Rankings and Classifications in Higher Education: A European Perspective

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Introduction

With the massification of higher education both the number of students and the number of higher education institutions has grown. Institutions are required to serve not only a larger but also an increasingly diverse clientele. With the concept of the knowledge economy, an even wider range of expectations of the functions and missions of higher education institutions emerged, in relation to their contribution to regional development, innovation and more generally to economic growth. In order for higher education systems to respond effectively to these trends, it is generally argued that more diversity in higher education systems is needed (Birnbaum, 1983; van Vught, 1996). Increasingly, however, these trends are taking place in the context of globalization which leads to fiercer competition for human and financial resources across the borders of nations and continents. As a result, rather than horizontal diversification a tendency towards vertical stratification can be observed. This is fuelled by global university rankings, which cement the notion of a world university competition or market capable of being arranged in a single "league table" for comparative purposes, while giving even more impetus to intra-national and international competitive pressures in the sector.

This chapter will review the dilemmas, trends and promises of university rankings and in particular their impact on institutional behavior, on system-level diversity and their relation to systems for the classification of different types of higher education institutions. This will be discussed with a special focus on the European context, in which trends to convergence and to diversification can be observed at the same time.

It will be argued that rankings only make sense within defined groups of comparable institutions, in other words that classification is a prerequisite for sensible rankings. Without this only the comprehensive research intensive university can prevail as a global winner, which will have an adverse affect on diversity since academic and mission drift (isomorphism) can be expected to intensify as a result of a single global status model. Instead, higher education institutions should be stimulated and enabled to excel in different missions and to develop distinct profiles. This requires multi-dimensional approaches to ranking and classification and the development of more sophisticated indicators for measuring performance in areas

other than basic research, such as teaching, lifelong learning, knowledge transfer, applied research, innovation, local and regional engagement, and others.

Some Background to the European Context: Patterns of Convergence and Divergence

The European higher education landscape is highly diverse. In terms of its size, the European Higher Education Area (including the 45 Bologna signatory countries) is comparable to that of the United States' higher education system. There are 3,300 higher education establishments in the European Union and approximately 4,000 in Europe as a whole (EC, 2003). At the same time, however, the European higher education landscape is far more complex than US higher education as it is primarily organized at national and regional levels, each with their own legislative conditions, cultural and historical frames, and a vast array of different languages in which the various forms, types and missions of higher education institutions may be expressed (van Vught et al., 2005, p. 4).

With the creation of the European Higher Education Area major efforts are underway to enhance the convergence between higher education systems in the different countries, the Bologna Process being the main vehicle to achieve this. The Bologna Process, initiated in 1999, represents the totality of commitments freely taken by each signatory country (initially, 29 nations; since 2005, 45 nations) to reform its own higher education system in order to create overall convergence at the European level, as a way to enhance intra-European mobility, employability and international/global competitiveness. The achievements of the Bologna Process have been substantial and influential. The initial focus was on changing degree structures into a two-cycle (undergraduate-graduate) system, and the wider implementation of ECTS (European Credit Transfer System) with the aim of enhancing the readability and recognition of degrees. This has extended to the development of a European Qualifications Framework, the description and "tuning" of competencies and learning outcomes at curriculum level, substantial initiatives in the areas of quality assurance and accreditation and work on the "third cycle", that is, the reform of studies at the doctoral/Ph.D. level (Huisman & van der Wende, 2004; van der Wende, 2007).

A series of bi-annual studies have demonstrated that the implementation of the two-cycle degree structure was established in almost all countries by 2005, although in various modes and at a varying speed of introduction (Reichert & Tauch, 2005). Despite such achievements as the convergence of degree structures and the intro-duction of common frameworks for quality assurance and for qualifications, certain tensions between harmonization and diversity have continued. In-depth studies and comparisons between countries show that the actual implementation of the new structures can vary significantly. Lub et al. (2003) found substantial differences between the Netherlands, where the new two-cycle system replaced the existing

