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Organizing higher education in a knowledge society

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Abstract. The integration of higher education systems in the Western world has led both to development of overall strategies for the organization of higher education institutions by public authorities, as well as to strategies by higher education institutions aiming to position themselves within emerging higher education systems. This article first asks whether these developments represent converging or path dependent trends before it sketches a conceptual point of departure for the analysis of the relationship between institutions in higher education systems based on the effects of integration on academic hierarchies and functional specialization. Then I discuss how recent attempts at integrating higher education systems in Europe and the US may affect the relationship between institutions in the light of conceptions of education as a process by which students learn to learn or by which they learn specific occupational skills. Thirdly, the development is situated in a wider context where the relationship between different types of institutions are considered in relation to the spread of an extended and more utility oriented concept of knowledge. Finally, I consider briefly some possible future developments based on how modern capitalist and public managerialist knowledge regimes constitute conditions for higher education integration.

Introduction[1]

As higher education systems in much of the Western world have become steadily more integrated questions relating to their organization have been brought into focus. Changing beliefs within national governments and among university leaders about how such systems ought to be organized have been an important driving force of change. One aspect of this development has been formed by the ideal of universities as market or quasi-market organizations striving to become entrepreneurial in their approach to teaching and research (Clark 1998; Etzkowitz and Leydesdorff 1997; Martin and Etzkowitz 2000; Slaughter and Leslie 1997). Another aspect is the development of national and international knowledge regimes that increasingly lay down the conditions under which universities operate (Bleiklie and Byrkjeflot 2002; Dill and Sporn 1995; Kogan et al. 2001; Levine 2000; Nowotny et al. 2001).

The development whereby higher education institutions become part of formally defined higher education systems, is one among a number of change processes that have occurred in the last few decades of the last century and still goes on. Hence we may regard this as a period in which higher education systems emerge. This article primarily deals with the development of national systems. It is based on the assumption that this process of integration will increasingly be felt as a forceful influence on higher education. Whilst the process is primarily driven by actors at the national level such as political authorities or other institution owners and funders, they are affected by national as well as supranational organizations like OECD, Unesco, WTO, and international developments. The process has a global reach, along with the introduction of an American style degree system and attempts at creating stronger leadership structures and systems for institutional evaluation and accreditation in order to turn the institutions into dynamic, entrepreneurial high quality enterprises. The integration of higher education systems therefore raises at least two important questions. First, how should the relationship between the institutions be organized? Secondly, what are the proper procedures by which the integration ought to take place? This article seeks to analyze how higher education systems have responded to these questions.

The relationship between higher education institutions – be it universities, specialized vocational schools or liberal arts colleges – may be understood in terms of different concepts of social order. One concept is *the hierarchy* in which institutions are assumed to occupy different positions in a rank order. The position of a given institution in the hierarchy is determined by its score on a specific set of characteristics by which all institutions are evaluated. Thus a formal hierarchy presupposes some kind of standardization or rationalization in the Weberian sense that a set of common, recognized criteria are established and formalized (Weber 1978). One way in which the hierarchy might be organized is according to the level of the degrees that the institutions give. In such a system institutions that offer doctoral degrees may make the top, whilst institutions that offer shorter bachelor level education form the bottom of the hierarchy. Another concept is the *organism*, understood as a functional order. Within the organic totality, institutions have different tasks or functions that cannot be measured against a common denominator: on the contrary, each function is unique and must be fulfilled in order for the whole to function adequately. Such tasks or functions may for instance be the education of people for

specific occupations (engineers, doctors, nurses, teachers, etc.) that society needs.

The two concepts may thus give us some conception of the social order to which the institutions belong. Even if the two principles are different, they are not mutually exclusive. In real higher education systems, hierarchy and specialization are combined in some way or another, and actual orders may therefore be more or less hierarchical and more or less specialized.

In the literature on higher education two views are pitted against one another with regard to the development of higher education systems. One view emphasizes a number of international trends that have been observed over the last few decades and assumes that higher education systems will converge. International developments such as increased cross-national student mobility, the commodification of teaching and research or the European 'Bolgona process',[2] will push higher education systems to become more uniform, less autonomous and more eager to please actual funders be they public authorities, private businesses or students. One should in other words expect them to acquire a number of common characteristics that neither of them had before (Gibbons et al. 1994). Against *the convergence thesis* it has been argued that shared ideologies and notions about how higher education institutions should be organized is not enough. New ideas have been spread, interpreted, developed and implemented in highly institutionalized environments in which norms, traditions and a range of peculiarities of single institutions and national systems produce *path dependencies* that sustain cross national variation by shaping the way in which national responses to international trends have been devised (Bleiklie 2001; Kogan et al. 2000; Musselin 1999). Furthermore within national systems one frequently finds contradictory policies – for instance attempts to develop and sustain both elite and mass education – that tend to make them potentially unstable. In other words, both assumptions about convergence and path dependency may seem insufficient to predict the actual future developments within higher education systems. How they develop depends on how these contradictions are balanced. Such processes may be easier to understand if we take into account the *knowledge regimes* and changes within such regimes that are likely to shape future developments.

Ulrich Teichler (1988) gave a now classic analysis of the trends in the organization of higher education systems during three decades of rapid expansion followed by a relative standstill during the 1950s–1970s. His analysis focused on how higher education systems evolved under conditions of rapid growth, diversification and finally stagnation. This

article deals with the development from the late 1980s until the early 2000s and its main focus is on processes of national systemic integration, internationalization and changes in the relationship between higher education, state and society. I shall first sketch a conceptual point of departure for the analysis of the relationship between institutions within higher education systems so that we can more easily understand the strategies that are used by institutions and public authorities in order to affect the relationship in the desired way. Then I shall discuss how recent attempts at integrating higher education systems may affect the relationship between the institutions along two dimensions: (a) according to the degree of standardization and hierarchization, and (b) according to the degree of specialization and functional division of labor. Third, I shall situate the development in a wider context of knowledge, where the relationship between different types of institutions are considered in relation to global trends in higher education: the extension of the concept of knowledge, the development of mass education and the universal proliferation of research-based knowledge.[3] Finally, I shall discuss the developments observed in the previous parts in the light of the concept of knowledge regimes and how such regimes constitute conditions for higher education integration.

