The Mission Impossible of the European University: Institutional Confusion and Institutional Diversity

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1 Introduction

The outline for this book stresses the importance of the institutional dynamics of the European university and points to its current state of institutional confusion and search for identity. In fact, attempts to delineate some common elements of the multiple transformations of the university point to the unfolding of a most interesting paradox (Krücken et al. 2007). The European university is undeniably a success story. Research and teaching have expanded enormously; the fields of research and scholarship have multiplied and provide potential links to all other sub-systems in modern society (Frank and Meyer 2007). While there are signs of stagnation there are also growing expectations with regard to the contribution of higher education and research to the 'European knowledge society'. Modern societies and their subsystems all seek new innovations and expect the universities to deliver these goods. In parallel with its success, deepening criticism of the European university is coming more and more to the fore – on the national level as well as on the European level. There is concern that Europe is losing out to its old and new competitors with profound consequences for Europe's capacity for innovation – and hence job creation and wealth generation. The lack of responsiveness of the European university to societal needs is under consideration as well as its incapacities of organisational self-steering in an increasingly competitive environment. In sum, the changing nature and role of knowledge for society seem to be accompanied by changes in universities' relationships with society, with mixed results in terms of status, function and role (Enders and Fulton 2002).

This chapter attempts to contribute to the scholarly reflection on the institutional dynamics of the European university in two ways. First, it explores the mission stretch of the university and second, it examines the unity and diversity of the European higher education landscape.

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The chapter begins by arguing that one way of gaining a better understanding of the institutional dynamics of the university is to analyse processes of mission stretch. The term 'mission stretch' addresses a process in which growing and (partly) contradictory demands and expectations are put on the university (Scott 1995; Clark 1998; Levine 2001). It is argued that the university is potentially overloaded and that the strain it is suffering can, in part, be explained by mission stretch. Mission stretch certainly had and has a quantitative component due to the 'massification' of higher education (Trow 1974; Neave 2006), the rise of 'big science' (De Solla Price 1963; Scott 2006) and its growth into a mature industry (Levine 2001). It also had and has a qualitative component due to the differentiation of 'old' demands and the growing number of 'new' demands. Finally, there is a procedural component with regard to more efficient means of goal achievement of the university as a multi-purpose and multi-product enterprise. These processes are neither linear nor uncontested; they are external and also internal to the university. They feed reforms where the idea of the university and the organisational form of the university are challenged (Olsen 2005). Part and parcel of this challenge are the enduring debates and reforms with regard to the unity and diversity of the university – more precisely, the debates and developments in Europe regarding the institutional configuration of the higher education system.

It is hypothesised that the continuous efforts to balance unity and diversity, system integration and differentiation are one key to understanding responses to the institutional confusion of the European university. Since the 1960s, public debate and policy reform have been concerned with the institutional configuration of higher education across national higher education systems in Europe (Teichler 1991; Huisman 1995; Bleiklie 2004). In considering, for instance, 'elite' and 'mass' higher education, 'diversification and stratification', 'binary systems', 'non-university' higher education or the 'research university', the understanding and reform of the institutional landscape within a national system of higher education have become important issues. More recently, institutional unity and diversity have been embedded supranationally and changes in the regulatory system across Europe have contributed to the debate on the role of the European universities (Olsen and Maassen 2007). Arguably, the rise of the European Higher Education Area and the European Research Area shows that European-level debates and policy-making processes pay growing attention to the European university as well as to the issue of the unity and diversity of the European higher education landscape.

Scholarly reflection on institutional confusion and diversity is by no means a new phenomenon and has been guided by various theoretical perspectives (see Huisman 1995). This chapter is mainly inspired by two perspectives rooted in sociological theory and the related study of the university as a modern institution. First, the study of the modern university has been guided by the concept of social differentiation as an important theoretical perspective in understanding the origin, dynamics and structure of modern societies (for an overview, see Schimank 2006). Historically, the emergence of the university as a specialised institution is part of the large-scale transformation from pre-modern to modern societies. Differentiation into (partly) autonomous though interdependent systems of functions such as art,

law, economy, science or education is characteristic of this development that has been analysed by scholars such as Herbert Simon, Emil Dürkheim, Talcott Parsons or Niklas Luhmann. Parsons – the founding father of a systems–theoretical and structural–functional framework – applied this perspective to the analyses of the university (Parsons and Platt 1973). In contrast to his theoretical position, Parsons provided an analysis of the functional superiority of the American university due to its multi-functional setting. He stressed the importance of the ‘full university’: a highly differentiated multiple-unit system functioning within the science system and the educational system yet connected as a single organisation. It was Smelser (1973) in his epilogue to this same book who stressed the social–structural anomalies, functional problems and group conflicts of the American university. He argued that the university is functionally overloaded and provided functional arguments about the need for further diversity with regard to the purpose and constitution of the university. Re-reading these two perspectives from the early 1970s brings a certain déja-vu as they seem highly relevant to the current debate confronting the European university.

Smelser’s analysis of the structural–functional tensions of the modern American university introduced implicitly notions of ‘actors’, ‘group conflicts’ and ‘power struggles’ into the Parsonian perspective. He argued that processes of differentiation and de-differentiation cannot only be explained by the functional contribution of certain structures to the solution of problems; they are influenced by interests, compliance and deviancy and conflict between actors who do not compete simply to increase functional efficiency (see also e.g. Rueschemeyer 1977; Alexander and Colomy 1990; Schimank 1996). This perspective has also been applied to research on differentiation in higher education (Clark 1983; Huisman 1995; Meek et al. 1996; Teichler 2004). Diversity and differentiation can be understood in terms of the tension inherent in the power relationships between interest groups internal as well as external to the university. Stability and change are based on power relations and the articulation of interests by various groups, including the norms and values of the academic profession, the steering approach and policies of governmental actors and the responses of universities and other higher education institutions. The legitimacy of roles and institutional forms is not just a functional prerogative but due to exchange relations that are mediated by the context in which the power struggles between interest groups take place.