long first-cycle degree system and Germany, where the new system was implemented in parallel to the existing system and despite quick growth in the number of new degree programs, only a small fraction of the total student population actually participates in these programs. Alesi et al. (2005) found in a comparison of six countries that there is no unified logic in the system of new degree programs. This point applies both to the breadth of the innovation—in each country different groups of subjects are excluded from the new structure, and different time-frames set for the introduction—and to the duration of the new programs. The 3 + 2-year model, a bachelor degree followed by a master degree, is the basic model; but there are many variations from this model. For example the United Kingdom is a notable exception: in that nation masters degrees mostly take one year. Likewise Witte (2006), in a comparison of England, France, the Netherlands, and Germany, found that there is variation in the degree of change following from the Bologna Process, especially when one looks at implementation. She concludes that the four countries under study weakly converged between 1998 and 2004 in the direction of the English system, but although the changes leading to that convergence all occurred within the framework of the Bologna Process, this does not necessarily mean that they were caused by it. Rather, the Bologna Process has often served to enable, sustain and amplify developments that have been driven by deeper underlying forces or particular interests and preferences at the national level; for example to the pressures to reduce study length, the time within which a student must complete a degree or drop out.

Apart from the fact that the Bologna Process is implemented quite differently *across* countries, weakening its harmonizing or converging effects; parallel to it, divergent trends can be observed. This is especially the case *within* countries. Examples are Germany and France, where there is increased diversity in each case. This is partly due to the parallel existence of different degree structures in the transition phase, but also derives from the increased curricular autonomy of higher education institutions (Witte, 2006). In a number of countries, among the trends in governmental policies are increased autonomy and a push for more diversity in the system. This is especially the case in countries that aim to enhance participation in higher education; for example the United Kingdom, Sweden, Finland and the Netherlands, where participation targets of 50% have been formulated. More diversity is seen as a necessary condition to achieving these aims.

At the same time, convergence occurs as both academic and professionally oriented higher education institutions now offer bachelor and master programs. There are frequent and increasing instances of functional overlap. This convergence of the two main types of higher education may lead to a change in those nations with such binary systems. But again, in response to this situation, nations also exhibit diversity and an overall trend towards a unitary system cannot be confirmed. In Hungary it has been decided to abolish the binary system and to replace it with a more varied range of programs, especially at Master's level. In contrast, the Netherlands intends to maintain the binary system and wants more institutional types to emerge within that framework. In Finland and Austria, binary systems were established only over

the last decade. The United Kingdom, which abolished its binary system in the early 1990s, is now looking to re-establish more diversity with the above-mentioned aim of thereby enhancing participation. As in other countries which have a unitary system, such as Australia, the lack of differentiation between institutions, with resulting mission convergence and institutional isomorphism, is seen as a justification for new reforms (Scott, 2004; Moses, 2004). In the case of the UK this is leading to a new search for effective forms of diversity, including a renewed focus on the teaching mission of higher education institutions, as is for example expressed in the UK White Paper on Higher Education (DfES, 2004).

The European Commission also advocates increased diversity, as a condition for excellence and increased access. Insufficient diversification, the tendency of promoting uniformity and egalitarianism, is seen as a bottleneck for including a wider range of learners and for achieving world-class excellence (EC, 2005, pp. 3–4). In terms of governance arrangements and regulatory frameworks, diversity is as important as autonomy in order to achieve wider access and higher quality (p. 7). Awareness that this implies a break with deeply-rooted notions and traditions in Europe is expressed as follows:

> European universities have for long modeled themselves along the lines of some major models, particularly the ideal model of the university envisaged nearly two centuries ago by Alexander von Humboldt, in his reform of the German university, which sets research at the heart of the university and indeed makes it the basis of teaching. Today the trend is away from these models and towards greater differentiation (EC, 2003, pp. 5–6).

This message is no longer denied by the sector itself:

> It is evident that the European university system needs to broaden access on a more equitable basis, that it has to reach out to increased excellence and that it must allow for more diversification within the system. The American university system is […] elitist at the top, and democratic at the base; the European university system seems to be neither (EUA President, 2006).