The position of institutions in higher education systems

It is commonplace to assume that the integration of higher education systems has had very specific consequences for the position of institutions in relation to one another and in relation to the state. One important set of consequences turn on the question of institutional *autonomy,* which in this context turns on the extent to which the institutions themselves are free to make choices and formulate strategies that shape the relationship. One standard assumption goes more or less like this. Before the integration process started institutions were relatively autonomous in relation to one another and in relation to political authorities in public systems (cf. Figure 1). During the integration process a hierarchical order has started to emerge. The reason for this development is that organizational integration implies standardization, as a common set of formal rules for determining positions in a rank order in a Weberian sense, and the establishment of uniform principles for how the relationship between the institutions should be organized by means of such devices as common degree and career structures. The assumption easily follows that the hierarchical order will eventually completely replace the organic order.

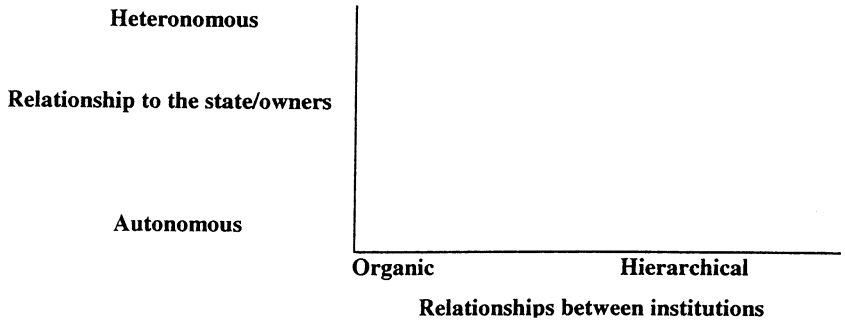

Figure 1. Institutional positions in higher education systems.

The integration process seems to imply furthermore, that public authorities through legislation and other measures increasingly interfere in order to achieve an integration by which very diverse institutions are required to adapt to and be rank ordered in a hierarchy of prestige with other institutions that they initially consider quite different from themselves.

There are two important political-economic concerns that may push such a development. The first concern is that the level of education in the population affects the competitiveness of a nation. Prevailing beliefs seem to indicate that in order to elevate the level of education one must raise academic standards as they are laid down by the most prestigious research universities. The logical implication of this line of reasoning is that the higher the ratio of doctoral degrees in a population, the better. The second concern is that higher education systems need to be flexible in order to be efficient. In addition to offering the possibility of specialization in specific disciplines, students should have the opportunity to combine a wide array of subjects from different disciplines within – whether they do this within one institution or by moving from one institution to another – as the economic situation and employment situation changes. This will make the institutions more efficient, and the candidates they produce better adjusted to the needs of the labor market. In order to do this there must be a common degree structure and a common system of student evaluation and grading across all types of education.

Until quite recently, however, there were clear distinctions both between categories of institutions such as research universities, liberal colleges and vocational colleges and between types of institutions within the same categories, such as e.g. teacher, engineering and nursing colleges. The degree systems were incompatible and credits not

transferable. In order to address these concerns one has to develop common formal standards.

These observations may form the basis for the following general assumption: national higher education systems in the Western world have moved away from a system in which categories of institutions were differentiated only according to specialization, such as teachers' colleges, engineering colleges, nursing colleges, liberal colleges and research universities. Such systems were not integrated in political-administrative terms, but operated separately within an 'organic whole' consisting of mutually independent, specialized institutions with considerable freedom to develop their own specific profiles. In recent years higher education systems have become more integrated with common standards (such as degree and grading systems) by which categories of institutions are ordered hierarchically, from 2-year colleges via bachelor degree institutions to graduate degree institutions (universities). Thus *a hierarchic system* is established – a standardized rank order against which all institutions are measured and positioned according to one single or a very limited set of criteria.

There are ample reasons to believe that the real picture is somewhat more complicated than the above assumption indicates (Etzkowitz and Leydesdorff 1997; Kogan et al. 2000; Musselin 1999). First, institutions within today's integrated higher education systems constitute a complex set, in which different categories of institutions have had varying relationships with public authorities and demonstrate considerable variation with respect to their degree of autonomy.[4] This might for instance imply that to the extent that common norms of institutional autonomy are established within a unified system, some institutions may lose whilst others may gain autonomy compared to what they previously enjoyed. Yet another possibility is that the formal integration does not succeed in creating uniform practices. Consequently binary systems like the ones that prevailed in countries like England, Germany, Finland and Norway in the 1970s and 1980s may still be de facto operating, and former research universities may continue to enjoy more autonomy than vocational and liberal arts colleges even in those cases where the latter have formally become elevated to university status. Second, institutions may try to adapt to the integration process by means of different strategies. While some institutions may accept the conditions laid down by the formal hierarchy, others may seek to maintain their autonomy, cultivate their specialties and gain acceptance as representatives of some kind of specialized knowledge. Third, national systems vary considerable with regard to their degree of hierarchisation both across categories

of institutions and within categories. Teichler (1988, pp. 51–75) provides examples of how countries like Australia, Britain, France, Japan and the Netherlands during the 1970s and early 1980s developed quite different structural arrangements for organizing the relationship between categories of institutions within their higher education systems. Whilst the American, English and Japanese systems have been hierarchical in the sense that within the same category of institutions (e.g. research universities) there are clear differences in prestige, perceived quality and selectiveness, the German and Scandinavian systems have been considered examples of non-hierarchic arrangements in which all universities (or institutions within any given category) are considered roughly equal in terms of prestige and quality. Fourth, knowledge has gained importance in society, amongst other things because of the emergence of mass education and steadily more extensive use of research in private business as well as public administration. This contributes to rendering the interrelations between society and educational institutions more diverse and complicated. The criteria of valuation become more complex, making it difficult to classify institutions in relation to one another in terms of simple, unambiguous functional or hierarchical principles (Bleiklie and Byrkjeflot 2002; Nowotny et al. 2001).

The argument that I put forward here is that even if higher education institutions are brought under one formally unitary and hierarchical system, the two types of order will continue to co-exist – they will be supported and sustained by diverse forces that partly pull in the same direction and partly in opposite directions (Clark 1983). Furthermore, as I shall return to later, the constellations of these forces are likely to vary across systems so that processes facing hierarchical systems such as the US or English systems, may differ from those which may face egalitarian systems like the German or Scandinavian ones.