2 Mission Stretch and Institutional Confusion

Keeping these introductory remarks in mind, the institutional dynamics of the European university during recent decades may be analysed in terms of successive and enormous enhancement of the bundle of demands put on the university. After the Second World War, the coincidence of various phenomena contributed to a political climate that allowed for a substantial increase in the cost of higher education and research. The expansion of the role of research was fuelled by the belief that blue-sky research best serves societal needs for scientific and technological

innovation. This was coupled with the belief that substantial educational investment was needed in order to ensure economic growth as well as to reduce inequality of educational opportunity. This period may be viewed as a time in which the dominant political forces in industrial societies considered higher education as a relevant sector for the future of society. The quantitative expansion of higher education since the late 1950s/early 1960s was certainly the most obvious signal for a changing role and extension of the mission of the university. 'Massification' of higher education, though possibly interrupted by relatively short periods of stagnation, became a major trend across Europe (and beyond) (Trow 1974). Transition from 'elite to mass to universal higher education' and related debates about the changing mission of the university became widespread (Teichler 1991). The two main strategies adopted in the development towards a growing higher education system have been the modernisation of the university tradition, largely by founding new universities and extending old ones, and the establishment of alternative non-university institutions. While such developments seem quantitative in nature they also had a qualitative effect on the demands put on the university within emerging higher education systems (Clark 1983). Expansion and governmental planning came together because serving national development and priorities through the training of a growing and diversifying number of students for economic growth as well as for citizenship was among the most prominent expectations with regard to universities and other higher education providers. 'Training' also suggests that the mass university called for a certain degree of standardisation and utilitarian orientation in the fabric of mass higher education (Scott 1995). Such a redefinition of traditional tasks and the inclusion of new tasks of the universities and other higher education providers were not easily integrated into traditional work roles and practices. In particular, elite universities, committed to notions of excellence and exclusion, were obliged to redefine themselves as the leading elements within a much wider higher education system, affected by more democratic and inclusionary values (Trow 1974). This shift produced important effects. One was to retain the research function under the conditions of the mass university which tended to starve universities of the resources required to sustain excellence (Schimank and Winnes 2000). Another was that organisations were integrated much more into a state bureaucracy which undermined more open and collegial patterns (Olsen 2005).

In the course of the massification of higher education, much of the concern revolved around a quantitative match or mismatch between higher education and the labour market. Public debates and scholarly reflections in this area started in the 1960s with high hopes for more equal opportunities and economic prosperity by investment in education and training. The expansion of universities occurred as part of a larger societal development that was accompanied by a flourishing public sector. Its expansionist logic proceeded on a dual track, offering new educational opportunities as well as new employment opportunities in education, health and welfare in a kind of self-vindicating system (Nowotny 1995). The 1970s faced 'the end of the dream of everlasting prosperity' (Lutz 1984). The pessimistic view spread that expansion of higher education had gone too far and that graduates' skills no longer matched the needs of the employment system. The debate was marked

by sharp disagreements over a presumed over-education or under-employment of the increased number of graduates for whom not sufficient or not sufficiently well-qualified jobs would be available (Psacharopoulus 1987). In the 1980s, expectations and empirical findings adjusted to a somewhat blurred state of affairs which neither supported the high hopes of the 1960s nor reinforced the deep sense of crises of the 1970s (Teichler 1998a). What emerged from the analyses were a mixture of vertical and horizontal adjustments in job placement, changing values and expectations of what was considered a desirable job for highly qualified personnel and changes in what was meant by a proper link between higher education and work.

Since the 1990s, a new process of adjustment and re-structuration has been under way that tends to undermine the whole notion of a quantitative match (De Weert 1999). The dangers of diminishing returns on investment in higher education due to growing competition or labour markets being swamped by overqualified and dissatisfied applicants, are no longer apparent. It is now recognised that it is the occupational structure and stratification system itself that have become mobile. This is accompanied by deep structural changes in the way the economy works as well as a perceived individualisation of the life course regime (Beck 1986). The student body becomes more heterogeneous in terms of social background, age, levels of preparation and work experience, patterns of studying and learning, aspirations and life chances. The characteristics of occupations and jobs, the vertical as well as the horizontal division of work, the needs and reward structures of the employment system continue to be restructured. Learning–working pathways through education, training and employment tend to be de-institutionalised and re-institutionalised. Quality thus stands for possessing a mixture of skills and knowledge for new and changing configurations. Graduates are expected to be trained for what is increasingly seen to be a market for 'knowledge workers' in constant flux. The uncoupling between education and work thus assumes a new meaning.

Presently, universities are not only expected to continue considering fair access according to socio-biographic background and to strengthen the overall supply of a highly trained workforce in the sense of the old regime, but are also expected to further diversify structurally and, in terms of conditions of study and courses provided, devote greater attention to generic competencies and social skills, reshape their function for a society based on lifelong learning, prepare students for a growing internationalisation and serve practical learning beyond the classroom (Teichler 1998a). In other words, universities are expected to move from a 'front-end' model to a 'life-span' model of education and training – to move from curricula to learning pathways (Jongbloed 2002).

Growth and expansion as well as the search for societal and economic relevance have also affected research. Internationally and nationally, research in universities has experienced 'substantive growth' (Metzger 1987). 'In a self-amplifying cycle of effects, research and scholarship steadily fashion more cognitive domains – disciplines, specialisms, interdisciplinary subjects – whose respective devotees then push on with new specialised categories of research' (Clark 1991: 103). Restless research has moved out in many directions to new frontiers and has thus undergone its own 'massification'. In addition, the rise of 'big science' (De Solla Price

1963) with its large-scale facilities and huge budgets called for specialisation and cooperation in order to maintain ‘critical mass’. Such research requires concentration in research resources, research infrastructure and research-related personnel. Individual universities in many cases have become too small (in an organisational and financial sense) to play a core role by themselves at the forefront of ‘big science’.

Equally important, the ‘impact or obvious and immediate ‘social function of science’ had ultimately made science and scientific training too important a matter to be left to the scientists and so it was eventually turned into a separate sector of national policy-making’ (Nybom 2007: 91). Consequently, already in the 1960s in the US – and only later in Europe – the quest for greater relevance of the academic research enterprise began and continues today. Knowledge transfer from universities to industry and other users of research results, such as the military or health care system, was one of the demands that figured highly on the political agenda. Priority setting to promote technologically promising scientific developments, attempts to forecast scientific breakthroughs with a strong application potential and a general emphasis on ‘relevance’ and ‘strategic research’ (Irvine and Martin 1984) have proliferated over the years. In Europe this has – among other things – led to a certain emphasis on demand-side factors in the allocation of public funding of university research.

> Research proposals are expected to identify possible practical as well as scientific benefits; higher priority is being given to user involvements (including partial funding), universities are being invited to extract more revenue for licensing their intellectual property, and substantial funds are being spent in ‘foresight’ exercises designed to create exchange and consensus around future opportunities for application (Pavitt 2001: 768).

The research policy of the European Union clearly promotes the search for usefulness that has gained further visibility in the context of the Lisbon agenda and its emphasis on a ‘Europe of Knowledge’. Expectations with regard to blurring boundaries between the university and its environment and a growing emphasis on the quasi-entrepreneurial role of academics (Henkel 2001; Owen-Smith and Powell 2004) accompany this development. While it is not clear to what extent this quest for relevance is spurred on by business firms, it often comes from national and supranational governments that are responsible for the accountability and efficiency of public expenditures (Pavitt 2001).

