curators was not abolished until 1970 (Hermans 1986, p. 6).

To cut a long story short, in December 1970, a new national act was passed by Parliament with respect to internal university governance (the WUB act) – an act with 'revolutionary substance' (Arriëns, 1970, p. 4). A completely new, but again dual, governance structure came into existence. The university council ('*universiteitsraad*') with academic, non-academic, student and external representation (in total a maximum of 40 members) became the university's supreme decision-making body. Its decisions were implemented by a second top-level university governing body, the executive board ('*college van bestuur*') which took over some of the responsibilities of the abolished board of curators.[9] In the 1970s, the executive board consisted of three to five persons, one of them being the rector. The rector, nominated by the deans, was appointed by the Crown after consultation with the university council. Two other members of the executive board were appointed by the Crown and one or two board members were appointed by the university council. The main responsibilities of the executive board concerned the university's management, finances, human resources and property. Moreover, it was supposed to execute the council's decisions, which implies that the university council was the prime decision making body. In the 25 years after the introduction of the 1970 WUB act, the distribution of powers gradually shifted from the university council to the executive board. Also, the composition of the executive board changed: it was reduced to three members, among them the rector, all appointed by the Crown.

In this period (1970-1997), Dutch universities did not have a supervisory board. Therefore, the next episode of our story starts in the early 1990s (despite the 1970s and 1980s being highly interesting times with respect to other aspects of internal university governance).

10.4 DUTCH SUPERVISORY BOARDS AFTER 1997[10]

In the early 1990s, it became clear that the 1970 university governance structure was on its last legs. There was a widely held belief that the participatory mode of university governance had become obsolete (De Boer & Stensaker, 2007). In a series of reforms arising from the new government steering philosophy introduced in 1985 and known as 'steering from a distance', internal university governance was also critically examined. In 1995, the minister outlined his proposals for a new university governance structure, which formed the basis of a fundamental change to the existing law in 1997. The objectives of the 'Modernising the University Governance Structure' Act (the MUB act) were to increase the quality of teaching and research; the decisiveness of university management; and institutional autonomy. It was intended as an answer to perceived shortcomings, such as the lack of transparency, the dispersal of authority, co-determination in decision making, and the inadequacy and incoherence of internal communication.

One of the novelties concerned the introduction of the board of supervisors ('*raad van toezicht*'), or, arguably, the re-establishment of such a board (the return of the curators?). The rationale was that universities should be protected from direct ministerial interference in university affairs through the establishment of supervisory boards which were not part of government bureaucracy but 'belonged' to the university. Universities should increasingly be able to act as 'public entrepreneurs'. Supervisory boards should supervise *for* the minister, not *on his/her behalf.* The minister cannot instruct the supervisory boards, but they are responsible for informing him/her about the functioning of their universities.

The formal regulations concerning the supervisory board are laid down in the national higher education act and the 'code of good governance for universities' further defines and elaborates on these formal rules (Association of Dutch Universities, 2007).[11] The supervisory board of each university consists of a minimum of three and a maximum of five external members. They are appointed, and if necessary dismissed, by the Minister of Education, Culture and Science for a four-year (maximum) term. When appointing the board members, the minister must consult the university council or its equivalent consisting of staff and student representatives. In practice, the universities propose their candidates to the minister who decides on a case-by-case basis. Specific criteria include: gender balance should be taken into account; one of the board members should serve as the liaison with the university council; at least one of the board members should have a background in finance; and a supervisory board member cannot serve simultaneously as a member of some specified organisations such as Parliament to avoid an incompatibility of functions. The members of a supervisory board are not paid a salary but do receive financial compensation. This annual honorarium is determined by the minister and is the same for all public universities: €11,345 for the chair and €9,075 for the other members (2007).

In addition to overseeing the work of the executive board ('*college van bestuur*'), the duties of the supervisory board include approving the university's strategic plan, budget, long-term financial plan, annual accounts and annual report, executive and management regulations, and decision-making structure. The supervisory board is expected to advise the executive board, but cannot give detailed instructions. This implies that both in theory and in practice, the executive board runs the university, overseen by the supervisory board. Finally, the supervisory board appoints the three members of the executive board.

Supervisory boards meet about four to six times a year. These meetings are not public. The chairs of the supervisory boards hold a meeting twice a year, sometimes inviting the minister. With some exceptions, members of the executive board normally attend the supervisory board meetings. They participate in discussions, express their views when asked, but do not have a vote. A national evaluation study (De Boer, Goedegebuure et al., 2005) and a report from the Dutch Inspectorate (2005) on the role of university supervisory boards inform us that:

Supervisory board members mainly communicate with the executive board. Interactions with deans and the university council are limited or non-existent. Contacts with external organisations—while wearing the 'supervisory board hat'—are

also limited. Most of the board members never talk to MPs or people from the ministry.

The supervisory boards are accountable to the minister via a formal annual report which, however, does not lead to interaction and feedback, to the surprise of the board members. The research also points out that opinions are divided on the clarity of the accountability relationship with the minister—this appears to be rather 'soft' with there being no clear guidelines for the relationship or for the content of the annual reports.

Most supervisors have a positive view of the performance of the university governance system. In their eyes, university management is effective, decisive, and capable of developing and implementing coherent strategic plans and successfully leading major reforms.

The time members spend on board duties varies: almost one-fifth invest less than five hours per month, nearly half invest five to ten hours per month, and a quarter invest 11–20 hours per month.

More than ten years after its introduction, a number of issues can be raised about the transparency of the governance structure, particularly the supervisory board's role in this; the composition of the board; the board's independence; and the accountability relationships of the supervisory board.

Transparency refers to open communication and the clear understanding of what governing bodies do. In 2005, a large number of the members of university governing bodies, with the exception of the executive board, reported that they did not have a clue about what the supervisory board did (see Table 1). For 'ordinary' academic

Table 1. Clarity of the supervisory board's functioning by university governing body (in %)

To what extent is it clear what in practice the supervisory board does for the university?							
	EB	*UC*	*dean*	*FC*	*EC*	*HS*	*SD*
Absolutely not	0	20	17	34	37	29	30
Hardly	0	26	0	28	36	26	30
Somewhat	9	27	33	29	20	26	30
Considerably	44	18	33	7	4	9	9
Completely	48	10	17	2	4	11	0
N (=100%)	21	143	12	134	163	35	23

Legend:

EB = Executive board

UC = University council: representative body at the central level (50% staff and 50% students)

FC = Faculty council: representative body at the faculty level (50% staff and 50% students)

EC = Educational Committee: advisory committee at the faculty level with staff and student members

HS = Head of School, appointed by the dean

SD = Scientific Director, leader of research institute at university or faculty level

From: De Boer, Goedegebuure & Huisman, 2005, p. 26.

staff and students – those not directly involved in university governance – this understanding was even less. This is a result of board meetings not being public and the outcomes of meetings, and more general information about board activities not being disseminated. Supervisors move in mysterious ways.

A second concern about the supervisory boards relates to their composition. The supervisory board of Dutch universities is supposed to represent society as a whole. This expectation is easily questioned if we look at the composition of the boards. Gender balance is a problem: in 2010, 21 or 30% of the 70 supervisors are women; no university has a female majority on its board; six universities have two women in a board of five; and only Wageningen University has a female board chair. In terms of age, quite a few supervisors are close to or above the age of retirement. As an illustration, the age of the chairs of the boards is presented in Table 2. In 2010, the youngest was 57.