How such forces will unfold depends again on the motives that drive the actors operating within the system, what limitations they face, what possibilities and resources they have at their disposal while pursuing their goals, and not the least what the established norms, values and traditions are that shape their motivations and goals. Before moving on I shall engage in a small theoretical exercise by discussing how institution may develop strategies under a set of conditions specified below (cf. Figure 2).

Institutions may conceive the order in which they find themselves as a *norm* that they have to satisfy continuously so that each institution is expected to develop its function and find its place within the system. This may be done in different ways depending on the type of order in

	Relationship between institutions	
Motive for action	**Organic**	**Hierarchic**
Goal	1 Develop specialty	2 Compete
Norm	3 Define function	4 Determine rank

Figure 2. Institutional strategies in higher education systems.

which the strategy is developed. Within the organic order their position is defined by the tasks, function, specialty or niche they occupy within the higher education system. Within the hierarchic order their position is defined by rank, by the score an institution obtains, compared to other institutions. Norm oriented action strategies as they are defined here, imply that the actors will defend what they perceive as established positions and rights.

Alternatively the actors may perceive the order in which they find themselves as an arena where various *goals* may be pursued, and where each institution is jockeying for a position that matches their aspirations as closely as possible. Again, different strategies are likely to develop within different orders. Within the organic order institutional aspirations are likely to focus on developing particular strengths such as a specialty or niche that is likely to secure an uncontested position within the system. Within the hierarchical order institutional aspirations are likely to turn on how to compete in order to improve their position in the rank order with the ultimate goal of ascending to the top of the hierarchy and become the best. Goal-oriented strategies imply that the actors actively strive to develop their specialties or to compete in ways that make it possible to fill the function or occupy the position they desire within the institutional hierarchy. Whereas the first goal of specialization indicates a push in the direction of a more differentiated higher education system, the latter competitive goal indicates a more unitary and standardized system in the sense that competition for academic recognition and esteem presupposes a formal establishment of criteria in order to measure how well competitors do in relation to one another.[5]

Below I shall assume that the actors (universities and colleges) will take some conditions of action for granted and try to affect (amend, bend or eliminate) others. When major reform proposals about higher education system integration are launched, they may be perceived as harbingers of threats against the established order. The threat may come from two sides. One kind of threat means that established organiza-

tional forms and administrative arrangements are shaken and thus affect institutional as well as individual autonomy relative to administrative power and superior state influence. The second kind means that where institutions previously might find their place within an order by cultivating their peculiar character, they are now all in principle given their position by political authorities. Some institutions are likely to try to defend or resurrect the order as it was because they want to hold on to their tasks and positions in order to protect cherished privileges and values. Others may see a possibility to redefine their tasks and opt for new positions if they find that the reforms will make it easier for them to gain access to privileges or prestige or to realize specific values that are important to them.

Essence of education – learning method or occupational knowledge?

As already indicated, higher education integration tends to come with conflicting principles for institutional order, as recent developments have demonstrated in a number of countries (Bleiklie and Byrkjeflot 2002; Kogan et al. 2000). There are forces that clearly push for standardization and hierarchization. Yet, institutions are different in a number of important respects because they educate students for different occupations, are rooted in different traditions of education and occupational training and have ties with different parts of the labor market with their corresponding occupational or professional groups. These factors limit the extent to which it is possible to move unequivocally towards a hierarchical system because many institutions may feel compelled to cultivate their peculiar form of occupational training whether they want to or not. Furthermore, these institutions are likely to prefer cultivating particular skills in the future as well, and this ambition is likely to remain alongside the goal of making the highest possible score in the overall competition for resources and prestige among institutions.

The two kinds of order do not only express an abstract organizational principle that can be implemented without problems through political reforms, but represent a more comprehensive and complex set of social relations. I am not going to give a detailed description of such relations here, but would like to point out some characteristics that may be useful for further analysis. The point of departure is the following proposition: the individual peculiarities of higher education institutions are to a large extent determined by their relations with the labor market.

Education may mean that students are taught a specific occupational skill, where the content of their education by and large is determined by what is considered the knowledge vital for the conduct of the occupation. This is the kind of education that characterizes many vocational colleges e.g. in nursing or engineering. However, education may also have as its purpose to teach students a specific academic discipline that is considered to provide no other direct occupational knowledge than teaching and research within the discipline itself. When we talk about the value of this kind of education on the labor market beyond the specific research and teaching qualifications it may provide, we often think of more general abilities that may be useful in a range of different occupations. I am referring to such qualities as the ability to work independently, to plan and to collect, analyze and present large quantities of information about complex subject matters. These are abilities that tend to be cultivated by academic disciplines at the so-called free university faculties.

An education system that consists exclusively of vocational institutions – each one with its particular criteria of valuation of qualifications related to the ability to exercise a specific profession – has cultivated a purely organic, specialized model. An educational system that is made up by integrated disciplinary courses within a unitary system of degrees, exams and qualification criteria in which students may compose individual educational tracks, based on courses in different disciplines, has cultivated a purely hierarchical model.

However, the educational ideals that characterize and shape higher education systems and specific educations within them, are dynamic, as are the requirements of the labor market. The degree of vocational specialization as opposed to liberal generalist orientation may vary along a number of dimensions.

(a) Variation across disciplines or subject areas may be illustrated by the difference between degree studies in arts and sciences or liberal undergraduate college education on the one hand as opposed to professional degree studies in medicine, law and engineering or vocational college education on the other. The aim of the former is to educate students in disciplines that may be combined with other subjects in a degree study that constitute a complete education through which students acquire general skills which may qualify them for a number of different occupations. The aim of the latter is not just to educate students for specific occupations – the education is also the way in which new recruits qualify for membership in and

are introduced to a community of practitioners. Members of the occupation or the professional association may also take an interest in and try to influence educational programs and capacity in order to improve the quality and regulate supply and protect the market position of the profession.