The above-described trends raise questions about the level at which diversity is defined and pursued, and whether it is systemic, institutional, or programmatic diversity (Birnbaum, 1983). A more contemporary point is that "there has been a gradual shift in the meaning of *diversity*—from diversity among national systems of higher education to a European-wide diversification in institutions and programmes with different profiles" (Hackl, 2001, p. 20). At this level the questions are whether and how diversification can lead to an effective division of labor in Europe; whether cooperation or rather a competition-based process would be the most appropriate way to achieve this; and how individual countries will balance such a division of labor at European level with their national priorities. A Delphi-based study on the future European higher education and research landscape (CHEPS, 2005) shows a strong belief among actors in the field that the division of labor will imply research-intensive doctoral-granting institutions will become concentrated in the North-west of Europe. All scenarios presented in the study are consistent in this respect, which raises crucial questions on the involvement of countries in other parts of Europe. Although mobility and networking could engage individual

researchers from these countries, consequences for national capacity and linguistic and cultural diversity could still be serious.

An important distinction needs to be made between changes at the undergraduate and the graduate levels. Increasing participation rates require diversity to be enhanced especially at the undergraduate level, thereby enabling especially non-traditional students to enroll. In terms of programmatic diversity, the introduction of the associate or foundation degree, awarded after two years higher education, is important here. At the graduate level, where the patterns of activity are closely related to research strengths, there is a trend towards greater concentration and specialization.

These various trends indicate that the current dynamics in European higher education are at one and the same time characterized by trends of convergence, aiming for harmonization; and divergence, searching for more diversity. In understanding this, the distinctions between different levels of education (undergraduate and graduate/research) and the different types of diversity (institutional and programmatic) are important. Ironically perhaps, both kinds of trend—convergence and diversification—have been instigated in order to enhance competitiveness in the global context. Higher participation rates among a larger number of domestic students, fostered by diversity of provision, are seen to enhance the potential of each country as a knowledge economy. Allowing more cross-border mobility within Europe, and to attracting more students from other regions, objectives fostered by harmonization and convergence, are seen to enhance the performance of the European knowledge economy as a whole. At the same time, this implies patterns that to an extent are confusing, and it raises questions about the further direction of the process of Europeanization in higher education. Given that multi-level actions and interactions are involved, these questions are not easy to answer, and future directions are not easy to predict. The aforementioned study on the future of European higher education (CHEPS, 2005) indicates that more diversity is indeed expected, but presents quite different scenarios with respect to its consequences. They may range from a centrally organized diversity, the transparency of which would be based on the Bologna logic and primarily ensured by a single European quality assurance (accreditation) system; through great variation existing in more hybrid and networked structures, but still ensured by European frameworks for quality assurance (accreditation); to a truly anarchic or unclassifiable diversity, leading to public concern regarding quality of provision. As noted, though supranational frameworks may enable developments at national levels, and perceptions of the international context may support national policy changes; actual national preferences and implementation modes and options may differ from nation to nation. Combined with the trend towards increasing institutional autonomy and the search for more diversity, this may be the reason why many actors are expecting an increase in vertical differentiation with respect to quality and reputation, despite efforts to achieve convergence and harmonization. This expectation, and the trends and policies in favor of autonomy and diversity, have prompted initiatives to introduce systems for classification (typologies) and ranking within Europe, discussed in Sections "Alternative Approaches to Ranking: Best Practice from Europe" and "Toward a Typology of Higher Education Institutions in Europe".

European Responses to University Rankings and Global Competition

Expectations regarding an increase in vertical differentiation with respect to quality and reputation are further fuelled by the emergence of global university rankings. The most globally influential global rankings are those prepared by the Shanghai Jiao Tong University, first issued in 2003. The second set of global rankings, prepared by *The Times Higher*, was first published in 2004. These rankings were intuitively plausible because they confirmed the reputations of the leading American and British universities, the household names such as Harvard, Stanford, Yale, Berkeley, MIT, Cambridge and Oxford. With global university rankings, especially the global ranking of research performance, higher education itself has entered an era of open global competition between nations and between individual higher education institutions as global actors in their own right. Increasingly, national higher education systems and higher education institutions are judged by where they stand in global terms. Across the world national policy makers and higher education institutions must take account of a global higher education environment in which resources and educational status are distributed unequally.