Looking at the professional background of the supervisors, members are 'heavy weights' from either the public or private sectors, with many coming from multi-nationals and large firms[12]. They constitute a dense network of Dutch captains of industry, including the public spheres. Former politicians are also popular: in 2007, 9 of the 68 supervisors were former ministers.

Very few supervisors have a background in the arts or related fields. In this respect, cultural-historical values are underrepresented. Thus, they represent only a very small proportion of society. Many do not just have a seat in the supervisory

Table 2. Composition of Dutch supervisory boards and the age of the chairs in summer 2010*

University	male	female	total	age of the chair
Rotterdam	4	1	5	65
Groningen	3	2	5	69
Leiden	3	2	5	67
Nijmegen	4	3	7	59
TU Delft	3	2	5	68
TU Eindhoven	4	1	5	57
Maastricht	3	1	4	
Utrecht	4	0	4	67
Amsterdam - UvA	3	1	4	
Twente	3	2	5	64
Tilburg	5	2	7	71
Amsterdam - VU*	7	2	9	69
Wageningen	3	2	5	71
Total	49 (70%)	21 (30%)	70 (100%)	

* The three universities established under private law in the Netherlands (Nijmegen, VU Amsterdam and Tilburg) have a slightly different governing structure including the supervisory board (more members). The VU in Amsterdam has a common board for the VU, VU medical centre and Windesheim (a University of Applied Sciences).

board of 'their' university, but also in the boards of several other public or private organisations (some have more than ten of these memberships). A potential benefit of being a 'multiple board member' is a rich experience and expertise in the 'art of governing' and universities may benefit from the board members' political and business networks. The downside is that this can lead to (undemocratic) power concentrations, or at least to the suspicion that these exist. This is particularly important in the context of the high levels of autonomy of

Dutch universities (as public agencies) and the need for mechanisms of democratic accountability in a public higher education system.

In conclusion, the composition of supervisory boards in the Dutch university sector in terms of age, gender and professional background is something of an 'old boys' network'.

The third concern relates to the expertise and independence of the supervisory boards. The experience and expertise of the individual board members may be 'undisputed', but what kind of expertise are we talking about? Given the composition of the supervisory boards, members are particularly experienced in finance and management. Other areas of expertise from which university supervision could benefit seem absent. This implies that in interaction with institutional leadership an information asymmetry regarding academic affairs easily arises. The role of the supervisors may well become restricted to financial supervision, which is an important but limited perspective.

The independence of the boards can be questioned in two respects. First, supervisors are not supposed to have a 'business-related' interest in the university. However, many of the members of the boards work in organisations with business links to the university. Joint research projects and the supply of infrastructure or financial resources (banks) are examples of potential conflicts of interests, or even unfair competition. Entanglement of interests can be a reason for the minister to refuse to (re)appoint a board member, but this rarely happens (only one case is known).

On the other hand, it is argued that entrepreneurial universities are expected and encouraged to have close links with society and industry, and board membership seems to be an effective way of creating opportunities for societal embeddedness. In this view, it is not the independence of the supervisors that counts, but their ability to build bridges between the university and its environment.

Secondly, looking at 'independence' in a different way, we suspect that tensions arise between the two roles of giving advice to the executive board and of overseeing its functioning. Can a supervisory board critically oversee the executive board's decisions if these are based on its own advice? Or does a supervisory board limit its advisory role to avoid such a tension? Unfortunately, there are no empirical data on such potential role conflicts.

A final concern related to the size and composition of the boards is interest representation and accountability. How should, and how does a supervisory board balance common interests and the (conflicting) interests of various stakeholders? To whom are the supervisors accountable? Tensions may arise between vertical and horizontal accountability. In The Netherlands, supervisory boards account for

the university's activities, including their own, to the minister through annual reports (vertical accountability). Accountability to other stakeholders is far less developed. As has already been indicated, the small size and skewed composition of the boards mean that important external stakeholder groups are not engaged in, or well-informed about, university policies. One option to overcome this problem would be to increase the number of board members (say to 25) and change its composition (functional or stakeholder representation). The disadvantage of such 'external representative boards' is that specific interests instead of the university's overall interests may become too dominant; the board may become politicised and internally divided with negative effects on the board's decisiveness and its position vis-à-vis university management. Moreover, functional representation does not get around the problem that stakeholder groups are rarely homogeneous—who is being represented and how to handle different opinions within constituencies remain a challenge. On the other hand, a system of supervisors appointed for their expertise, as the Dutch have opted for, may be less democratic and rather closed. Given that the powers of the university council—the staff and student representative body—have diminished since 1997, the participation of different constituencies in university-wide policy making has become a real issue.

More than a decade after the implementation of a significant reform of the internal governance structure of Dutch universities, the current supervisory boards, lay member bodies of captains of industry and public spheres, have an important role to play in the university governance system. Nevertheless, this section has identified a number of current issues and tensions with respect to their functioning. Many of these are perennial governance problems which have taxed the minds and ingenuity of university legislators since the Middle Ages (cf. Cobban, 1975, p. 35).

10.5 CONCLUDING REMARKS

As a result of changed expectations of the State, society and universities and of changing relationships between them, 'modern' governance structures have been implemented in many European countries. In this chapter we focused on the university supervisory board, a governing body redesigned or newly established in many European higher education systems which recalibrates internal university governance and more particularly the role of external stakeholders in this. The current supervisory boards in Dutch universities, established in 1997, are one example of such a 'modern' board although they have a 400-year history. In presenting the story of these Dutch boards over time, we have identified a number of abiding issues concerning the role and composition of the boards.

The minister has always appointed the supervisors, although it has always been the case that consultation with the universities took place before such appointments were made. Supervisory boards have always been small, in general consisting of five lay members drawn from local and later national elites. In terms of members' age, gender and background, they have always been something of an 'old boys'

network'. Their position as a buffer between the ministry and the university has continually been a matter of controversy. In the early days, the curators, typically local or regional dignitaries, advocated university interests at the ministry. In the late 19th century this changed as they became more of an outpost of government who implemented ministerial decisions. Today, the board is clearly once again part of the university, although many within the university are not aware of what it actually does or of its areas of competence.

Within the university, the position of the board vis-à-vis other governing bodies has changed. Until 1970, the board of curators governed together with the academic senate. There was a structural link between the supervisors and the supervised (the academic community), a situation that changed after 1997. Board members now interact primarily with the executive board and seldom communicate with other members of the university community. Another long-standing concern, particularly in the last century, relates to the expertise of the supervisors. Are these well-intentioned amateur governors at the top level of the university capable of overseeing and advising on highly complex matters? How can they effectively supervise an executive board that has much more information at its disposal and a much greater affinity with higher education and its core business of teaching and learning, research and community engagement?

Our story shows that, in the Dutch context, the supervisory board is not a new phenomenon. The oldest Dutch university, Leiden, founded in 1575, had a supervisory board from the outset. Higher education has changed enormously since then and many of these changes have had a direct or indirect impact on university governance, including on the role and functioning of supervisory boards. The relationship between the State and the university is one example—the shift from 'being part of the state bureaucracy' to autonomous public entrepreneurs. The growth in the size and complexity of higher education is another. The demands on, and expectations of, university governing bodies in elite systems are different from those in mass or universal systems (Trow, 1973). As a result, the tasks and responsibilities of rectors, senates and supervisory boards have changed. The rapid expansion of higher education after the Second World War combined with strong social forces that challenged 'traditional authorities' paved the way for the 'democratic university'—an organisational revolution in 1970 that resulted in the (temporary) end of the senate and the supervisory board in Dutch universities. The senate was not rediscovered, but the supervisory bodies were.