(b) Variation over time takes place as the notions about the functions of higher education evolve. During the 1980s, in a period characterized by dwindling or stagnating student numbers and budgets, there was a drive in many countries in the Western world to make higher education more vocationally oriented. The argument won acceptance that society needed more manpower skilled specifically for clearly defined occupational roles, rather then generalists. This justified an expansion of short cycle vocationally oriented studies, particularly in business administration (Berg 1992; Gellert and Rau 1992; Lamoure and Lamoure Rontopoulou 1992; Neave 1992; Pratt 1992; Vabø 1994). In the late 1988s and early 1990s, this argument was turned around by educational reformers, arguing that what society needed was as highly qualified a work force as possible. In a highly competitive, mobile and knowledge driven economy, a flexible, highly qualified, independent and entrepreneurial work force is called for. The best way to achieve such a goal was to produce as many candidates as possible at the highest possible level of qualification. This argument justified renewed emphasis on graduate education, particularly at the doctoral level (Bleiklie et al. 2000).

(c) Variation across countries demonstrates that there are distinct educational traditions in which countries differ as to the importance and prestige that is accorded to vocational specialization versus generalist qualifications. The education system as well as occupational life may reflect this in various ways. Leadership selection is one case in point. Whereas German leaders of industry traditionally have been technical experts (engineers), English leaders have tended to have liberal arts education, preferably from top Universities like Oxford or Cambridge.

This also illustrates that the degrees of 'specialization' and 'generalization' are not given the inherent characteristics of an education or an occupation, but reflects how they are socially constructed. By social construction in this case I mean what aspects of an occupational role is emphasized in different education systems and how the links between the education system, various occupational roles and the labor market are established in different societies. Furthermore educational systems

may organize their educational programs and degree systems in highly different manners. Teichler (1988) demonstrated that there may be a wide variety of ways in which short cycle and graduate studies, as well as the relations between institutions by which they are provided, may be organized. He analyzed a number of such organizational forms that he considered approximations of a 'diversified model' of higher education. By 'diversified' he roughly meant a system: (1) that is made up by a multitude of educational environments catering to a wide range of educational needs from the classic highly academic to more immediate vocational needs; (2) that has a relatively steep hierarchy of institutions or course programs according to academic 'quality'; (3) that has an elite sector within the hierarchy in which education is closely linked to research and shaped by academic disciplines; (4) in which institutions and course programs are diversified not merely 'vertically' according to rank, but also differ substantially 'horizontally' as to their 'character', goals, content of courses and typical competencies fostered; (5) in which the overall setting of institutions and course programs is dynamic in providing permeability for the students, in blurred boundaries between sectors and in relatively frequent changes of ranks between institutions and units over a period of time (Teichler 1988, p. 55f). He distinguished between systems according to how they deviate from the standard diversified model: (a) A hierarchical system with one or two institutions considered the leading ones and a limited variety of institutional types (Japan), (b) a binary system with a clear distinction, but also permeability between autonomous universities on the one hand and predominantly locally controlled public polytechnics and other colleges on the other (Britain), (c) a supplemented binary structure in which universities and colleges of advanced education were supplemented by a third sector, institutions for technical and further education (Australia), (d) a heterogenous system in which clearly segmented functional divisions exists such as an elite-training sector (Grandes Ecoles), a vocationally oriented sector, the socializing sector and the academic sector (France), and (e) a system of clearly distinct institutional types, the university and non-university sectors with little permeability (Netherlands).

Institutional integration whereby higher education institutions in a number of countries in recent years have been brought under common public, legislative and budgetary systems, has contributed to pushing higher education systems in the direction of more hierarchical structures. This means that formal criteria have been developed and introduced in order to formalize a rank order between categories of

institutions. An early American example of this is the "California Master Plan" from 1960, which regulates the specialization and function of the institutions within the California system: the research universities (University of California institutions), universities emphasizing applied research and teaching (State universities) and liberal or vocational short cycle undergraduate level teaching institutions (Community colleges) (Kerr 1995; Rothblatt 1992). The hierarchy is organized according to what degrees an institution is entitled to give (doctoral, master level, bachelor level), the research component and the selectiveness of student admission, from the highly selective top research universities to non-selective community colleges (Altbach et al. 2001). Several European countries (England, Germany, and Norway) introduced binary divisions in the 1960s, whereby university level education and vocational and short cycle college education were organized separately. However, the divisions tended to break down over time, both in the sense that short cycle courses could be integrated parts of university degrees and because institutions in the college sector have tried to expand their teaching programs by introducing university level degrees together with a research component. More recent attempts at formal integration – e.g. by the 29 countries that have signed the 'Bologna declaration' – have aimed at standardizing the degree structure across institutions, opening the system to competition and cross-national mobility.

Many of the objections that may be raised in connection with integration of higher education systems may be understood as reactions from disciplinary and professional groups that feel pressured by authorities in their attempts to exercise political-administrative control. Another set of objections may be caused by the assumed or experienced negative effects of institutional mergers of previously separate universities, liberal and/or vocational colleges that bring together radically different educational models. Such mergers have happened in one form or another in countries like Denmark, Norway, South Africa and Sweden. In Norway a number of vocational institutions operating according to a specialized model experienced mergers under an academic hierarchical model as threatening. For instance traditional teacher colleges, emphasizing practical pedagogics, were not too happy at the prospect of being judged by their contributions to academic research (Halvorsen and Michelsen 2002). A number of practically oriented institutions may thus feel threatened by being integrated in a system where they are going to find their place in a hierarchically organized setting according to criteria that are alien to them. To the extent that an institution includes vocationally oriented programs providing skills in

demand from specific businesses or client groups, the introduction of evaluation criteria that focus on research are more likely to face resistance. Furthermore, it is not difficult to imagine that important interests in society are likely to be more interested in the ability of candidates to meet the practical requirements of a profession than in their academic excellence.[6] One example may be the preference that employers may have for engineers educated at vocational colleges rather than university educated civil engineers: whereas the former may be perceived as cheaper, more practically oriented and better at adapting to the needs of the employer, civil engineers may be perceived as more expensive, theoretically oriented and more 'difficult' to adapt. Similarly the replacement that took place in Norway of university educated teachers by college educated teachers in secondary schools in the 1970s was based on the assumption that pupils needed teachers with less disciplinary knowledge and more pedagogical skills. On the other hand an institution dominated by a hierarchical disciplinary model will easily feel threatened at the prospect of being merged with institutions that are likely to challenge the hierarchical model. This may be illustrated by negative reactions from Norwegian research universities against the idea that was floated in the early 1990s of putting an equal emphasis on pedagogical and research qualifications throughout the entire higher education system when making faculty hiring decisions.