This quest for relevance has been reinforced by a persuasive claim that the nature and locus of knowledge production are changing. For some time and in surprising agreement, different authors have observed the emergence of a ‘new mode of knowledge production’ that fits quite well into the overall political debate about the changing role of knowledge in our society – and the need for a re-structuration of science and higher education policy. ‘Post-normal science’ (Funtowicz and Ravetz 1993), ‘postacademic science’ (Ziman 1996) and ‘mode 2’ (Gibbons et al. 1994) all presume far-reaching social and cognitive changes because of institutional changes taking place over the last decades. They argue that a new form of knowledge production, ‘... a distinct set of cognitive and social practices is beginning to emerge’

(Gibbons et al. 1994: 3). These practices are carried out in the context of application as opposed to one governed by a specific academic community; trans-disciplinary as opposed to disciplinary; heterogeneous as opposed to homogeneous; heterarchical and transient as opposed to hierarchical and stable. Such attempts certainly challenge our thinking about a well-established order for science and research in proposing a qualitative transformation of its role and functioning in society. The claim of novelty by those arguing the new mode of science, the lack of empirical evidence provided and the weak explanatory power of their arguments have also stimulated quite critical reactions (Weingart 1997; Shinn 1999; Gläser 2000). For one thing, it has been argued that the trend concerning the 'new production of knowledge' is selling old wine in new bottles. It parallels the debates concerning the 'military–industrial complex' and the 'finalisation of science' nearly 30 years ago (Böhme, Van den Daele and Krohn 1973). Second, it has been argued that the process proposed is neither deterministic nor uniform and its implications may vary across academic fields and social settings. Third and most importantly, it has been argued that it mixes up developments in the institutional environment of science and research with actual knowledge production, defined as the social practices and activities of individuals or groups (Gläser 2000). The literature on the 'contextualisation' of science and research clearly has, however, a strong appeal for policy makers who strive for new institutional arrangements for legitimising, organising and funding research: for example, through linking universities, industries and government in new ways (Etzkowitz and Leydesdorff 1997).

This has a remarkable effect on the hierarchy of public expectations and support for the university. Once, universities were regarded mainly as part of a wider education system and therefore deserving of public subsidy. The research function was partly taken for granted while funding was seen as a responsibility of those most likely to benefit, including the nation state. Today, higher education is more likely to be regarded as a private consumption good while research is seen as core for the global competitiveness of the knowledge-based economy and therefore a key strategic area for national and supranational policy in Europe. As universities are increasingly seen as an important part of an overall (regional, national, European?) innovation system, numerous questions emerge concerning the status and boundaries of the university, the type of knowledge produced as well as the processes by which this knowledge is produced.

The demands put on the university are thus no longer confined to the reproduction of academic and other elites, the training of higher professional experts and the contribution to basic research. These functions are still important but have been enriched by an expansion and re-definition of 'old roles' as well as by 'new roles'. In the process of quantitative and qualitative expansion, the university's interrelationships with society have grown enormously. New bridges have multiplied, leading from society to the formerly more insular university, and problems and demands from every institution of society are brought to the university requiring relevant research, teaching and service. Conversely, especially more recently, the university has invaded society more dramatically diffusing into other institutions worldwide. Traditionally, research and teaching required mediation through the career

of graduates, the application of science and transfer of technology, or the popularisation of knowledge within a wider intellectual culture. Today, universities are expected to move into the front line of mediation between global knowledge and local contexts, between discovery and application, education and work. As is argued here, this also makes the university a rather vulnerable institution that tends to be overloaded with multiple expectations and growing demands. The mission impossible of the modern university is that it means too many things to too many and too diversified stakeholders. Overload becomes endemic as growing and multiplying expectations seem to follow erratic public 'issue attention cycles'.

What, if at all, can be done in such a situation of institutional confusion and overload? Across Europe, the most frequently heard response to this question is 'diversify', 'stratify', 'profile' the higher education landscape – introducing stratification à la Americana with a steep hierarchy between organisational classes and individual organisations.

3 Institutional Confusion and the Search for A Modern Higher Education System

In the following, it is hypothesised that the continuous efforts to balance unity and diversity, system integration and differentiation are one key to understanding responses to institutional confusion and mission stretch of the European university. Since the 1960s, public debate and policy reform have been concerned with the institutional configuration of higher education across Europe. The debates and reforms regarding an appropriate system design for higher education are not all new and have undergone several stages. Analyses of the developments until about the mid-1990s highlighted two stages (Huisman 1998; Neave 2006; Teichler 2004).

In a first response to the expansionist dynamics in higher education, diversification according to sectors or types of organisations and programmes was a key element. Across Europe, in the 1960s and 1970s, most attention was paid to one specific dimension of diversification: the establishment of different types of organisations in order to accommodate the expansion of higher education with moderate changes for the universities. In other words, the move from elite to mass higher education was thought to be regulated by a steering of the mission of the system according to institutional types. This brought an understanding that organisations are embedded in a larger 'system' that can be defined formally and potentially planned or steered. It also brought about the term 'higher education system' (Clark 1983) that claimed that there are universities and 'other' higher education institutions, most likely organisations specialised by fields of study, more professionally oriented than the universities. Obviously, change and reform in higher education thus introduced notions of mission steering along a functional division of work (horizontal diversification) as well as a hierarchical stratification of quality, prestige and reputation (vertical diversification).

In a second stage of reform, lasting from the late 1970s to the mid-1990s, more attention was paid to a further diversification among individual organisations or

organisational sub-units, more frequently, however, within the logic of a sectoralised overall system. Mission steering by sectoral diversification turned out to be less successful and/or less stable than hoped. Analyses of the implementation of different types of higher education sectors showed a quite mixed performance of such reform efforts (Cerych and Sabatier 1986). In addition, the 'non-university' sector or second type of organisation had difficulties in establishing clearly distinct levels of education or profiles acceptable as 'different but equal' (Teichler 1991). Rather, one could observe sectoral overlap and sectoral copying. Phenomena of academic drift and professional drift resulted from intrinsic instability of mission steering and the inability of maintaining clearly distinct boundaries between sectors (Meek et al. 1996). Academic drift, where institutions lower in status try to emulate higher status institutions, and professional drift, where universities try to cater for student 'markets' served by vocational higher education institutions, led to de-differentiation. Finally, emerging changes in the regulatory philosophy among a growing number of European countries stimulated a diversification within the system by individual organisations. Overall, steering from a distance and output control (Neave and Van Vught 1991) were (and are) accompanied by incentives for individual organisations to become more like corporate actors in order to emphasise their distinctiveness and compete with others for research funds and students as well as to form strategic alliances (De Boer et al. 2007). This change in the regulatory environment also implies that mission steering is no longer pre-dominantly in the visible hands of the regulatory government but supplemented by the self-steering capacities of the organisations manoeuvring in quasi-markets and intra-organisational networks (Enders 2002).