Without downplaying the importance of the changes in the board's role and composition over time, the repositioning of other university governing bodies and the changed position of the university in society, our story indicates that there are strong elements of continuity. This brings us to the conclusion that the introduction of supervisory boards in 1997 was not the new governance mechanism it was presented to be. It was more a case of 'reinventing the wheel' than of 'modernising governance'. As the Biblical saying goes 'what has been will be again, what has been done will be done again; there is nothing new under the sun' (Ecclesiastes 1, p. 9–14 NIV). Despite controversies, tensions and critiques, the persistence of the supervisory board suggests a lack of alternatives if one is not in favour of

strong forms of academic self-governance or state-regulation (Hermans, 1986, p. 6). Applying Churchill's famous 1947 quote on democracy in a different context, it appears that, in university governance, supervisory boards are 'the worst form of governance except for all those other forms that have been tried from time to time'.

NOTES

[1] See also Cornforth, C. (2003). The governance of public and non-profit organizations. What do boards do? London, Routledge.

[2] This section and the next are mainly derived from de Boer, H. F. (2003). Institutionele analyse en profesionele autonomie. Een empirisch-verklarende studie naar de doorwerking van de wet ' Modernisering Universitaire Bestuursorganisatie' *(MUB) (Dissertation).* Enschede CHEPS.

[3] The importance of the registrar's role grew over the years, particularly as a result of the expansion of higher education which increased management workloads. The registrar came to be regarded as the head of the university's administration.

[4] The senate determined the curriculum, but this still needed the approval of the board of curators. The government was required to ask the senate for advice if it wanted to change the 'Academic Statute'; this statute set out the rules for teaching courses, exams and promotions.

[5] In those days the law stipulated that public universities had five faculties: theology, medicine, natural sciences, law and arts.

[6] In the period 1815–1940 the average age was 54. The youngest curator was appointed at the age of 33; the oldest at the age of 76.

[7] To what extent Groningen's 'salvation' was the result of the efforts of the curators (and others) is hard to assess. Smit (1989:106) argues that Groningen survived as the result of a political compromise. Some Members of Parliament wanted to establish another university (in Amsterdam) which was only possible if the number of universities was not reduced. Therefore, Groningen was saved and there were four Dutch universities instead of the intended two! The point here is that the curators clearly took sides.

[8] The Academic Council was introduced in 1960 (National Act on Higher Education) and consisted of representatives (professors) of the universities. This national body advised the minister on various issues, for which it frequently established committees. It was abolished in 1986.

[9] A third governing body, the board of deans, is not discussed in this chapter.

[10] This section is partly based on de Boer, H., J. Huisman and C. Meister-Scheytt (2010). 'Supervision in 'modern' university governance: Boards under scrutiny.' *Studies in Higher Education* 35(3): 317–333.

[11] Of the 13 Dutch universities, three are legally private (VU Amsterdam, Nijmegen and Tilburg). For these universities, slightly different rules for the supervisory board apply, such as the procedures for appointing board members, but most of the regulations are the same as for public universities.

[12] They include, for example, (former) presidents and CEOs of multinationals and large national firms such as Fortis Bank, Gasunie, Reed Elsevier, SNS Reaal group, De Nederlandsche Bank, Havenbedrijf Rotterdam, Shell and Philips.

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BEN JONGBLOED

11. FUNDING THROUGH CONTRACTS

European and Institutional Perspectives

11.1 INTRODUCTION

With the New Public Management (NPM)-doctrine that has swept the public sector since the 1990s (Pollitt et al., 2007), many reforms in the funding of higher education have been implemented across Europe. Together with the introduction of more market-oriented governance approaches, public authorities have started to use contracts and performance-oriented approaches to shape the budgets of national higher education institutions and research organisations. Contracting and performance-based budgeting (PBB) are two trends that emerge in this chapter from the short *tour d'horizon* of funding mechanisms for higher education institutions. PBB and contracting are reshaping the relationships between the national authorities and budget receiving organisations. Performance-based budgeting seeks to link performance measures to budget allocations and as such it is expected to improve the management and accountability of higher education institutions (HEIs). It is also expected to contribute to a higher degree of cost consciousness and goal orientation in the budgeted organisation. Quoting Herbst (2007):

> The rationale of performance funding is that funds should flow to institutions where performance is manifest: 'performing' institutions should receive more income than lesser performing institutions, which would provide performers with a competitive edge and would stimulate less performing institutions to perform. Output should be rewarded, not input. (p. 90).

Contracting is another NPM-inspired trend in governance reforms. In addition to emphasising accountability and results, it gives greater attention to differentiated institutional missions. Institution-specific performances and initiatives can be laid down in contracts agreed between budget holders and budget receivers. Salmi and Hauptmann define performance contracts as follows:

> performance contracts typically are not legally enforceable documents. Instead, they are more often non-binding regulatory agreements negotiated between governments or buffer bodies and tertiary education institutions which can take a number of forms. The agreements may be with entire systems of institutions or individual institutions. All or a portion of funding may be based on whether institutions meet the requirements in the contracts. The agreements can be prospectively funded or reviewed and acted upon retrospectively. In some

instances, such contracts can be viewed as a punitive instrument rather than as incentives, as failure to meet goals may result in reduced funding. (Salmi & Hauptmann, 2006, p. 17).

Both PBB and contracting have been implemented in the Dutch higher education system – both at the system level and at the level of the individual university. This chapter puts the Dutch developments in a wider, European context and highlights some of the promises and pitfalls of PBB and contracting. The next section (section 2) discusses the four main budget types that can be found in the literature. Section 3 gives an overview of the mechanisms of public funding that are used by national authorities in their budgeting of HEIs. By presenting examples from The Netherlands relating to the national level and the level of the individual university, section 4 discusses issues surrounding PBB and contract funding. In section 5, we present some conclusions, focusing on the advantages and disadvantages of performance-based and contract-based approaches. One tentative conclusion is that funding authorities and university administrators will increasingly use performance contracts, as they realise that their traditional funding approaches and formulas have been very backward looking, resembling 'steering by looking in the rear view mirror'. A system of contract funding implies a more future-oriented type of funding that allows them to pay more attention to the individual institutions' specific missions.

11.2 BUDGET SYSTEMS: WHERE DO PERFORMANCE-BASED BUDGETING AND CONTRACTING FIT IN?

In this section, we will present a typology of budget types in order to show where performance-budgeting and performance contracts fit in. Before doing so, it is instructive to present a general input-throughput process-output description of a production process and some its related concepts (Figure 1). The shaded area is where production takes place. It represents the organisation (in our case, a higher education institution), where inputs (resources) are transformed into outputs (products) on the basis of production technology (say process). The organisation tries to achieve particular goals and uses a given budget to obtain the resources (personnel, material resources, capital goods) it needs to reach this objective.

If the organisation operates in a market where its goods are sold, the success of the organisation is reflected in the profits it makes by selling its goods to customers. Ultimately, its budget depends on whether its outputs are sold for a price that covers production costs. In the case of private organisations operating in a market, customers will normally know whether the price of the good or service on offer represents value for money. Private producers will also be aware of the resources needed to produce a given output. This means there is a more or less straightforward relationship between production activities (the processes) and resources (or inputs) and knowledge about the relationship between activities and resulting outputs. In other words, the production technology is relatively transparent – the activities are homogeneous. In the public sector—including higher education—this is often not the case. In higher education, the outputs of the teaching and research activities of universities and colleges cannot be identified in a straightforward way.