However, integration into a higher education system where all institutions may compete for the same resources based on a common set of criteria may also be seen as a set of new opportunities. Vocational and other shorter cycle institutions may attract new groups of students when it becomes easy to integrate college education with graduate education at a university.

We may assume that the way in which institutions react to integration depends on the extent to which they see their interests better served by a new more integrated system than by the system of yore. This does not necessarily mean that institutions merely look to making a better deal in terms of resources and prestige. Traditions and identity may be equally important for educational institutions when they form their opinion about integration. The main point here is that motives aside, I assume that the actors are goal-oriented and that their attitude toward integration is determined by what they believe serves their interests and is compatible with their values. Tensions between theoretical qualifications that serve as criteria for establishing an academic rank order and the demand for practical skills is something that one may find in many educational settings, from high level academic and professional

programs to more practically oriented vocational training. Such tensions mean that it is not easy to predict how institutions will respond to reforms aiming at institutional integration.

Although it may be difficult to predict the exact course of future developments, one may be quite confident that the tension between hierarchical and organic principles will live on. The tension is not just found between traditional research universities and vocationally oriented institutions. We find the same tension within research universities as well, clearly expressed for instance during the previously mentioned attempts at 'vocationalization' of university education during the 1980s. However, there are important differences between traditional research universities and colleges, as well as between different types of colleges as to how such tensions are expressed and dealt with.

In relation to the formally fragmented systems that existed previously, the current institutional integration means two things. The introduction of unitary degree and qualification structures clearly imply standardization and hierarchization based on standards determined by the universities. This in turn means that it is the academic ideals with their theoretical and methodological requirements that form the basis of valuation and positions within the system. However, the hierarchy is open to mobility on several levels. In Europe student mobility has been strengthened by such things as the introduction of a standardized system for credits (ECTS), thus facilitating (in principle at least) student mobility at the European level as well as nationally. Modularization implies a break with traditional rather idiosyncratic study programs that have been common in a number of countries by breaking the programs down into what is intended to be formally comparable units in a way that greatly facilitates student mobility across institutional and national borders. These developments have opened up some attractive opportunities for non-university institutions that are based on subjects in the arts and sciences or in vocational studies with ambitions to become academic professional studies (e.g. nursing). To the extent that these institutions evaluate themselves in terms of the academic criteria laid down by the universities, modularization and standardization open up the possibility of upgrading their course programs to university standards. For other more vocationally oriented institutions these standards represent a problem. Colleges that are teaching practical skills necessary to professions like teaching, nursing or engineering, may experience the theory-based performance criteria of the university as a threat against the essential character of their education and profession (cf. note 6). The ambiguities and conflicts within and across different

institutions are not just an outcome of the differences between vocational subjects and academic disciplines. They may also be understood in terms of the development of the concept of knowledge and the way in which knowledge is developed and appraised in modern societies. As I shall argue below the different concepts of knowledge discussed above is of direct relevance to hierarchy and specialization as organizing principles in higher education systems.

The significance of an extended concept of knowledge

The distinction between Mode 1 and Mode 2 knowledge production formulated by Gibbons et al. (1994) is one of the most sweeping and widely known statements about a new extended concept of knowledge. One way in which to understand this distinction is to start with the tension within the concept of knowledge itself. Broadly speaking, there is one category of definitions that focuses on knowledge as some kind of *outcome*.[7] What is called 'practical knowledge' or generally 'utility oriented' knowledge belongs to this category. As a contrast there is a definition that focuses on knowledge as *procedure*.[8] This defining characteristic is shared by definitions that focus on knowledge as a process either widely defined as a set of cultural activities or as a specific procedure like in traditional definitions of scientific method. A number of frequently used pairs of concepts in the literature reflect this shared underlying distinction between *knowledge as outcome* and *knowledge as procedure*.[9]

The extended concept of knowledge means that we are facing a new ideological climate that moves the emphasis in knowledge production from procedure to outcome. Although the emphasis may be new, the concepts of knowledge involved have been around for a long time. It is no novelty that result-oriented knowledge exists in academia (cf. law, medicine, engineering, applied science, etc.), but its role and status have changed.

The change is visible in a number of ways. The process of justifying academia has changed, and new forms of organizing and funding research have emerged. Visible signs of this are the emergence of research parks, increased emphasis on externally funded research and the proliferation of thematic cross-disciplinary research centers.

In the follow-up to Gibbons et al. (1994) the authors emphasize diversity, and give a more contextual and 'thick' description of the topic (Nowotny et al. 2001). The analysis brings forth the complexity of the

issue of knowledge and changes in knowledge production. Thus they argue that the movement from Mode 1 to Mode 2 knowledge production is neither a deterministic nor a uniform process. One of their main contentions is that 'science' or 'research' is becoming more 'contextualized', whereas science traditionally has been regarded as an inner directed, intellectually self-propelled enterprise that has 'spoken' to society, it now increasingly finds itself integrated into society, embedded in a context that increasingly 'speaks back' to science. The process whereby this happens is extremely complex, as are its implications. However, one way in which we may illustrate what is implied in terms of research is the presumed movement away from a basic and disciplinary research mode in which the researcher defines the research problem, directs the research process and communicates findings to the public through scientific publication. The movement goes in the direction of an applied trans-disciplinary mode in which the research problem may be defined by wider teams of people and where the customer or end-user takes part in the definition of the research problem, monitors and takes part in the research process and may influence when and how the results are communicated.

This process is easier to understand if it is seen in the context of the transition of higher education from an elite to a mass system in North America, Europe and elsewhere. The transition meant that a system that for centuries catered to a very small fraction of the population, in a matter of four decades grew from serving a few percent, to encompassing about one half of each new generation. Research has experienced a similar growth, which means that employers – private companies, organizations and public enterprises – increasingly need research in order to do their job properly. They express this need in various ways. Partly they start to buy or produce their own research. Partly they need research trained employees in order to apply research-based products. But as higher education institutions become more influential because research and scientific values become more widespread in society, they also become exposed to a stronger and more diverse influence from their surroundings – a steadily more informed and better educated public. Thus there is a two-way development of steadily stronger inter-relationships and mutual influences. The development also affects our notions about what research and academic activity is all about. Although this may expose universities to a pressure to be more useful, this utilitarian pressure is not uniform because the needs of those who express them are more varied than ever.