That said, it is important to keep in mind that the tendencies described above do not mean that higher education systems necessarily were converging. Although they are faced with similar challenges of mission stretch, we know from comparative studies of reform and change in higher education that the ways in which such challenges are dealt with may differ considerably and also in ways that preserve rather than reduce nationally distinct characteristics (Teichler 1991, 2004; Meek et al. 1996).

In this respect, multi-level policies aimed at the European university provide an interesting case. In Europe, universities have played an important role in the making of modern nation states including the building of a national heritage and identity, the formation and reproduction of national elites, the preparation and selection of the governmental and administrative workforce and the provision of research for national, economic and social development (Neave 2001). Traditionally, (higher) education and research were thus supposed to be national affairs making it difficult to institutionalise European-level responsibilities and policies for this area, even though respective initiatives can be traced back to the 1950s (Corbett 2005). It was in the 1990s that the issue of the unity and diversity of the European higher education system again changed, embodying new approaches to intergovernmentally and supranationally.

Ironically, the conflict between efforts on the part of the European Commission (EC) to constantly extend its field of action and the national governments' aim to keep the commission out of the core business of higher education triggered

a European policy of grass roots internationalisation (Teichler 1998b). Facilitating student mobility (and to some extent academic staff mobility) became the first key instrument of internationalisation for the EC. Mobility relates to the free movement of people and goods that formed a core aspect of the Treaty of Rome and mobility became a key instrument for the EC to develop administrative executive capacities in the area of higher education – an area of relevance as well to the EC's economic policies.

The joint study programmes inaugurated in 1976 aimed at stimulating temporary study at a partner department, teaching staff exchange and joint developments of study programmes on a small experimental basis. About a decade later, the ERASMUS programme was launched. It focused on student mobility and included various other means of cooperation. The programme was clearly the core activity that addressed higher education in the EU and was accompanied by others such as COMETT, LINGUA or TEMPUS.

On the basis of various evaluation studies (Teichler 1998b; Enders 1998; Barblan et al. 2000), we can conclude that ERASMUS and SOCRATES (as the educational support programmes were called later) caused a breakthrough by introducing an European dimension into the normal teaching and learning study programmes at most institutions of higher education, even if international student mobility remained limited to less than 10% of the student population. The major effect of the programme was not only to provide international experience to 100,000 students per year, but also to challenge the substance and modes of teaching and learning with comparatively small financial outlays. The EC has obviously become a powerful actor and stimulated the intergovernmental policies of the Bologna process (Bologna Declaration 1999; Berlin Communiqué 2003; Bergen Communiqué 2005).

The pledge for convergence that has been underlined in the Bologna process launched by the National Ministries responsible for higher education is certainly another prominent factor in higher education in Europe. The ministers stressed that the process was a search for a 'common European answer to common European problems'. The main recommendations of the Bologna Declaration, which are, to a certain extent, a follow-up to the Sorbonne conference, can be summarised as follows:

- adopting a system of easily readable and comparable degrees;
- adopting a system based on two main cycles (undergraduate and graduate) of higher education studies;
- establishing a system of transferable credits as a means to promote student mobility, including credits acquired in non-higher education contexts and recognised by universities;
- overcoming obstacles to student, teacher, researcher and staff mobility;
- promoting European cooperation in quality assurance; and
- promoting European dimensions in higher education with regard to curriculum development, inter-institutional cooperation, mobility schemes and integrated programmes of study and research.

At least four points which were not stressed or mentioned in the Bologna Declaration arose later: lifelong learning, the importance of the role of students and of higher education institutions generally, greater concern for the attractiveness of European higher education (including concern for trans-national education and its perspectives) and doctoral training as the third cycle in the degree structure.

The European dimension in higher education has certainly acquired a new meaning since the declaration of a ‘European Higher Education Area’. But what exactly could or should be understood by a European Higher Education Area? No single definition has been provided so far by any of the documents prepared for or resulting from the various conferences. However, there seems to be a general consensus. It revolves around a certain number of concepts such as ‘harmonisation’, ‘convergence’ or ‘coordination’. ‘Bologna’ has potentially far-reaching consequences for the European higher education landscape. Efforts to create convergent patterns of study programmes and degrees in Europe in order to facilitate intra-European mobility are intrinsically aimed at keeping differences in quality between sectors and organisations at the same stage of study programmes within limits. The process stimulates new opportunities for overlaps in the functions of universities and other higher education providers and for convergence of these types while intra-institutional diversity may be increased. When European governments agreed in the 1990s to establish a trans-national system of degrees and mutually recognised study programmes, types of higher education became a subordinate dimension of diversification. Obviously, this does not mean that such types become marginal, but rather are one dimension of diversity within an increasingly complex setting (Teichler 2004).

The policies described above are also influencing the development of higher education policy at the national level. They lead to initiatives that go beyond the formulation of traditional internationalisation policies, which used to be characterised as marginal, add-on activities and mainly focused on the international mobility of students and teachers. Instead, they lead to more structural measures intended to influence the higher education system more profoundly (Enders 2004). The road to Bologna is, however, a long one with options for local interpretations and manifold pathways.

Neave (2006) argues, for example, that there was an ‘utter absence of any prior assessment into capacity of national systems to adapt to the Bologna principles and even less whether the dateline set was itself set on any basis other than hunch and ad-hocracy’. Studies on the role of the ERASMUS programme showed very modest direct impacts on national policies (Huisman et al. 2004). The nature of the programme neither intended to nor encroached on national responsibilities for higher education. Factors explaining the indirect impact were mainly seen in the domains of the institutional structure and the domain of the nature of objectives (policy legacies and adjustment pressures) (see Schmidt 2002). There were, however, important indirect effects on the organisational level and certain issues (degree recognition, credit transfer, quality assurance) became more important elements on the national higher education policy agenda of some governments that triggered the Bologna process. A recent study (Witte 2006) that compared adaptations of European higher education

systems in the context of the Bologna process among four countries (England, France, Germany, the Netherlands) shows a quite diverse picture with regard to the degree of policy change (policy formulation and policy implementation). The strong impact of the inherited national institutional frameworks impacted on the quite different degree of adaptations of national degree structures that have been achieved so far. The analysis shows that perceptions of policy actors of the changing European context supported national policy change, but only in conjunction with national policy agendas. 'Bologna' provided a strong (even though sometimes misinterpreted) European role model and a powerful legitimating framework while the entire process was mainly driven by national reform interests. In other words, European policies provided an important 'ice-breaker function' for national reform (Enders 2004) and dominate the policy agenda. It is thus not surprising that national higher education systems so far have not converged more closely on a common model.