Measuring the quantity and quality of teaching or research is a big challenge. Hence, for higher education, the following two questions cannot be answered affirmatively:
1. Are activities homogeneous?
2. Is output identifiable?
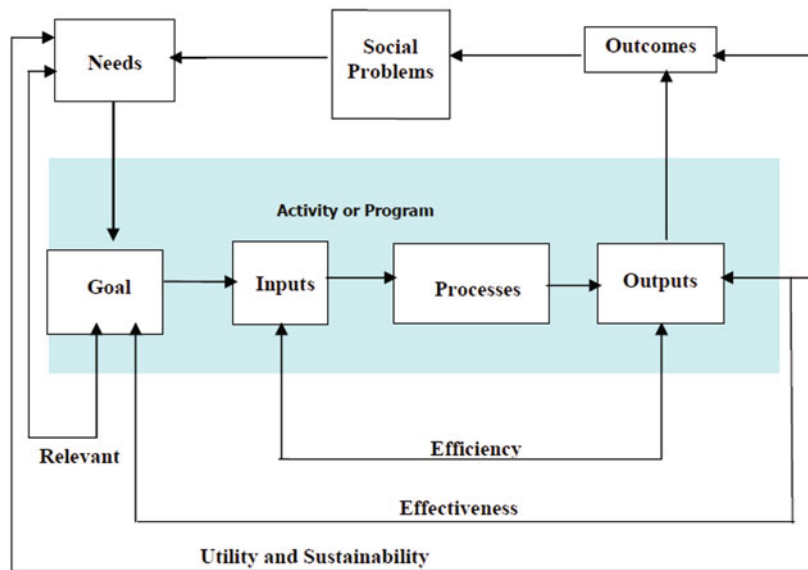
Figure 1. The production process: its contexts and some concepts.

Source: Based on Pollitt & Bouckaert (2004).

Following Mol (2008), one may argue that the choice of budgeting for an organisation will depend on these key questions. Figure 2 shows a differentiation of budget types. In case A, where outputs can be identified and activities are homogeneous, an organisation's budget can be based on the output levels set for it, the activities connected to the outputs and a calculation of the costs of the required inputs. This is the (ideal) case of a performance budget. A target may be set for the output and

Output / Activities	Identifiable	Not identifiable
Homogeneous	A. Performance Budget	B. Process Budget
Heterogeneous	C. Project Budget	D. Input Budget

Figure 2. A typology of budget systems.

Source: Based on: Mol, 2008, pp. 206, 207.

there is direct performance budgeting (PBB). With this method, the entire planning and budgeting framework is result-oriented. If one were to agree that ECTS credits are an adequate way of measuring the output of teaching in universities, funding on the basis of credits would be an example of PBB in higher education.

In many public sector organisations, there is little knowledge about the production technology (Salerno, 2003). Activities are heterogeneous, costs cannot be standardised, and no norms can be placed on outputs. Therefore input budgeting (case D) is the only option for public sector organisations. Universities also provide heterogeneous services and are involved in very diverse activities. It is difficult to directly relate their activities to the inputs (e.g. time and type of staff). This makes it difficult to calculate a standard cost that could be used in deciding on their budget. At the same time, the output of universities is hard to identify, as it deals with the production, transformation and dissemination of knowledge. Therefore it is hard to set output targets and norms for the costs they should incur. Because no standards or targets can bet set for outputs and costs, input budgeting is frequently used (case D in figure 2). An input budget then consists of budgets for academics' salary costs and supports staff, research facilities, lecture theaters, etc.

There are two intermediary types (B and C) between the extremes of input and performance budgets. In case B, where activities are homogeneous, one can standardise costs, even if the outputs are unclear. If teaching can be divided into a combination of class contact hours (traditional lectures, seminars, studio sessions, etc), out-of-class activities (preparation, supervision, grading, office hours), then budgeting for resources would be the outcome of an activity-based costing exercise. For example, staff hours would depend on the number and size of different types of classes, and in turn on enrolment (Massy et al., 2007). Thus, salary costs for teaching may be budgeted according to the number of academic hours and a standard rate per hour (for academics and teaching assistants). This is an example of a process budget.

In case C, there is an identifiable output, even when this is the result of hetero-geneous activities. An example is scientific research, where performance can be observed on the basis of publications (as a proxy of volume) and/or peer review (as a proxy of quality, or relevance). However, the resources (budget) required to carry out research cannot be determined in a straightforward way, since research outcomes are not unique and certainly not the mechanistic result of a particular volume of resources (or effort). Therefore, in this case, the budget would have to be determined in a subjective way. Nevertheless, as in the case of advisory services requested from a consultancy firm, the client can request that the consultant pays attention to particular dimensions of the performance. Because in a case like this the activities and outcome are unique, the resources are provided by means of a project budget. Case C therefore is where contract funding would apply. A contract will be agreed, specifying the outcomes that are expected in return for a project budget. Research councils often work in this way, providing a project budget (i.e. contract funds) and requesting that output quality be judged ex post by means of independent peer reviews.

Whilst, in theory, the four budget types may seem relatively clear, in practice the terminology is less so. OECD defined performance budgeting as budgeting that

links the funds allocated to measurable results (OECD, 2008). This broad definition includes three sub-types:
– presentational;
– performance-informed;
– direct performance budgeting.

This distinction ranges from a very loose to a stricter type of performance budgeting. Presentational performance budgeting means that performance information is presented in budget documents. However, the information is not intended to play a role in budgetary decision-making but to serve an accountability purpose. In performance-informed budgeting, resources are indirectly related to proposed future performance or to past performance. Here, performance information is only part of the underlying information to determine the amount of resources allocated and does not have a predefined weight in the decisions. Finally, direct performance budgeting establishes a tight link between performance information and resourcing. It involves allocating resources according to the results achieved.

One may argue that a project budget – or contract budget (Case C in Figure 2)—is a kind of performance-informed budgeting. It is more than just an accountability instrument, as it is also used in planning and, indirectly, resource allocation. Unlike what the name suggests, this type of budgeting is not only meant to be used for one-off projects, but also in situations where an organisation is expected to carry out concrete tasks. Presentational performance budgeting is a long way from performance budgeting. Some prefer to use the term performance-informed budgeting (Van Nispen & Posseth, 2006). It may run the risk of becoming a kind of 'paper exercise' with information added in a kind of 'nice to know' fashion. However, if the performance information included in the budget presentation—often as indicators—enables outsiders to have more insight into the efficiency and effectiveness of organisations, it may help to maintain public trust in organisations—making them more transparent.