Among the factors that add to the development is the integration of higher education systems and with it the inclusion of a wide array of previously distinct vocational schools into the higher education system. This brings in new constituencies with their often idiosyncratic ideas about knowledge into the higher education system, and contribute to the dilution of traditional scientific conceptions of knowledge. Put differently: as society becomes more 'knowledgeable', higher education comes under pressure to expand the kinds and types of knowledge it provides and to diversify the criteria by which it is judged. This takes place through a series of interrelationships between universities and society. First through education, since higher participation rates mean that increasing ratios of the population gain experience from research and academic culture. This is likely to strengthen ties between higher education and society. Increased use of research, furthermore, may have a number of effects or fill a number of functions. One function is to turn scientific knowledge, ''truth oriented knowledge'' into practical ''utility oriented'' knowledge about what works. The belief in the possibility of establishing unbroken links between scientific research, technology development, product development and profitable economic enterprise has received much attention and investment. It has resulted in the establishment of research parks and similar organizational structures in order to bring university research and industry together. But other kinds of knowledge production are also important in this context: in social sciences and humanities, the applied function of research is in many cases to enlighten or improve the conceptual understanding or empirical underpinning of an issue, e.g. evaluation of a re-organization of public hospitals, rather than provide applicable research findings. In such a case ''truth oriented'' knowledge has an immediate practical value for the user. None of these forms of knowledge are new. The reason for emphasizing the differences between them is that the forms of knowledge that might be called for by end users may be of different kinds. Consequently the conceptions of 'useful' and 'relevant' knowledge may vary, as may the implications of an increased emphasis on utility.

It is quite common to regard massification as an international process that affected educational systems and societies, at least in Europe, North America and Australasia, in a uniform way with respect to a number of general characteristics (Ramirez unpublished). Increased participation rates made higher education and research important to steadily increasing population groups, but at the same time less exclusive and less associated with elevated social status. Consequently the number of higher education faculty grew, and university professors in

particular have felt considerably less exclusive than before, as they have experienced a declining income in relative terms and a loss of power and influence inside academia in absolute terms. However, the exact implications of massification have varied across countries depending on what institutional and organizational patterns were developed in order to deal with higher education expansion (Teichler 1988).

The changing social function of the universities, it has been argued, is sometimes confused with their scientific function (Kogan et al. 2000; Nowotny et al. 2001). Whereas there is little evidence to support the notion of deteriorating academic quality in students and faculty, it is obvious that both students and faculty enjoy less social elite status than they used to. Counter strategies aiming at preserving an elitist element within the higher education system by creating binary or stratified systems in a number of European countries have failed. The idea that one can establish and preserve an effective formal division between institutions that are focused on pure research and institutions that are more utility oriented in their approach to knowledge production, in order to protect the former against ''external influence'', has so far been unsuccessful. Whilst non-university institutions have tried to become research institutions, research universities have never given up more utility-oriented, applied research and vocationally-oriented education programs. To the contrary, university–industry ties, particularly for major US research universities, have become increasingly important (Powell and Owen-Smith 1998; Ramirez unpublished; Slaughter and Leslie 1997; Turk-Bicakci and Brint 2004). Once established, formal divides between types of higher education institutions have tended to break down. The reason for the failure therefore is that the attempts at isolating the 'scientific' core have been based on premises (the aim of preserving elite status) that underestimated the forces – of 'academic' as well as 'applied drift' – within higher education itself.[10] Put differently: as the 'scientific core' expands, it becomes 'diluted' and infused with 'social', more utilitarian demands and needs. This being said, it is important to keep in mind that the tendencies described above do not mean that higher education systems necessarily are converging. Although they are faced with very similar challenges caused by growth and processes related to growth, we know from comparative studies of reforms and change in higher education that the way in which such problems are handled may differ considerably and often in ways that preserve rather then reduce nationally distinct characteristics (Kogan et al. 2000; Musselin 1999). If we look at the situation in the USA it is somewhat different. Overall, the patterns of specialization as well as the

hierarchy seem to be more settled and stable. Among the reasons for this may be the facts that the US system expanded earlier under different economic and social conditions before higher education became 'a mature industry' (Levine 2001), that categories of institutions and the relationships between them have evolved over time and not as part of a master plan (excepting some systems at state level as mentioned previously), and that the US higher education system today is regarded as a model for others to emulate rather than a system that needs to learn from others. Finally, one may ask whether the size and diversity of the US higher education system makes it uniquely capable of absorbing growth and change while keeping its basic structural features.

From the point of view of political authorities and institutional leaders growth in higher education has changed the conditions of control and management radically. The size of higher education budgets has gone from an insignificant fraction to a considerable percentage of public budgets. This has made higher education much more visible and for that reason more politically salient. Furthermore, what higher education institutions do today directly affects many voters, as students, consumers of research or as employees. This creates a powerful political motive for controlling costs and performance. Growth has also affected the conditions of managerial control and academic autonomy. Whereas a small institutionally and socially homogenous system lends itself to informal mechanisms of management and control, the sharp growth and emergence of an institutionally and socially far more heterogeneous and functionally more complex system, has been followed by the introduction of more formal mechanisms of management control and the rise of stronger administrative apparatuses nationally as well as within institutions. This has also resulted in more visible demands to make universities more efficient and more accountable and raised controversies about the state and function of academic autonomy as we have seen in the discussions about 'the Evaluative State' (Neave 1988, p. 7) and the New Public Management ideals in higher education (Bleiklie 1998).[11] However, the pressure for efficiency is diffuse and ambiguous and offers no immediate and unequivocal solutions. Comparative evidence from countries such as England, France, Germany, Norway and Sweden suggest that the solutions have been contested issues that are shaped by established institutional structures (Kogan et al. 2000; Musselin 1999).