Further, the emergence of policies towards a 'European Research Area' (European Commission 2000, 2002) and the role it is supposed to play in the Lisbon strategy add to the transformation of the social setting in which the university is functioning. The official discourses on a common European space of research and innovation increasingly acknowledge that the future role of universities will have to be different from the traditional role (European Commission 2003, 2006). True, on reading the original document that the EC published in 2000, it is clear that neither European universities nor European higher education have been significantly taken into account when thinking about the European Research Area. What figured prominently instead were dynamic private investments in science and technology, intellectual property rights and effective tools to protect them, the creation of knowledge-intense companies and risk capital, research for evidence-based policies and more entrepreneurial and mobile human resources in science and technology. It is symptomatic that in the initial period of the policies towards the European Research Area, the role of the university as a house of science and scholarship is not mentioned. It was only after the intervention of the European Rectors' Conference and other political actors that the role of the university in this policy process as well as its potential effects came more to the forefront. Efforts to establish a European Institute of Technology and the establishment of the European Research Council indicate that this discourse is accompanied by attempts to further institution-building on the European level.

Policies on the role of research in the 'Europe of Knowledge' have changed the environment in which universities and other higher education providers operate. The European Research Area adds a supranational level to the changing expectations with regard to the role of the university in the innovation system. As universities are increasingly seen as an important part of an overall innovation system, their contribution (or lack of contribution) to the innovation system becomes critical. We may argue again that no single definition has been provided, so far, by any of the documents prepared for such a 'European Research Area'. There seems, however, to be a general consensus. It revolves around a certain number of general concepts such as 'excellence', 'relevance', 'critical mass' and 'stratification'.

These issues also relate to the unity and diversity of the higher education and research landscape and provide another set of interesting 'templates' for mission steering (Scott 2006). First of all, an alternative view to the 'higher education system' is offered in which universities appear most prominent in the 'research system' together with public research institutions, industrial research and development and other research providers. Second, in the course of higher education's expansion, research is drifting into the shadow of teaching. A higher degree of diversification between research and teaching is thus desirable in order to assure the research function in an increasingly competitive and globalised environment. Third, the vertical dimension of diversification is most relevant, and within a stratified system the apex of world-class research universities succeeding in a global setting is most crucial. Fourth, such a highly stratified system will allow a more appropriate allocation of resources for strategic research, and unequal rewards will motivate higher efforts and better achievements. In turn, this will assure that leading European universities no longer play in national leagues but in world leagues – a perspective that is also fuelled by the growing popularity of world rankings of universities. Altogether, 'picking the winners' (Irvine and Martin 1984) thus gains in priority on the European agenda. Continental Europe may still have problems in identifying the entirety of a university as excellent rather than certain organisational sub-units of a university. Certain national policies mirror, however, supranational policies towards a more stratified system. Dutch policies for 'Focus and Mass' and the building of a confederation of the three technical universities in the Netherlands exemplify this emergent trend as well as the German Excellence Initiative that tries to identify those German universities to be supported to become world-class research universities. The founding of the League of European Research Universities (LERU) in 2002 demonstrates not only that the label 'research university' has an obvious appeal to universities but that they attempt to become major players in this policy arena as well.

European policies in the area of research and innovation also affect the higher education landscape in other ways, contributing to the 'reputation race' (Van Vught 2006) among European universities. Certain policies appear to create a diversification effect due to the stratified participation of European universities in the European research programmes, with those programmes reinforcing the interaction between universities and industry. While the variety of universities participating in European research programmes is decreasing, the larger and older universities have a higher participation rate (Geuna 1999; David and Keely 2003). Past success also appears to be an important predictor of future participation and is correlated with success in the acquisition of national funds. The push in EU policies towards closer cooperation between universities and industries places financially vulnerable universities in a difficult situation because they are not able to charge the full costs for contract research, transfer and service activities (Geuna 1999).

At first glance, such developments may appear counter to the efforts of harmonising the European higher education landscape according to the Bologna process. But combined options are at hand. While the top of the system represented by the leading research universities will be global players focusing on graduate education, middle

ranking universities will focus on professional masters training on the national level and low-ranking higher education providers will serve the regional market for bachelor students. A core of more prestigious and visible ‘European universities’ will thus be surrounded by a larger number of national ‘universities in Europe’ and more localised colleges. The idea that there is no alternative than to explicitly label and support some research universities was an unfamiliar one, at least, in continental Europe until recently. The ‘research university’ was regarded as a pleonasm because universities were expected to be research-active if not research-based. Obviously, any attempt to select ‘research universities’ does imply that Europe’s ‘best’ universities must concentrate on their research mission. Other universities in Europe – probably the majority – will have to place less emphasis on research and are likely to receive limited resources for their scholarly and scientific foundations once regarded as indispensable for all universities. Within such a scenario ‘non-university’ higher education remains a predominantly negatively described sector within the overall higher education and research system – a conglomeration of institutions characterised by what they are not. It goes without saying that such a scenario is a mixed blessing for the bulk of universities that have something to lose as well as for other higher education providers that have nothing to gain anymore.

It remains, however, to be seen what the impact of such a scenario on the European higher education landscape may be. So far, ‘Bologna’ and ‘Lisbon’ certainly indicate a new era in European higher education and research policies while they also indicate the complexity of power distributions in this policy field.

> The uneven implementation of the Bologna process and the uncertainties of the Lisbon strategy illustrate that actors without authority can rarely rely on (coercive) power. The causal chain from political intention and declarations to implementation can easily be broken or weakened and building support and mobilizing partners is a key process in University reform (Olsen and Maassen 2007: 20).

There are also some other arguments about the institutionalisation of the European university worth discussing with respect to its contested past and future (Neave et al. 2006). One argument centres on the implications of the rise of the knowledge society and the need for more open and dynamic systems of knowledge production, dissemination and uptake. Another argument centres on the governability and responsiveness of higher education and research systems and their organisational sub-settings.

The knowledge society is not (or not only) characterised by the exclusive expectations and values of knowledge elites, the scarcity of scientific and technological innovations and a utilitarian mission of knowledge production and dissemination. The knowledge society is also characterised by inclusive values and expectations of a growing number of highly qualified citizens, a democratisation of higher education and research and the search for social cohesion in an increasingly fragmented society (Olsen 2002; Scott 2006; Teichler 2006). Policies that concentrate on the apex of the system may be dangerous due to a fundamental misunderstanding of the dynamics of the knowledge society and the contributions the university has to offer to this society. In fact, one may argue that the university is in the unique position

of being the institution where the various demands can be integrated, where it is all 'joined up' (Benneworth and Arbo 2006). This argument resembles the early writing of Parsons and Platt (1973) on the advantages of the 'full university' with its multiple connections and functional units that do not only serve their own purpose but are intrinsically related to each other and to society in multiple ways.