Now that we have shown how performance budgets and contracts may be distinguished from other budget types, we will pay attention to the question of whether they can help to improve performance. While PBB and performance contracts imply incentives for the budgeted institution to do so, there are potential risks. If performance targets are set for public organisations, direct performance budgeting may run the risk of resembling a system of centralised planning, with little respect or acknowledgement for the professionals at 'shop floor level'. We all know that centralised planning systems have failed—and sometimes even led to counterproductive behaviour (De Bruijn, 2006). If performance budgeting is based on a formula, where an increase in a performance indicator directly translates into a larger budget, this may lead to unintended and perverse effects. The budgeted organisation will only focus on what is measured ('What is measured gets done'), thereby disregarding other valuable, often qualitative aspects of the output. It may be inclined to focus on 'easy targets' ('cherry picking'), neglect innovations, and work in a isolation (competition instead of collaboration). Performance budgeting can be too crude a tool (Behn, 2003). If an organisational unit performs poorly, does that mean that its budget should be cut because it is wasting money or increased so that it can do better? In performance budgeting, performance measures must be

interpreted and evaluated in the context of the budgeted organisations, their missions, and their histories (Gilmour & Lewis, 2006). The box below, inspired by Behn (2003, p. 590), offers a case that illustrates this point.

Box 1. Rewarding performance

What should a university do if its humanities department fails to achieve its graduate performance targets? Cut the department's budget? Or increase its budget? Or should the vice chancellor fire the dean and recruit a new manager with a track record of reorganizing underperforming organisations? The answer depends on the specific circumstances that are not captured by the formal performance data. Certainly, cutting the department's budget seems like a counterproductive way to improve performance (though cutting the humanities department's budget may be perfectly logical if the university council decides that humanities education is less of a political priority than educating engineers, improving the library, or increasing the bursaries of doctoral candidates). If analysis reveals the humanities department is underperforming because it is underfunded—because, for example, its capital budget lacks the funds for cost-effective computer-based learning technologies – then increasing the department's budget is a sensible response. But poor performance may be the result of factors that more (or less) money won't fix: poor leadership, the lack of a drop-out prevention strategy to complement the department's expansion strategy, or the failure to adopt a policy to improve teaching and learning skills for its academic staff. Using budgetary increments to reward well-performing departments and budgetary decrements to punish underperforming ones is not a strategy that will automatically fix (or even motivate) poor performers.

11.3 FUNDING MECHANISMS IN HIGHER EDUCATION: INTERNATIONAL TRENDS

As argued in the previous section, budget systems include important incentives for organisations. Having highlighted the cases of performance-based budgeting (PBB) and performance contracts, we now wish to analyse the state of the art with respect to these budget approaches in some European higher education systems. All higher education institutions (HEIs) are expected to strive for performances in fulfilling their missions of teaching, research and outreach services, taking into account aspects of quality, efficiency and equity. Budgets are provided to help them to achieve these goals. This section will look in more detail at the incentives implied by the funding mechanisms that national authorities such as ministries, funding agencies or other public authorities use to allocate budgets to universities and colleges. The focus is on performance-based budgeting and contracting.

Concerning the mechanisms in place to determine the amount of the public operational grant, we distinguish the following categories as used in the recent Eurydice governance study (Eurydice, 2008):

– *Negotiated funding*: The grant is based on negotiations between the ministry/ agency and an individual institution about the budget lines (line items) to be

allocated. The budget lines relate to the various activities undertaken and the resources required to achieve particular goals.

– *Incremental funding*: The amount of the grant is based on previous years' allocations (and therefore will reflect past costs). History will play a large role in shaping the HEIs' budgets, giving the funding mechanism the character of an input-based budgeting system.

– *Formula funding*: This is a formula-based approach, which means that the amount of the public grants for teaching and/or ongoing operational activities and, in certain cases, research is calculated using standard criteria (e.g. normative unit costs, input criteria and performance indicators) that are the same across all institutions. If performance measures play a large role, the funding mechanism resembles a PBB system. If input measures dominate, the system is more like an input-based budget.

– *Contract funding*: The grant is based on the outcome of a performance contract, meaning that each institution and the ministry/agency negotiate and agree on a number of strategic objectives to be achieved by the institution (e.g. a predetermined number of graduates by field of study) and in return the institution receives a budget. To evaluate progress, a set of performance-related measures is used.

These four mechanisms are found in a study that covered the 27 European Union Member States, plus Iceland, Liechtenstein, Norway, Switzerland, Croatia and Turkey. There are 33 higher education systems[1] (CHEPS Consortium, 2010). The information from this study is summarised in the tables below. Table 1 indicates the extent to which the four mechanisms are used in the years 1995 and 2008. It shows that countries are using a *mix* of funding options, with hardly any country relying on a single funding method. Federal states (Germany, Spain, Switzerland) and countries such as the UK and Belgium consist of a number of separate higher education systems, each having their own mix of funding mechanisms. In these cases, the table provides a summary view, although we realise that the real picture is more complex.

Compared to the year 1995, incremental funding is clearly less applied. However, it is still of major importance in six countries (Austria, Croatia, Lithuania, Slovenia, Sweden, Switzerland). In many countries, it has been replaced by formula-based approaches. In 20 countries, formulas are of very great importance in 2008, whereas only seven countries did so in 1995.

Negotiated funding is still in place in several countries, but contract approaches have been introduced in addition to already existing arrangements. These contracts are agreed between ministries and individual institutions, with part of an institution's budget being tied to a performance agreement or performance contract. Contracts are an important allocation mechanism (next to a formula) in ten countries.

In the light of the previous section, we will now analyse the extent of performance orientation in the funding mechanisms covered in the study by the CHEPS Consortium. Table 2 provides a picture of the degree of importance attached to output- (or performance-) related criteria (or *budget drivers*) in the funding mechanisms that drive the recurrent (core) budgets allocated by public authorities to the research universities. The table, which is based on a survey of country experts, compares performance-orientation between the years 1995 and 2008.

Table 1. Degree of importance of four funding mechanisms for determining the public universities' budget: 1995 versus 2008

Country	Negotiation		Incremental allocations		Formula		Contracts	
	1995	2008	1995	2008	1995	2008	1995	2008
Austria	XX	XXX	XXX	XXX	0	XX	0	XX
Belgium – Flanders	0	0	XX	0	XX	XXX	0	0
Belgium – Wallonia	0	0	XX	XX	XX	XX	0	0
Bulgaria	XX	XX	XXX	X	0	XXX	0	0
Cyprus	XXX	XXX	0	0	0	0	0	0
Croatia	X	X	XXX	XXX	0	0	0	0
Czech Republic	0	X	XX	XX	XXX	XXX	0	X
Denmark	X	X	XX	X	XX	XXX	0	0
Germany	XX	XXX	XXX	XX	XX	XXX	X	XXX
Estonia	0	0	0	0	X	X	XXX	XXX
Finland	X	XX	XXX	X	X	XXX	X	XXX
France	0	X	0	0	XXX	XXX	X	XX
Greece	X	XX	XX	XX	XXX	XX	0	XX
Hungary	XXX	0	XXX	XX	XX	XXX	0	X
Ireland	X	0	XXX	X	X	XXX	0	0
Iceland	0	0	XXX	X	0	XXX	0	X
Italy	0	0	XXX	XX	0	X	0	0
Latvia	0	0	XXX	0	0	XXX	0	X
Liechtenstein	0	XX	0	XX	X	XX	0	XX
Lithuania	X	X	XXX	XXX	XX	XX	0	0
Luxembourg	-	XX	-	0	-	X	-	XXX
Malta	XXX	XXX	0	0	0	0	0	0
Netherlands	0	0	0	0	XXX	XXX	0	0
Norway	X	XX	XXX	XX	X	XX	X	X
Poland	0	0	X	X	XXX	XXX	X	X
Portugal	0	0	0	0	XXX	XXX	X	X
Romania	XX	0	XXX	0	0	XXX	0	X
Slovakia	0	0	XXX	0	0	XXX	0	0
Slovenia	XX	X	XXX	XXX	XX	XXX	X	X
Spain	0	0	XXX	XX	X	XXX	X	X
Sweden	XX	XX	XXX	XXX	0	X	XX	XX
Switzerland	X	XX	XXX	XXX	X	XX	X	X
Turkey	X	X	XXX	X	X	XXX	X	XX
United Kingdom	0	0	0	0	XXX	XXX	X	X

Source: CHEPS Consortium (2010).