The global rankings immediately secured great prominence in higher education, policy and public arenas; and have already had discernable effects on institutional and policy behavior. While there has been some disquiet about the impact of the rankings, and instances of critique of the methods (particularly in institutions and nations where performance was less good than expected), there have so far been only few concerted efforts to discredit the rankings process. Notwithstanding their controversial nature and methodological shortcomings rankings have become widespread and are clearly here to stay. Given this, research universities know that they must succeed within the terms of the measures. In institutions the rankings have generated a strong drive to improve position, particularly in the Shanghai Jiao Tong rankings which are seen as the more credible. Within national systems, the rankings have prompted desires for high ranking research universities both as a symbol of national achievement and prestige and as an engine of economic growth. There has been a growing emphasis on strategies of institutional stratification and concentration of research resources, some of which pre-dated the rankings. At the same time global rankings have stimulated global competition for leading researchers and the best younger talent. All of these responses have both cemented the role of the rankings themselves and further intensified competitive pressures (Marginson & van der Wende, 2007a).

In Europe global university rankings are having a serious impact. The number of European universities in the top of these rankings is disappointing in the eyes of many. In the 2006 Shanghai Jiao Tong ranking only 2 European universities (Cambridge and Oxford) appear in the top 20, compared to 17 US institutions and 1 Japanese. There are 34 European institutions in the top 100 of the list (SJTUIHE, 2007). The *Times Higher* listing is the more plural of the two, with "only" 12 American universities in the top 20 rather than the 17 in the Shanghai Jiao Tong

University table, 4 UK universities rather than 2, and universities from four other nations (France, Japan, China and Australia) rather than the one (Japan) in the Jiao Tong listing (Times Higher, 2006).

In Europe the weak representation of European higher education in the two global ranking systems coincides with wider concerns over Europe's competitive position as a knowledge economy; as compared to that of the US in particular, but increasingly also with a view to the emerging strengths of Asian countries, in particular China. With its aim to become the world's leading knowledge economy, the European Union is concerned about its performance in the knowledge sector, in particular in research, (higher) education and innovation (the so-called *knowledge triangle*). It aims to solve the *European paradox*, whereby Europe has the necessary knowledge and research, but fails to transfer this into innovation and enhanced productivity and economic growth. Indicators that tell the story, besides the position of European universities in the global rankings, are the fact that the share of European Nobel prize winners has declined throughout the twentieth century, that brain drain to the US continues, that investments in higher education and research lag behind those in the US and Japan. There are also lags in the level of higher education qualifications among the EU working-age population, and the number of researchers in the labor force. EU universities hold few registered patents, the US attracts more R&D expenditure from EU companies than US companies allocate to the EU, and China may soon be spending the same percentage of GDP on R&D as the EU.

The European performance in global rankings has prompted policy reflection and action in both EU and national government circles and is often cited in public proposals for greater investment in the European higher education and research area, and proposals for the further concentration of funding in networks and centers of excellence. Responses to growing global competition, in which knowledge is a prime factor for economic growth, are increasingly shaping policies and setting the agenda for the future of European higher education. At the EU level, the Lisbon Strategy is the main vehicle for enhancing performance of the higher education sector. Its aim are to increase funding for R&D to 3% of GDP and funding of higher education to 2%; to enhance the number of graduates overall and in particular in math, science and technology; to reduce brain drain; and to strengthen the contribution of higher education and research to innovation and economic growth. Recent budget allocations include a total (seven year) budget of 50.5 billion Euro for the EU's seventh Framework Program for R&D, which is twice the financial volume of its predecessor (FP6); and the establishment of the European Research Council (ERC), set up to fund innovative, ground-breaking basic research, with a 7.5 billion Euro budget for seven years. Another major, but also slightly more controversial, initiative concerns the establishment of a European Institute of Technology (EIT), which is meant to become a global player and is often seen as a European equivalent of the US Massachusetts Institute of Technology (MIT).

At national level, various initiatives are underway to enhance global competitiveness by concentrating resources and providing extra investments. Notable examples are the creation of top universities in Germany, to be achieved through nationwide competition among universities to identify the best research universities. These will be provided with extra funding to become elite institutions able to

compete on a global level. Three universities were selected in the first round, together with various clusters of excellence, mostly in science and engineering areas. Denmark has engaged in a merger process in order to create fewer, larger and stronger universities. In this case, motivations for the merger operation were related to the challenges of increased global competition and the desire to create world-class universities. In the Netherlands the three technical universities are joining forces in a national federation (3TU).