These observations should sensitize us as to the complexity of the relationship between higher education, state and society. They demonstrate how an apparently simple and straightforward process – higher

education integration as a response to massification – has become linked to a number of tendencies that raise the question of the consistency as well as the direction of future developments within higher education systems. So far little has been offered that may explain patterns of variation along the dimensions of hierarchy and specialization save for the initial suggestion of institutional inertia and path dependency. In the following section I shall offer a few suggestions based on the concept of 'knowledge regimes'.

Knowledge regimes, interests and alliances

The previous discussion has emphasized how higher education integration must be understood against the backdrop of massification, expansion and the need to control costs linked to a more utility-oriented conception of knowledge. The development described initially, can be seen as the outcome of the struggle to define the true nature of knowledge between actors such as states and politicians, institutional leaders and students, researchers and intellectuals, consultants and business leaders. *Knowledge interests* are therefore the key, together with the linked concepts of *knowledge alliances* and *knowledge regimes*. In order to understand the different trajectories higher education systems have followed I shall distinguish between a few ideal typical constellations of knowledge regimes and the actor constellations and interests on which they are based. Then I shall return to the original question of convergence versus path dependency. Finally I shall draw some implications regarding future developments.

Modern universities and higher education systems are influenced by a number of developments that have implied a thrust in the direction of an extended concept of knowledge and a stronger utility orientation. In the following I shall argue that the new emerging knowledge regimes may be divided into at the least two main groups. On the one hand there is *an academic capitalist regime,* driven by university–industry alliances, economic interests and a commercial logic. In spite of its huge influence on the discourse about higher education and as a symbol of current changes in higher education institutions, the notion of 'academic capitalism' (Slaughter and Leslie 1997) or 'entrepreneurial universities' (Clark 1998), in other words industry funding, is an important source to relatively few top research universities, particularly in the US (Powell and Owen-Smith 1998; Turk-Bicakci and Brint 2004). Public funding and ownership of higher education institutions by national or regional

governments is still the dominant pattern. This might be taken as an argument to the effect that stability prevails in the face of all rhetoric about fundamental change.

However, the way in which public authorities run universities has changed fundamentally, heavily influenced by this notion of 'academic capitalism' or 'entrepreneurial universities' which manifests itself in the notion of universities as business enterprises and introduction of quasi-market mechanisms in order to promote competition and cost effectiveness. These *public managerialist regimes* are driven by university–state alliances, political-administrative interests and a semi-competitive logic based on incentive policies, where part of the public support depends on teaching and/or research performance. They come, however, in different versions that may be understood against the backdrop of the previous public regimes they have developed from. Comparing the systems of England, Norway and Sweden, Kogan et al. (2000) point out that the public regimes that dominated the systems until the 1980s or 1990s were different in important respects. Although they in principle were public, different actor constellations, alliances and interests characterized the regimes.

The English regime was until about 1980 dominated by co-opted academic elites who under state protection could offer considerable autonomy to the universities and where policies contributed to maintaining the elite structure with a few top universities that stood out from the rest in terms of academic prestige and social standing. The English version of the public managerialist regime that emerged during the 1980s and 1990s was much more centralized than previously. Through centralized competitive evaluation procedures such as the Research Assessment Exercises, the field was in principle opened up for all higher education institutions, polytechnics as well as universities to compete for research funding and academic status. This abolished the binary divide between university and non-university institutions and made in principle possible a more seamless integration of higher education. However, in practice the Research Assessment Exercises has confirmed the academic status hierarchy, in which a few top institutions receive most of the public research funding, whereas the other institutions must struggle to fund their research from other sources, focus on applied short term research contracts or devote themselves to teaching.

The Swedish regime between 1977 and 1994 had corporatist features, dominated by state authorities and unions and strongly influenced by political priorities. Swedish higher education institutions

were all formally called *högskola* although there were clear differences between research universities and non-university institutions. However, the absence of formal divisions between types of institutions meant that there were fewer barriers against integration. The Swedish version of a public managerialist regime was introduced following a transition from a social democratic to a conservative government and came with a decentralizing move in which central government authorities in the name of institutional autonomy transferred decision-making authority to the institutions. At the same time the internal institutional leadership was strengthened and external influence through external representation on university boards was established. In the years that followed developments have been characterized by tendencies of 'academic drift' whereby a number of previously non-research university institutions have sought to upgrade themselves academically by establishing research units and graduate education programs and in some other cases by mergers between research universities and groups of colleges.

The Norwegian regime was statist, dominated by higher education institutions and the Ministry of Education. Since the 1970s Norway had a binary system with a clear formal separation between the non-university college sector and the universities, although some permeability existed between the liberal regional colleges (*distriktshøyskoler*) that were established in the 1970s and the universities. The Norwegian public managerialist regime has come with a mixture of centralizing and decentralizing moves whereby central authorities have sought to establish a formal framework that may make Norwegian higher education institutions more efficient, more flexible, more sensitive to students' needs and more open to student mobility across institutions. Activity planning and incentive policies, emphasizing the rewarding of teaching efficiency and student throughput have been major policy tools. The higher education legislation of 1995 which formally abolished the binary system, opened up the opportunity for non-university institutions to gain university status by establishing a set of criteria and procedures to certify institutions that want to upgrade themselves to research universities. The legislation also reduced the number of non-university colleges from about 200 to 26, starting a comprehensive merger process. One or two institutions are expected to be able to establish themselves as research universities in the years to come. On the other hand a number of vocational institutions (e.g. teacher training colleges) were

reluctant to be merged with other colleges that did not share their educational traditions and criteria of evaluation.

A common characteristic of the organization of higher education systems in the three countries is that formal divisions between types of institutions have been opened up. The mechanisms that have been established to facilitate institutional mobility towards research university status are different. In some ways these differences are consistent with established institutional system features, such as the elite character of the English system and the more egalitarian Norwegian and Swedish systems. It is typical of the latter two that they offer institutions more flexible procedures and a number of opportunities to upgrade themselves academically, partly by dedicating resources through the establishment of combined research and teaching positions such as associate and full professorships, and partly by offering financial opportunities by making research funds available. One example of this is the Norwegian research council's special program to strengthen research in the college sector.