Legend:
  0   not important;
  X   minor importance;
  XX   important;
  XXX   extremely important.

Compared to 1995, when performance-related criteria played an important to extremely important role in only five countries, there are now 19 countries where these elements are driving the budget. This illustrates the trend towards performance-based funding (Jongbloed & Vossensteyn, 2001). Input and cost-related measures such as

student enrolments, staff positions, the surface area of buildings, or past historical costs are still important budget drivers in 2008, but they are being augmented (or replaced) by performance-oriented measures and criteria.

Table 2. Importance of performance-related funding drivers in the funding mechanism for publicly funded universities: 1995 versus 2008

	1995	2008
Extremely important	Denmark, Sweden, United Kingdom	Belgium-Flanders, Denmark, Estonia, Iceland, Netherlands, Sweden, United Kingdom
Important	Netherlands, Poland	Austria, Germany, Finland, France, Greece, Italy, Norway, Poland, Romania, Slovakia, Slovenia, Spain
Minor importance	Cyprus, Germany, Finland, France, Greece, Iceland, Italy, Lithuania, Norway, Slovenia, Spain, Turkey	Bulgaria, Cyprus, Ireland, Latvia, Lithuania, Portugal, Switzerland, Turkey
Un-important	Austria, Belgium-Flanders, Belgium-Wallonia, Bulgaria, Croatia, Czech Republic, Estonia, Hungary, Ireland, Latvia, Liechtenstein, Luxembourg, Malta, Portugal, Romania, Slovakia, Switzerland	Belgium-Wallonia, Croatia, Czech Republic, Hungary, Liechtenstein, Luxembourg, Malta

Source: CHEPS Consortium (2010).

Having found that performance plays a more prominent role, the question is: which performance criteria feature in the funding mechanisms? The following is a list that is found in practice:
- Criteria related to students' results (such as: the number of BA and MA degrees conferred, ECTS credits accumulated, students' success rates, number of students completing their studies within a stipulated time)
- Results from national evaluations of teaching quality (e.g. from peer reviews or accreditation exercises) that address the institution as a whole or that are conducted for different subject areas
- Results from periodic national research assessments that address the institution as a whole or that are conducted for the different subject areas
- Number of PhD degrees awarded.

- Number of academic research publications
- Number of quoted references/citations in academic journals
- Indicators related to the university's success in obtaining competitive research grants from research councils and other national/international bodies
- Indicators related to the number of contract research projects undertaken
- Indicators related to the commercial use of research results (licences, copyright, services, patenting activity, etc.)
- Awards, prizes and distinctions received by the institution.
- Outcomes of rankings
- Participation in international scientific research projects

Performance-based budgets can be based on actual or projected results. In other words, they can be backward-looking or forward-looking. An example of the first is funding according to a formula that is driven by the number of degrees or credits accumulated by students in the previous year. In a forward-looking system, grants may be allocated in either a negotiation-based or a competitive process, where the funding agency awards budgets according to the plans submitted by institutions. Another example of a forward-looking system is the allocation of research grants by a research council that selectively awards project funds to proposals submitted by research groups. However, these grants are project budgets and are not included in the mechanisms for determining recurrent funding discussed here.

A performance-oriented approach to budgeting that emphasises plans instead of past performance is the *performance contract*. Performance contracts between individual universities and their relevant funding authorities define institution-specific (or 'mission-based') objectives in line with national strategic priorities. They may be seen as a way of the government `buying' a particular performance from the university. These contracts may be agreed with individual institutions, but may also be signed with the university sector as a whole. They may be very broad and based on framework agreements. This will be the case if they are signed with a collective of universities (e.g. in The Netherlands, see: OCW, 2008). In this case, intentions are formulated. Contracts can also be more detailed (Leszczensky et al., 2004). In that case, agreed activities or performances are specified in detail. This may resemble a more traditional funding approach, where specific budget lines (items – such as staff costs, maintenance costs, capital costs) are negotiated with public authorities in a system of line item funding.

In practice, all countries use a mix of funding mechanisms (see Table 1) which reflects their historical and political development. In most countries, alongside a formula-based component to determine recurrent budgets, there are project funding mechanisms where budgets are awarded competitively as part of the total public funding. This is common in funding academic research, with research councils and national academies selecting proposals that best meet criteria in terms of quality, relevance and price. In Table 1 we observe a trend towards introducing contract-based funding. Unlike formula-based funding, contracts allow authorities to pay more attention to the differentiated missions of individual institutions. At the same time, they can be designed in a more forward-looking way. Where formula funding will resemble 'steering by looking in the rear view mirror', a system of contract

funding may allow for a more future-oriented type of funding. Box 2 presents some international examples of contract-based approaches (For details, see Kaiser & De Boer (2007) and Beerkens et al. (2010)).

Countries often implement contract funding as part of larger higher education reform efforts. The contracts are seen as instruments to inject more performance information into the budgeting process. In some countries (e.g. Denmark, Germany), they are a kind of presentational performance budgeting (see section 2), but in most, the contracts belong to the category of performance-informed budgeting. Contracts have a direct consequence for budgets in only a few cases (Hong Kong, Valencia).

Box 2. International examples of contract funding approaches

- Australia: Mission-based Compacts
- Austria: *Leistungsvereinbarungen* (performance agreements)
- Belgium-Flanders: multi-annual agreements
- Denmark: university development contracts
- Finland: performance contracts
- France: *contrat quadriennal*
- Germany-Nordrhein-Westfalen: *Zielvereinbarungen* (target agreements)
- Hong Kong: Performance and Role-related Funding Scheme (PRFS)
- Spain: à la carte contract funding (Valencia region)

11.4 PERFORMANCE-BASED BUDGETING IN DUTCH HIGHER EDUCATION

Amongst the countries that introduced performance-based budgeting (PBB) and performance contract budgets for their higher education system, the Dutch case is particularly interesting. In The Netherlands, PBB has been in place since the early 1990s. Performance contracts were introduced recently. A new, less performance-oriented formula funding system is to be implemented in 2011. The Dutch case illustrates that PBB was embraced enthusiastically by ministries and universities, but was gradually complemented with a system of contract-based funding. Whilst contracting allows for more differentiation between institutions/departments and gives budget holders more freedom to choose their strategy within (national/ institutional) budget guidelines, it also has disadvantages. Contracts may have high transaction costs and a tendency to turn into yet another accountability instrument.

The research universities in The Netherlands mainly receive their recurrent funding as a formula-based lump sum (block grant) for teaching and research which is primarily based on quantity measures (student numbers, diplomas) and prices (rates per student). The formula takes into account the relative performance of each university (as compared to the other universities). The budget allocated to a university consists of a *teaching* component and a *research* component, but this distinction is for calculation purposes only. On average, half the teaching budget is based on the number of degrees (BA, MA) awarded to students. In the research budget, some 40% are based on performance (BA, MA, PhD degrees, and the number of

accredited research schools for PhD training). The other budgets are based on input criteria and historical considerations (fixed amounts per university). Universities are free to internally allocate the lump sum budget they receive across their faculties and departments.