The closely connected argument also states that we should grant greater legitimacy to disorder instead of order (Clark 1996). The university as a modern institution is intrinsically characterised by inordinate and uncommon complexity, partly based on its peculiar function as a knowledge centre in its many-fold meanings. This implies that 'ambivalence' or 'ambiguity' about the university is part of its success story (Weiler 2005). From a conceptual point of view we would thus draw on a tradition in social science that is based on the 'premise that the structure of social roles consists of arrangements of norms and counter norms which have evolved to provide the flexibility of normatively acceptable behavior required to deal with changing states of a social relation' (Merton 1976: 31). If we assume that the knowledge society is characterised by growing complexity, fluidity and unpredictability, the university's claim for comprehensiveness is a pre-condition for survival and responsiveness in such a dynamic environment. This does not imply an argument against institutional diversity in higher education and research. Instead, if the impact of the knowledge society is taken into account, 'the present pattern of European universities, informally differentiated rather than formally stratified, may offer a more flexible and adaptable model' (Scott 2006: 140).

Such arguments certainly have their appeal for those who claim that European higher education and research should aspire to excellence in diversity rather than a hierarchy of excellence. Recent developments may thus encourage a system dynamics towards finer-grained and flexible differentiations rather than 'classified hierarchies'. Universities and other higher education providers may continuously bundle and unbundle their tasks in teaching, research and service, their (multi-) disciplinary profile, their geographical outreach and their embeddedness in a system of shifting organisational configurations. The price to be paid for such a more flexible and adaptable model is, however, ongoing structural tension due to mission overload and continuous struggle for a more ordered higher education and research landscape.

4 Conclusions

This chapter does not answer the question of whether we can expect further confusion about the university as an institution, a de-institutionalisation of the university, or a re-institutionalisation of the university. What we have observed is that universities have grown into much bigger and complex higher education and research systems that have been exposed to growing expectations and shifting demands. The university's interrelationships with society have grown enormously. The university as a multi-functional institution is heavily involved in literally every kind of social and economic activity in society. This is part and parcel of the success story of the modern university and arguments have been put forward that point to

the advantages of the university as a complex and disordered multi-functional institution. This makes the university at the same time a vulnerable institution due to an increasing load of multiple and partly contradictory expectations with regard to their role and functioning in the knowledge society. The chapter has argued that mission stretch and institutional confusion are inevitable consequences of such an institutional dynamic. Today, the phenomenon of mission stretch is familiar to individual academics, individual organisations, as well as higher education systems. Mission stretch has been driven by both quantitative and qualitative changes including the creation and expansion of higher education systems; the reconfiguration of scientific systems as well as of teaching–learning systems and their interrelationships; and the shifting frontiers between the university and its environments. 'Old' expectations have been differentiated and specified; 'new' expectations have been assigned to the university by government, society and the economy; and effective means of operation in achieving the enriched bundle of expectations have become an important criterion of success. From the point of view of a system theory of functional differentiation one can argue that the university as a modern institution can be characterised by over-complexity and under-differentiation.

Quantitative and qualitative expansion has been one of the drivers of European debates and reforms addressing the issue of the unity and diversity of the university. Since the 1960s, public debate and policy reform have been concerned with the institutional configuration of a modern higher education and research landscape across European nation states. Such continuous efforts to balance system integration and differentiation are key elements in understanding responses to mission stretch. In this process, conflict and struggle centre around the dynamics of differentiation and de-differentiation of types of institutions and increasingly so on individual institutions within or across such types. A new pre-stabilised order has, however, not yet been found. Instead, institutional unity and diversity are increasingly embedded supranationally within Europe.

Arguably, the rise of the European Higher Education Area and of the European Research Area has added another trans-national layer to the struggle for an appropriate institutional design for the European university. Both developments are not neutral to the issue of systemic differentiation. The European Higher Education Area revolves around concepts such as 'harmonisation', 'convergence' and 'coordination' while the European Research Area stresses concepts such as 'excellence', 'relevance', 'critical mass' and 'stratification'. The maps of the landscape with regard to the teaching function and the research function of higher education thus seem to become increasingly dissociated. But options are at hand where a core of more prestigious and visible 'European universities' will be surrounded by a larger number of national 'universities in Europe' and more localised colleges.

At first glance, this may suggest that trans-national policies will lead towards standardisation instead of pluralisation. So far, research on the European policy dynamics does not backup such an assumption. Trans-national role models partly derive from and diffuse into specific national and institutional settings. One can witness a dialectics unfolding in which an increase in trans-national agenda setting and rule making is not only influenced by national and institutional policy making but

also serves as an enabler for these. At the same time that national policies respond to trans-national trends and policies, trans-national policies serve the reverse purpose. National and organisational actors use such trans-national trends as an 'ice-breaker' for national and local reforms with their own logic and purpose contributing to the persistence of old and the emergence of new, variations across and within systems. Recent reforms are thus not only contested but will also not necessarily lead to a grand unified model for the European higher education and research landscape.

References

Alexander, J.C. and P. Colomy. "Neofunctionalism Today: Reconstructing a Theoretical Perspective." In Ritzer, G. (ed.). *Frontiers of Social Theory: The New Syntheses*. New York: Columbia University Press, 1990, 33–67.

Barblan, A., S. Reichert, M. Schotte-Kmoch and U. Teichler. *Implementing European Policies in Higher Education Institutions*. Kassel: Centre for Research on Higher Education and Work (Werkstattberichte 57), 2000.

Beck, U. Risikogesellschaft. Auf dem Weg in eine andere Moderne. Frankfurt a.M.: Suhrkamp, 1986.

Benneworth, P. and P. Arbo. *Understanding the Regional Contribution of Universities: A Literature Review*. Paris: OECD/IMHE, 2006.

Bergen Communiqué. *The European Higher Education Area – Achieving the Goals.*Bergen: Communiqué of the Conference of Ministers Responsible for Higher Education, 19–20 May 2005.

Berlin Communiqué. *Realising the European Higher Education Area*. Berlin: Communiqué of the Conference of Ministers Responsible for Higher Education, 19 September 2003.

Bleiklie, L. *Organizing Higher Education in the Knowledge Society*. Paris: UNESCO Forum Colloquium on Research and Higher Education Policy, 2004.

Böhme, G., W. van den Daele and W. Krohn. "Die Finalisierung der Wissenschaft." *Zeitschrift für Soziologie* 2.2 (1973): 128–144.