At institutional level, interesting examples include the establishment of LERU (the League of European Research Universities), which is particularly concerned with the question how to ensure that more European universities can join Oxford and Cambridge (both members of LERU) at the top of the world university rankings. The merger in 2004 of UMIST and the Victoria University of Manchester created the UK's largest single-site university, the University of Manchester. The stated purpose of the merger was to become one of the top 25 research universities in the world by 2015.

The examples presented above illustrate responses in Europe to global competition and clearly indicate the important role that global rankings of universities are playing (see also van der Wende, 2007). Despite the fact that European higher education does not have a long standing tradition of league tables as in the US, and that global rankings were met with some skepticism and critique, politicians in various countries now set targets as to how many universities should be listed in the worldwide top 20, 25, or 50. University leaders express their ambitions also by referring to this kind of ordering. It is increasingly realized that just stating "we are world class" or "we are a top international university" is no longer enough. Ranking data must confirm it. Moreover, it is clear that there will be strong policy pressure to ensure that the additional investments in higher education and R&D provided as part of the Lisbon Strategy and the various national endeavors will be located in successful institutions that have demonstrated their capacity to generate high dividends on the investment. This favors the systematic use of rankings and other kinds of comparison as a guide to policy.

The Dilemmas of Rankings: Limitations and Methodological Issues

Yet as rankings have a great impact on policy makers at all levels and seem to be here to stay, they are far from problem-free. Major concerns are related to their methodological underpinnings and to their policy impact on stratification and diversification of mission. Regardless of the particular methods, most rankings systems share common limitations. Common problems are that most rankings systems purport to evaluate universities as a whole denying the fact that they are internally differentiated, that the weightings used to construct composite indexes covering different aspects of quality or performance may be of arbitrary character, and that they are biased in favor of research (especially in the natural and medical sciences) with little (or no) guidance on the quality of teaching.

These various issues will now be discussed in more detail (see also Marginson & van der Wende, 2007a, b).

First, although rankings share broad principles and approaches, they differ considerably in detail related to their methodologies, criteria, reliability, and validity. Different rankings systems are driven by different purposes (Dill & Soo, 2005). They are associated with different notions of what constitutes university quality, which may be measured by a variety of indicators, depending on the perspective of the ranking's creators. This suggests that there is no commonly accepted static definition of quality that would fit all institutions, regardless of type and mission, and a single, objective ranking cannot exist (Van Dyke, 2005; Rocki, 2005; Brown, 2006; Marginson, 2006; Salmi & Saroyan, 2006; Usher & Savino, 2007).

Second, higher education institutions have different goals and missions and are internally differentiated. This suggests that it is invalid to measure and compare individual higher education institutions as a whole; and still less to compare them in a national system on a holistic basis, let alone across national and regional borders. Holistic institutional rankings norm one kind of higher education institution with one set of institutional qualities and purposes, and in doing so strengthen its authority at the expense of all other kinds of institution and all other qualities and purposes. It might be argued that the comprehensive research university is the only kind of institution sufficiently widespread throughout the world to underpin a single comparison, and the science disciplines are common to these institutions. However the Jiao Tong rankings not only norm comprehensive research universities, their blueprint is a particular kind of science-strong university in the Anglo-American tradition.

Further, there are no cross-national measures of the performance of vocational education systems or institutions equivalent to the ranking measures for research universities. Yet many vocational institutions have international networks, status and reputation, such as business schools, schools for performing arts, and hotel schools. While in most nations vocational education commands lesser status than research-based universities, the German *Fachhochschulen* (vocational technical universities), relatively well resourced and with almost equivalent status to academic universities plus links to industry, are in high international standing. Similar comments can be made about vocational provision in Finland, Switzerland and especially the *Grandes Écoles* in France.