In a few years time, a new funding model for the teaching component will be introduced. It will depend less on diplomas and much more on the number of enrolled students. In order to keep the institutions focused on getting students to a degree, institutions will only receive funding for students who have not yet exceeded the normative time to obtain a degree (3 or 4 years for a bachelor, 1 or 2 for a master's degree). The model will award 80% of the teaching funds on the basis of the number of enrolled students and BA and MA diplomas. The amount per student will be the same as the amount per diploma. Compared to the existing PBB-inspired model, the performance element in the new model will be reduced from 50% to 20%.

In 2008, the total budget awarded as a lump sum to Dutch universities was raised. This increase was linked to a system of multi-annual agreements on performance and took the form of a contract. The agreements were made with the university sector as a whole for a three to six-year period, but initially for the period 2008–2011. The goals relate to the area of teaching and include increasing the quality of the initial year of the bachelor programme, reducing drop out and the time to degree, and the ambition of having 10% of the students participating in selective programmes that demand an above-average time investment from students. All this was laid down in target levels for a set of performance indicators to monitor universities every year (OCW, 2008). The approach is based on trust, since the universities are free to translate the agreements (and the extra money tied to it) into their organisation. The extra budget connected to this sector-wide contract is included in the lump sum. If universities fail to deliver, the lump sum (for all universities—not just the under-performing ones) will be reduced in 2011. If the goals are achieved, the augmented lump sum will remain.

Yet another attempt at contract funding may become a reality in the foreseeable future if the recommendations of the Committee on the Future Sustainability of the Dutch Higher Education System (the Veerman committee, named after its chair) are implemented (Veerman, 2010). One of committee's recommendations is:

> that the government challenge and encourage the institutions to tighten up their profile. The proportion of student-based funding must gradually decrease in favour of a growing share of mission-based funding. Relatively good per-formances that correspond to the mission chosen by the institution are to be rewarded. (Veerman et al., 2010, p. 39).

The Committee argues that mission funding should be developed in order to encourage higher education institutions to think about their mission and strategy. This will increase horizontal differentiation, e.g. profiling in the higher education sector. Such mission-based funding will result in a kind of contract that, while avoiding bureaucratic tendencies and intrusive government intervention, will require research universities to make 'crystal clear agreements with the government regarding their performances in improving the education they provide' (Veerman et al., p. 40).

The funding environment of Dutch universities and the changes taking place can be expected to have an impact on the choice and elaboration of their internal budgeting mechanism (Jongbloed & Van der Knoop, 1999). In the remainder of this section, we will take a closer look at how three Dutch universities have responded to the changes in their funding environment: Delft University of Technology (TUD), University of Twente (UT), and Maastricht University (UM). This sample consists of different types of universities (the first emphasising engineering, the second engineering and social sciences, and the third social sciences and medicine/life sciences).

In the Delft case, as from 1997, the budgets of academic departments have been heavily performance-based. This is also the case for the UT (Twente). Delft and Twente use the following performance indicators: degrees (BA, MA) and credits (ECTS) earned by students, PhD degrees, and first year student enrolments. Both have also put a premium on the volume of competitive research grants obtained by academic departments. What sets Delft and Twente apart is the highly differentiated set of premiums that Delft awards for research publications (books, articles) in outlets representing differentiated quality categories. In addition, Delft awards a premium for each patent awarded to a researcher. Both Delft and Twente reserve 10% of the teaching and research budgets of the academic departments for initiatives that are in line with each university's (and departments') strategic policy.

In Delft, the PBB-incentives led to a strong rise in the number of publications, with more attention given to high-quality outputs instead of high quantities of output. Therefore, the performance orientation did produce the desired effects, although the PBB model had to be fine-tuned over the years in order reach an internal allocation model that did not put some departments in an advantaged position. Twente experienced a steep increase in the volume of research grants. Research grants from third parties amount to about a quarter of its revenues. This also was an intended effect. However, in both universities the 'price of success' was a lowering in premiums paid on performances. This was done to keep the sum of the departmental budgets within the limits imposed by the available budget total that the university received from the Ministry allocation plus tuition fees. This meant that a department that saw its output increase in absolute terms may also have to face a decrease in its budget, because other departments increased their performance in relative terms even further. These effects have led to heated debates about PBB and new rounds of model revisions.

The TUD board decided to introduce discretionary (strategic) budget allocations to departments in order to further its strategy of creating 'focus and mass' in research. These allocations, plus a fixed allocation for each department, are based on long-term agreements – contracts – about inputs and will have to create greater budget stability. Still, two-thirds of the Delft research budget are based on performance, including a premium for every competitive project grant obtained from the Dutch Research Council or Academy of Sciences. This premium amounts to 10% of the project budget awarded. However, there are plans to abolish such premiums and integrate the resources into the contracts negotiated with departments.

185

As from the year 2010, Twente University abolished performance premiums on contract research. To replace premiums, a strategic, future-oriented approach was adopted, based on agreements between the university's board and the directors of the (six) university research institutes. The new approach avoids research institutes from focusing on the volume of research contracts only and encourages them to consider also the contents and quality of such contracts. This has the additional advantage of creating greater budget stability. Institute directors must sign contracts with the University's Executive Board. Each contract includes targets that the institute will try to achieve over a five-year period. Targets are translated into a number of key performance indicators (KPIs). The institutes suggest five to seven performance measures that are relevant for their research area. Indicators come along with ranges to distinguish an A (good), B (average), or C (poor) score. If the annual monitoring shows poor scores on multiple KPIs, the board can decide to reduce the budget – but will only do so in exceptional circumstances. The KPIs include indicators such as PhD degrees, refereed publications, citations, editorships, number of spin-off firms created, research evaluations, and the volume of competitive funds obtained.

The outcomes for the 2009–2014 contracts will feed into a next contract period and will be combined with a peer assessment of each institute. This approach implies that the UT will switch from PBB based on past performance to PBB and contracting based on future performance. Every institute presents its plans and has an equal chance of receiving a fair budget. Naturally, past performance will play a role in the evaluation of the institutional plans because this gives the Executive Board an indication of future performance.

At Maastricht University, the funding of teaching is similar to the national funding model in terms of drivers. Faculties do not receive financial rewards for generating external project revenues. Earning power is not rewarded ex post, but initiatives (i.e. proposals) to generate external money are funded ex ante. For instance, sending in European Research Council grant proposals is encouraged. Ex post rewards were discontinued because the differences between the faculties were felt to be too large, with the medical faculty dominating other faculties in obtaining external research council grants.

The UM Strategic Programme is translated into measurable indicators for each organisational unit. Indicators are part of agreements (contracts) made with deans. Internal performance agreements were developed into balanced scorecards (BSC) during the year 2007. The BSC, developed by Kaplan and Norton (1996), aims to translate strategy into action, using a set of performance indicators that cover all the organisation's missions and goals, rather than just financial indicators. This is particularly important in the not-for-profit sector (e.g. higher education), where financial indicators of performance are less relevant. The Maastricht BSC includes financial measures as well as measures of customer satisfaction, enhancement of internal processes, and human resources indicators. The box below presents an overview of the strategic goals of UM for the year 2010, together with some of the targets and indicators used to monitor progress. The UM's objectives are operation-alised in terms of measurable indicators that cover education, research, students,

research commercialisation, and university development, as well as the policies to attain these goals.