Bologna Declaration. *The European Higher Education Area: Joint Declaration of the European Ministers of Education*. Bologna, 19 June 1999.

Cerych, L. and P. Sabatier. *Great Expectations and Mixed Performance: The Implementation of Higher Education Reform in Europe*. Stoke-on-Trent: Trentham, 1986.

Clark, B.R. *The Higher Education System*. Berkeley, Los Angeles, London: University of California Press, 1983.

Clark, B.R. "The Fragmentation of Research, Teaching and Study: An Explorative Essay." In Trow, M.A. and Th. Nybom (eds). *University and Society: Essays on the Social Role of Research and Higher Education*. London: Jessica Kingsley Publishers, 1991, 101–111.

Clark, B.R. "Diversification of Higher Education: Viability and Change." In Meek, L., L. Goedegebuure, O. Kivinen and R. Rinne (eds). *The Mockers and Mocked: Comparative Perspectives on Diversity, Differentiation and Convergence in Higher Education*. Oxford: Pergamon, 1996, 16–25.

Clark, B.R. *Creating Entrepreneurial Universities: Organizational Pathways of Transformation*. Oxford: Pergamon Press, 1998.

Corbett, A. *Universities and the Europe of Knowledge: Ideas, Institutions and Policy Entrepreneurship in European Union Higher Education Policy, 1955–2005*. Basingstoke: Palgrave Macmillan, 2005.

David, P.A. and L.C. Keely. "The Economics of Scientific Research Coalitions: Collaborative Network Formation in the Presence of Multiple Funding." In Geuna, A., A.J. Salter and W.E. Steinmueller (eds). *Science and Innovation: Rethinking the Rationales for Funding and Governance*. Cheltenham, UK: Edward Elgar, 2003, 251–308.

De Boer, H.F., J. Enders and L. Leisyte. "Public Sector Reform in Dutch Higher Education: The Organizational Transformation of the University." *Public Administration* 85.1 (2007): 27–46.

De Solla Price, D.J. *Little Science, Big Science*. New York: Columbia University Press, 1963.

De Weert, E. "Contours of the Emergent Knowledge Society: Theoretical Debate and Implications for Higher Education Research." *Higher Education* 38.1 (1999): 49–69.

Enders, J. "Academic Staff Mobility in the European Community: The ERASMUS Experience." *Comparative Education Review* 42.1 (1998): 46–60.

Enders, J. "Governing the Academic Commons: About Blurring Boundaries, Blistering Organisations, and Growing Demands." In CHEPS (ed.). *The CHEPS Inaugurals 2002*. Enschede: University of Twente, 2002, 69–105.

Enders, J. "Higher Education, Internationalisation, and the Nation-state: Recent Developments and Challenges for Governance Theory." *Higher Education* 47.3 (2004): 361–382.

Enders, J. and O. Fulton (eds). *Higher Education in a Globalising World: International Trends and Mutual Observations*. Dordrecht: Kluwer, 2002.

Etzkowitz, H. and L. Leydesdorff (eds). *Universities and the Global Knowledge Economy: A Triple Helix of University-Industry-Government Relations.*London: Cassell Academic, 1997.

European Commission. *Towards a European Research Area*. COM (2000) 6 final, Brussels, 18 January 2000.

European Commission. *The European Research Area, An International Knowledge Market*. Luxembourg: Office for Official Publications of the European Commission, 2002.

European Commission. *The Role of Universities in the Europe of Knowledge*. COM (2003) 58 final, Brussels, 5 February 2003.

European Commission. *Delivering on the Modernisation Agenda for Universities: Education, Research and Innovation*. COM (2006) 208 final, Brussels, 10 May 2006.

Frank, D. and J.W. Meyer. "Worldwide Expansion and Change in the University." In Krücken, G., A. Kosmützky and M. Torka (eds). *The Multiversity – Universities Between Global Trends and National Traditions*, Bielefeld: Transcript Verlag, 2007, 17–42.

Funtowicz S.O. and J.R. Ravetz. "The Emergence of Post-normal Science." In Von Schomberg, R. (ed.). *Science, Politics, and Morality: Scientific Uncertainty and Decision-making*. Dordrecht: Kluwer, 1993, 85–123.

Geuna, A. *The Economics of Knowledge Production: Funding and Structure of University Research*. Cheltenham, UK: Edward Elgar, 1999.

Gibbons, M., C. Limoges, H. Nowotny, S. Schwartzman, P. Scott and M. Trow. *The New Production of Knowledge*. London: Sage, 1994.

Gläser, J. "Limits of Change: Cognitive Constraints on 'Postmodernization' and the Political Redirection of Science." *Social Science Information* 39.4 (2000): 439–465.

Henkel, M. *Academic Identities and Policy Change in Higher Education*. London/Philadelphia: Jessica Kingsley, 2001.

Huisman, J. *Differentiation, Diversity and Dependency in Higher Education: A Theoretical and Empirical Analyses*. Enschede: CHEPS, 1995.

Huisman, J. "Differentiation and Diversity in Higher Education Systems." In Smart, J. (ed.). *Higher Education: Handbook of Theory and Research, vol. XIII*. New York: Agathon Press, 1998, 75–100.

Huisman, J., A. Luijten-Lub and M. van der Wende. "Explaining Domestic Responses to European Policies: The Impact of the Erasmus Programme on National Higher Education Policies." Paper presented at the 26th Annual EAIR Forum, Barcelona, 5–8 September 2004.

Irvine, J. and B. Martin. *Foresight in Science: Picking the Winners*. London: Frances Pinter, 1984.

Jongbloed, B. "Lifelong Learning: Implications for Institutions." *Higher Education* 44 (2002): 413–431.

Krücken, G., A. Kosmützky and M. Torka (eds). *The Multiversity – Universities Between Global Trends and National Traditions*. Bielefeld: Transcript Verlag, 2007.

Levine, A. "Higher Education as a Mature Industry." In Altbach, P., P.J. Gumport and B. Johnstone (eds). *In Defense of American Higher Education*. Baltimore, MD: Johns Hopkins University Press, 2001, 38–59.

Lutz, B. *Der kurze Traum immerwährender Prosperität*. Frankfurt a.M.: Suhrkamp, 1984.

Meek, L., L. Goedegebuure, O. Kivinen and R. Rinne (eds). *The Mockers and Mocked: Comparative Perspectives on Diversity, Differentiation and Convergence in Higher Education*. Oxford: Pergamon, 1996.

Merton, R.K. *Sociological Ambivalence and Other Essays*. New York: The Free Press, 1976.

Metzger, W. "The Academic Profession in the United States." In Clark, B.R. (ed.). *The Academic Profession: National, Disciplinary, and Institutional Settings*. Berkeley: University of California Press, 1987, 123–208.