Third, holistic institutional rankings are a fallacy in that they lead to methodological anomalies. It is dubious to combine different purposes and the corresponding data using arbitrary weightings. The weightings vary across rankings and typically reflect the view of the publisher rather than being theoretically grounded. There is general consensus that this arbitrary and subjective element is a fundamental flaw in the methodology of rankings (Salmi & Saroyan, 2006). *The Times Higher* is more a holistic ranking rather than one limited to research, whereas the Shanghai Jiao Tong group argues that the only data sufficiently reliable for the purpose of ranking are broadly available and internationally comparable data of measurable research performance (Liu & Cheng, 2005, p. 133). Despite the fact that the latter does not constitute a holistic comparison of universities, it has been widely interpreted

as such. Composite approaches muddy the waters and undermine validity. The links between purpose, data and numbers are lost. Usher and Savino (2007) remark on the arbitrary character of the weightings used to construct composite indexes covering different aspects of quality or performance. "The fact that there may be other legitimate indicators or combinations of indicators is usually passed over in silence. To the reader, the author's judgment is in effect final" (p. 3). Frequently rankings foster holistic judgments about institutions that are not strictly mandated by the data used to compile the rankings and the methods used to standardize and weight the data. In these circumstances rankings become highly simplistic when treated as summative. Nevertheless, rankings are often treated in this way.

Another flaw in rankings can be the continual changes in methodology. Although institutions may not actually change in a significant way, ratings can fluctuate year-to-year as rankers change the weight assigned to different indicators (Salmi & Saroyan, 2006; IHEP, 2007). Another common problem is that institutions are rank ordered even where differences in the data are not statistically significant.

Fourth, a recurring difficulty is that few rankings focus on teaching and learning and none have been able to generate data based on measures of the value added during the educational process (Dill & Soo, 2005, p. 503, 505); though data in these areas would be most useful for prospective students. As Altbach (2006) states, "there are, in fact, no widely accepted methods for measuring teaching quality, and assessing the impact of education on students is so far an unexplored area as well" (p. 2).

The Shanghai Jiao Tong group considers it impossible to compare teaching and learning worldwide "owing to the huge differences between universities and the large variety of countries, and because of the technical difficulties inherent in obtaining internationally comparable data" (Liu & Cheng, 2005, p. 133). Indicators such as student selectivity and research performance have become proxies for quality; yet these qualities drive the reputation of a higher education institution more than they drive its educational program. In the Times Higher ranking 20% of the index is comprised by the student-staff ratio as a proxy for teaching quality. It is highly questionable whether teaching quality can be adequately assessed using a resource quantity indicator such as student-staff ratios only. Further, there is no necessary connection whatsoever between the quality of teaching and learning, and the quantity and quality of research (let alone the level of student selectivity). Dill and Soo (2005) remark that "empirical research … suggests that the correlation between research productivity and undergraduate instruction is very small and teaching and research appear to be more or less independent activities" (p. 507).

When criteria such as research and student selectivity are adopted as the base of holistic rankings of institutions for market purposes, the terms of inter-institutional competition are being defined by credentialism but not the formative role of higher education, as if students' only concern is the status of their degrees not what they learn. However, US and UK research suggests that only certain potential students are interested primarily in the prestige ranking of higher education institutions; and interestingly, these students tend to be drawn disproportionately from high achieving and socially advantaged groups (Dill & Soo, 2005, p. 513). Also Clarke (2007) finds that students with higher income and/or high achieving students are the most

likely to use rankings. It is as if those students who expect to participate and to succeed in higher education are primarily interested in their status position within the sector, whereas others such as those from first generation higher education families might be more conscious of the absolute benefits of participation, and rather less focused on the map of relative advantage within the sector. This area would benefit from further research, conducted on a comparative basis.

Most interesting in this respect is the new OECD project looking into the feasibility of assessing learning outcomes across institutions on an international comparative basis. It is recognized that learning outcomes are an important component of the quality of higher education institutions, in particular the value added by institutions, taking into account the quality of prior schooling and the degree of selectivity. Provided that the methodological challenges related to the measurement of value added can be overcome, these data could allow students to make better informed choices and provide institutions and policy makers with a better understanding of their comparative strengths and weaknesses in this area. It would in particular enhance the reputation of institutions that pride themselves on the value they create for their students, many of whom may enter higher education with modest entry qualifications.