These observations suggest first of all that when new knowledge regimes arise, their impact may be partial and may vary depending on the conditions with which they are faced. The two emerging capitalist and managerialist regimes could be viewed as different responses to a number of general trends such as higher education expansion, the rise of a 'knowledge society', and a different understanding of the purpose of higher education and research. What I have called an academic capitalist regime has in many ways become a global yardstick, despised by some, but espoused by many others. It has until now had a stronger impact on ideology and discourse than on the way in which universities are operated and funded. The practical impact of a commercial logic on Western university systems is still limited and concerns mainly a relatively small number of major research universities. In many public systems in Europe a semi-competitive logic between institutions has been introduced in which they compete for students and research funding. This semi-competitive logic has provided an important rationale for the integration of higher education systems. It is still too early to determine to what extent it will affect the systems in a uniform way. However, there is a clear variation in the extent to which non-research institutions have been inclined to fully engage themselves in a competition for academic prestige and research funding. Some of the variation I have argued is due to the fact that the identity and criteria of valuation of some institutions keep them from engaging in a competition defined by a research-based hierarchy. In

other cases, the small prospects for return on investing in a competition, may serve as an effective deterrent.

Conclusion

The developments addressed in the previous discussion do not answer the initial question about whether we can expect a convergence of higher education systems in the direction of a hierarchical model or alternatively that national systems develop along distinct trajectories in which the tensions between hierarchical and functional principles will play themselves out in nationally different ways. What we have observed is that national systems are exposed to a similar set of developments such as higher education expansion, the rise of a 'knowledge society' and a changed understanding of the purpose of higher education and research. These developments may have profound effects on higher education and research in the future.

Although the development has played out differently in individual countries, there is little doubt that integration and hierarchization have proceeded and become more prominent over the the years. Consequently, the development implies a move away from functionally specialized towards more hierarchical and horizontally permeable systems. The tendency is most clearly pronounced at the level of ideologies and formal organizational structures. However, to what extent institutions actually cultivate their specialities instead of moving upwards in the institutional hierarchy remains to be seen. For non-university institutions it will make a difference whether the system as a whole experiences massive 'academic drift' and moves in the direction of the research university model, or whether such a movement only affects parts of the system – for instance only academically oriented liberal colleges, as opposed to more vocationally oriented colleges. The former alternative indicates that non-university colleges will eventually become integrated in a hierarchic regime based on academic standing. The latter alternative indicates that hierarchization based on the research university model will have a fragmenting rather than an integrating effect within a higher education system. In this case traditional research universities will have to find their place among institutions with different educational ideals within a system that is more fragmented and more clearly characterized by functional specialization. In such a fragmented system some institutions may want to cultivate their practical and vocationally oriented peculiarities whilst others will commence a process

of 'academic drift' and start climbing in the academic hierarchical system. This might eventually lead to more pluralistic higher education systems.

It is still a possibility that a further strengthening of hierarchization will eventually lead to fragmentation within higher education systems and the emergence of more varied mixes of functional specialization and hierarchization across national systems. This will eventually counteract the converging tendencies indicated above. One factor that might strengthen fragmentation is the emergence of so-called virtual universities like the University of Phoenix that sell tailor-made course programs to large companies. Another important factor that points in the opposite direction is how changes in the economic structure affect alliances between sectors of the economy with occupational groups, educational institutions and the state. One assumption might be based on the observation that much of the institutional specialization within educational systems is based on trades and occupations of the industrial economy. As industrial society fades away and as post-industrial society rises, knowledge alliances between industry, its occupational groups, and the state are likely to be transformed. It is tempting to speculate that since many occupations in the expanding new sectors of the economy – e.g. computer-technology and bio-technology – are based on academic skills and forms of education that more easily lend themselves to integration in hierarchical systems, this will weaken specialized knowledge. To what extent this will weaken functional specialization in general is still an open question. Future developments in the organization of higher education systems is therefore likely to be determined by what public authorities, businesses, academic institutions and students define as their knowledge interests and what kind of alliances they will form in the future.

Notes

1. The article has profited considerably from comments by two anonymous reviewers.
2. What is popularly known as the 'Bologna process' was initiated by 'the Bologna declaration' of 1999 in which 29 European education ministers agreed to introduce a common degree system based on a 3 years bachelors, 2 years masters and a 3 years doctoral degree.
3. I use the term 'global' about phenomena and processes that have a global reach in the sense that they affect countries and societies on various continents. This should

not be taken to mean that 'global' phenomena are found everywhere (cf. Keohane and Nye 2000).

4. This holds in particular true for the US case because of its size and diversity with private top research universities like Harvard, MIT and Stanford, state systems such as California, New York or Illinois that comprise top research universities, less exclusive state universities, and open access vocationally oriented community colleges.
5. With the concepts of 'order' and 'motives for action' I have taken a pair of fundamental concepts in social science analysis – *order* and *action* – as a point of departure (cf. Alexander 1982, p. 65).
6. The former Norwegian Education Minister Gudmund Hernes expressed this in an interview when he argued that most students are educated to do a practical job and not to do research, " *. . .it is not a goal in itself that all doctors write articles in the Journal of the Norwegian Medical Association or in The New England Journal of Medicine, but it is quite important that they (surgeons) know where to cut and don't forget the scalpel inside while they're at it.''* (Interview 18, Nov. 1994). He illustrated the same point by pointing out that the would prefer that college educated cooks know how to make tasty food that can get their restaurants stars in the Michelin Guide rather than how to write learned reports on grammatical peculiarities in French menus.
7. Cf. Daniel Bell's well-known definition of knowledge as "a set of organized statements of fact or ideas" (Bell 1973, p. 41).
8. Cf. Knorr Cetina's concept of 'epistemic cultures' that distinguishes between cultures on the basis of process, or on how epistemic cultures 'make knowledge' in different ways (Knorr Cetina 1999).
9. Cf. the distinctions between 'theoretical' and 'practical' knowledge, a 'cultural' and 'utilitarian' purpose for basic research and higher education (Kogan et al. 2000), 'applied' and 'pure' research modes (Becher 1989). A similar notion underpins the distinction between 'Mode l' and 'Mode 2' knowledge production (Gibbons et al. 1994).
10. This does not mean that such strategies generally are destined to fail. There are examples of successful differentiation strategies, according to some observers, with "The California Master Plan" as the most prominent example (Kerr 1995; Rothblatt 1992).
11. This discussion should be considered in the wider context of the 'New Public Management' movement in public administration reform internationally (Laegreid og Pedersen 1999; Pollitt 1990).

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