Box 3. Maastricht University: Strategic goals, indicators and targets

Goal	Example of indicator	Example of target
1. All degree programs in top-3 Netherlands and top 10 in Europe	Programs in top-3 of Elsevier ranking	
2. Student intake - Intake bachelors - Intake masters	Percentage of Germans/Belgians - Number of BA students - Number of MA students	3,110 2,830
3. A student body that fits the university/HRM policy for students	Proposals awarded to implement selection and matching experiments (SIRIUS program for excellence)	
4. Research of overall good quality and in European top- 5 in selected fields - Dissertations produced	Average research assessment score ≥ 4 (on a five point scale) Number of dissertations	205
5. Increase in indirect government funding and third party research funding - 100% increase indirect government funding - 60% increase in 3rd party funding	Volume of indirect project Funding Volume of 3rd party funding	€ 20 million € 36 million
6. A sound financial perspective	Percentage of overhead	
7. A HRM policy that fits the goals of the Strategic Program Rise in number of female professors	Percentage of foreign staff Share of female professors	20%
8. The university will tailor its management and organisation to fit the aims of the strategic program	Start of projects to improve organisation	

Based on: Maastricht University Annual Report 2008; Maastricht University Strategic Programme 2007–2010.

Transparency about targets and performance is the goal of the BSC and the agreements. It is not about introducing a complex model. The BSC is a means to start a debate about the achievement of the UM strategic plan. Over the years, the

BSC was developed further thanks to more management information becoming available. It should be stressed that there are no bonuses or sanctions connected to the agreements. The University uses performance agreements and the BSC not so much as a type of performance budgeting, but rather as a system of performance management (Bouckaert & Halligan, 2008).

11.5 CONCLUSIONS AND REFLECTIONS

This chapter discussed the state of the art and recent reforms in university funding in Europe. We distinguished four main types of funding used by public authorities in Europe (and elsewhere) to allocate public budgets to the country's higher education institutions. From this, we learned that there was greater performance-orientation in the budgeting approaches, as well as a tendency to augment formula-based funding with contract-based budgeting. This is part of a broader NPM-inspired reshaping of the relationships between authorities and budgeted organisations and is intended to give greater attention to efficiency, accountability for results, and differentiated institutional missions. The same trends are present in The Netherlands, where we observe initiatives in budgeting that aim at agreeing on future performances and laying this down in a contract at both the national and the university level.

Introducing contract-based funding has a number of advantages. The prime one is that it allows for greater differentiation between the individual institutions' (departments') missions. Concerns about mission convergence are frequently brought up in discussion about the results of performance-based budgeting – in particular if this is based on a single formula. Contracts (performance contracts, development contracts, *Zielvereinbarungen*, etc) would allow more room for diversity in missions and profiles. Contracting forces both the budgeting authority and the budgeted authority to make their strategic objectives more explicit. As such, it improves transparency in the public sector. In addition, contract-based budgeting offers greater local autonomy and budget stability. Unlike formula-based approaches ('steering on automatic pilot'), contracts are more forward-looking. They are trust-based (see below). However, experience (perhaps experiments) will have to prove statements such as the above.

At the same time, some disadvantages are mentioned in connection with contract-based budgeting, e.g. higher transaction costs (disputes about sanctions/rewards in the case of underperformance). This chapter has illustrated that a simple, formula-based approach to performance-based budgeting may seem rational, but its practical implementation can be problematic. In general, it is difficult to come to a contract budget or any other performance-informed (or performance-based) budget. This is due to a number of factors, such as:

− Outputs cannot always be identified, meaning that indicators that are selected fail to portray the performance adequately;
− Comparison of the outputs is often difficult, if not impossible, because it involves qualitative aspects;
− Activities are not homogeneous (the production technology resembles a black box);

– Costs cannot always be attributed properly to a product or a service, meaning that the relation between the achievement of an output and the activities undertaken is blurred;

– If contracts are to be more than general framework agreements, the performance data included can easily become too detailed, whilst the aggregation of indicators is not straightforward;

– The introduction of performance indicators runs the risk of rewarding a narrow range of behaviours (myopic/strategic behaviour) and can even lead to data manipulation.

Several authors point out the danger of losing the context when performance indicators are introduced in budgeting or – more generally – in management. Performance always needs to be judged in the context of an organisation's goals and its environment. This calls for including a more qualitative type of information into the processes. In the case of higher education, qualitative information will often have to be provided through peer review, student evaluations, audits, client satisfaction surveys, user committees, etc. This type of performance information may be integrated into contract-based approaches, since contracts can be more tailored to specific individual situations. The three cases of the universities of Delft, Twente and Maastricht illustrate this point, with each university trying to take the specific circumstances of departments into account in its planning and control cycle of strategic planning, budget preparations and monitoring of progress towards objectives.

The three cases also illustrate that the development and interpretation of performance indicators needs to be done in collaboration with the organisation (or unit) that is budgeted. Those working in the units have a sharp eye concerning the context in which they operate, know about peers working in the same field, and can therefore identify the measures against which they are to be held accountable. In a process of performance management, target agreements/contracts/covenants may play a role, since they provide opportunities to identify the relevant performance information. Contracts allow for a negotiation about targets in accordance with individual circumstances and strategic ambitions. At the national level, this may result in a mission-based budgeting approach, but the case of Denmark has shown that contracts do not necessarily have to be tied to budgets. At the university level, the case of Maastricht University has shown that information included in a balanced scorecard may be part of the input for the strategic debates between Executive Board and deans, but does not necessarily have to be tied to a department's budget.

The case studies also show that contracts can be used as helpful tools for the universities' strategic development and profiling, as well as for achieving important targets, such as speeding up graduation and specific enrolment targets. However, the case of Denmark also points to the risk of contracts becoming too detailed and process oriented and less effective as steering instruments. According to a recent evaluation of the Danish university sector (Danish University and Property Agency, 2009), the contracts in practice consist of a list of indicators on which universities provide data. They have become more like accountability tools where universities list their outcomes and not their intentions. This is problematic, since intentions are

as important as outcomes when it comes to building trust (De Boer, 2002). A lack of trust may cause agency and legitimacy problems and may lead to exorbitant micromanagement (De Boer, 2002, p. 58). Trust is what is needed to have access to meaningful, relevant and accurate performance information. This brings us back to the classic dilemma of finding the right balance between autonomy and accountability (Trow, 1996).

Despite the risks and transaction costs involved in shaping performance contracts, contract-based approaches seem a promising route to improve performance and strategic orientation in higher education. They have a greater likelihood of building trust between budget authority and budgeted organisation and can be integrated in the broader concept of strategic management in universities. They are less like a system of sanctions and rewards, as they focus on process and change management (Lapsley & Pettigrew, 1994).

Governance and funding approaches are in constant flux. Budget authorities are constantly looking for the most cost efficient, yet least intrusive type of approach. Funding authorities and university administrators increasingly realize that their traditional funding approaches have been backward-looking—resembling 'steering by looking into the rear view mirror'. Formula funding (backward-looking) will remain important, but we expect that it will increasingly be supplemented by contract (future-oriented) approaches. Time will tell whether this prediction will materialise.

NOTES

[1]   Dividing Belgium into two communities (Flanders, Walloon Community) gives a total of 34 university systems. For this chapter, we chose not to focus on the universities of applied sciences and only consider the research universities.

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