Neave, G. "The European Dimension in Higher Education: An Excursion into the Modern Use of Historical Analogues." In Huisman, J., P. Maassen and G. Neave (eds). *Higher Education and the Nation State: The International Dimension of Higher Education*. Oxford/New York: Palgrave, 2001, 13–74.

Neave, G. "Mass Higher Education and the Research University: A Post-modern Revival of Ockham's Razor." In Tadmor, Zehev, Nava Ben-Zvi, Sheldon Rothblatt and Martin Trow (eds). *Proceedings of the International Conference: Transition to Mass Higher Education Systems: International Comparisons and Perspectives*. Haifa (Israel): The S. Neaman Institute for Advanced Studies in Science and Technology, 2006, 241–264.

Neave, G., K. Blückert and Th. Nybom (eds). *The European Research University: An Historical Parenthesis*? New York: Palgrave Macmillan, 2006.

Neave, G. and F. van Vught. *Prometheus Bound: The Changing Relationship Between Government and Higher Education in Western Europe*. Oxford: Pergamon, 1991.

Nowotny, H. "Mass Higher Education and Social Mobility: A Tenuous Link." In Dill, D.D. and B. Sporn (eds). *Emerging Patterns of Social Demand and University Reform: Through a Glass Darkly*. Oxford: Pergamon Press, 1995, 72–89.

Nybom, Th. "A Rule-governed Community of Scholars: The Humboldtian Vision in the History of the European University." In Maassen, P. and J.P. Olsen (eds). *University Dynamics and European Integration.* Dordrecht: Springer, 2007, 71–102.

Olsen, J.P. "The Many Faces of Europeanization." *Journal of Common Market Studies* 40 (2002): 921–952.

Olsen, J.P. "The Institutional Dynamics of the (European) University." Working Paper no. 15. University of Oslo: Centre for European Studies, 2005. Retrieved from http://www.arena.uio.no.

Olsen, J.P. and P. Maassen. "European Debates on the Knowledge Institution: The Modernization of the European University at the European Level." In Maassen, P. and J.P. Olsen (eds). *University Dynamics and European Integration.* Dordrecht: Springer, 2007, 5–30.

Owen-Smith, J. and W.W. Powell. "Careers and Contradictions: Faculty Responses to the Transformation of Knowledge and Its Uses in the Life Sciences." In Vallas, S. (ed.). *The Transformation of Work: Research into the Sociology of Work*. vol. 10. Greenwich, CT: JAI Press, 2004, 109–140.

Parsons, T. and G.M. Platt with the collaboration of N.J. Smelser. *The American University.* Cambridge/Harvard: University Press, 1973.

Pavitt, K. "Public Policies to Support Basic Research: What Can the Rest of the World Learn From US Theory and Practice? (And What They Should Not Learn)." *Industrial Corporate Change* 10.3 (2001): 761–779.

Psacharopoulus, G. (ed.). *Economics of Education: Research and Studies*. Oxford: Pergamon, 1987.

Rueschemeyer, D. "Structural Differentiation, Efficiency, and Power." *American Journal of Sociology* 83 (1977): 1–25.

Schimank, U. Theorien gesellschaftlicher Differenzierung. Leske+ Budrich: Opladen, 1996.

Schimank, U. "Differentiation." In Harrington, A., B.L. Marshall and H.-P. Müller (eds). *Encyclopedia of Social Theory*. London: Routledge, 2006, 141–143.

Schimank, U. and M. Winnes. "Beyond Humboldt? The Relationship Between Teaching and Research in European University Systems." *Science and Public Policy* 27.6 (2000): 397–408.

Schmidt, V.A. “Europeanization and the Mechanisms of Economic Policy Adjustment.” *Journal of European Public Policy* 9 (2002): 894–912.

Scott, P. *The Meanings of Mass Higher Education*. Buckingham: Open University Press, 1995.

Scott, P. “Research Revolution and Its Impact.” In Neave, G., K. Blückert and Th. Nybom (eds). *The European Research University: An Historical Parenthesis*? New York: Palgrave Macmillan, 2006, 129–143.

Shinn, T. “Change or Mutation? Reflections on the Foundations of Contemporary Science.” *Social Science Information* 38.1 (1999): 149–176.

Smelser, N.J. “Epilogue: Social-structural Dimensions of Higher Education.” In Parsons, T. and G.M. Platt with the collaboration of N.J. Smelser. *The American University*. Cambridge/Harvard: University Press, 1973, 389–422.

Teichler, U. *Changing Patterns of the Higher Education System: The Experience of Three Decades*. London: Jessica Kingsley Publishers, 1991.

Teichler, U. “Higher Education and the World of Work: Changing Conditions and Challenges.” Paper for the UNESCO World Conference on Higher Education, Kassel, 1998a.

Teichler, U. “The Role of the European Union in the Internationalisation of Higher Education.” In Scott, P. (ed.). *The Globalization of Higher Education*. Buckingham: The Society for Research in Higher Education & Open University Press, 1998b, 88–99.

Teichler, U. “Changing Structures of the Higher Education Systems: The Increasing Complexity of Underlying Forces.” In UNESCO (ed.). *Diversification of Higher Education and the Changing Role of Knowledge and Research*. UNESCO Forum Occasional Paper Series no. 6. Paris: UNESCO, 2004, 1–15.

Teichler, U. “Has the Research University in Europe a Future?” In Neave, G., K. Blückert and Th. Nybom (eds). *The European Research University: An Historical Parenthesis*? New York: Palgrave Macmillan, 2006, 165–173.

Trow, M. “Problems in the Transition from Elite to Mass Higher Education.” In OECD (ed.). *Policies for Higher Education*. Paris: OECD, 1974, 51–101.

Van Vught, F. “Higher Education Systems Dynamics and Useful Knowledge Creation.” In Weber, L.E. and J.J. Duderstadt (eds). *Universities and Business: Partnering for the Knowledge Society*. London, Paris, Genua: Economica, 2006, 63–75.

Weiler, H. “Ambivalence and the Politics of Knowledge: The Struggle for Change in German Higher Education”. *Higher Education* 49.1/2 (2005): 177–195.

Weingart, P. “From ‘Finalization’ to ‘Mode 2’: Old Wine in New Bottles?” *Social Science Information* 36.4 (1997): 591–613.

Witte, J. *Change of Degrees and Degrees of Change: Comparing Adaptations of European Higher Education Systems in the Context of the Bologna Process*. Enschede: CHEPS, 2006.

Ziman, J. “‘Postacademic Science’: Constructing Knowledge with Networks and Norms.” *Science Studies* 1 (1996): 64–79.