Fifth, it is unclear to what extent the prestige fostered by rankings is grounded in real differences in higher education institution's quality; whether ranking feeds into a process of continuous improvement in quality and student servicing or not; and whether there are downsides of rankings from the point of view of students, higher education institutions, systems, or the public interest. Although it can be argued that a league of world-class universities needs to exist in order to counteract the rising "sea of mediocrity" in higher education (undemanding study programs, overcrowded lecture halls, poor libraries, and so on), with such institutions serving as role models (Sadlac & Liu, 2007), the evidence that strong institutions inspire better performance is so far mainly found in the area of research rather than that of teaching. In the US, over the years higher education institutions have learned to target their behavior to maximize their position on national rankings. This has had perverse effects from the public interest viewpoint, for example the manipulation of student entry to maximize student scores and refusal rates, and the growth of merit-based student aid at the expense of needs-based aid (Kirp, 2004). Clarke's (2007) findings confirm that access may be threatened by rankings, contributing to the stratification of the US higher education system and, in turn, encouraging such institutional policies as recruiting students who will maintain or enhance their positions in the rankings, early admission decisions, merit aid, and tuition discounting. UK research confirmed a strong correlation between ranking position and the relative admission quality of students (Roberts & Thompson, 2007). Studies in the US also found high correlations between a university's league table position and its income per student (Brown, 2006), although more so from state funding sources than from tuition (NBER, 2007).

Sixth, reputational surveys not only favor universities already well known regardless of merit, degenerating into "popularity contests" (Altbach, 2006); they are open to the charge that they simply recycle and augment existing reputation

(Guarino et al., 2005, p. 149), or reinforce stereotypes and market stratification (Roberts & Thompson, 2007). "Raters have been found to be largely unfamiliar with as many as one third of the programs they are asked to rate" (Brooks, 2005, p. 7). Well known university brands generate halo effects. For example one American survey of students ranked Princeton in the top ten law schools in the country, but Princeton did not have a law school (Frank & Cook, 1995, p. 149). Moreover, regardless of the particular selection of qualities measured, any system of holistic national global rankings tends to function as a reputation maker that entrenches competition for prestige as a principal aspect of the sector and generates circular reputational effects that tend to reproduce the pre-given hierarchy. The SJTU and *Times* rankings both tend to reproduce and to exacerbate the existing vertical differences in the higher education landscape.

While reputational survey data might be an indicator of competitive market position it is invalid to mix these subjective data with objective data such as resources or research outputs. The *Times Higher* fails to make this distinction. At the same time, a number of observations can be made with respect to the relation between reputation and performance. Reputation is not necessarily the same as past performance, as institutions with an established reputation are remarkably strong in maintaining their position, simply as this provides them with the cumulative advantage to attract the best people and thus further reinforce their research performance (CWTS, 2007). Williams and Van Dyke (2007) find that if reputation within a particular discipline is measured by peer opinion then it is highly correlated with a range of research measures and with an overall measure of performance comprising determinants of international standing. This correlation points to the important role of peer review as the principal procedure of assessing research performance. However, the object to be evaluated should have a size that is comparable to the usual working environment of the peer. Therefore, it is questionable whether all the individual academics involved in such large-scale surveys can be regarded as knowledgeable experts in all those parts of the evaluated entities, that is complete universities. It is even more questionable to assume that they would have detailed knowledge of universities in other countries (Dill & Soo, 2005; CWTS, 2007) and are aware of all important recent breakthroughs in specialized fields (Van Raan, 2007).

The *Times Higher* rankings are open to further methodological criticisms. The surveys are non-transparent with respect to who was surveyed or what questions were asked. Moreover, the main survey of academic peers secured only a one per cent response rate in 2006 and the pool of responses was strongly weighted in favor of the UK, Australia and South East Asia (Marginson, 2007; Van Raan, 2007). Interesting new endeavors in this respect are the 2007 Shanghai Jiao Tong rankings by subject field (SJTUIHE, 2007) and the new Leiden rankings, in which scale (size of the institution), impact (citations per publication) and field are taken into account. It this way a size-independent, field-normalized average impact indicator (the so-called "crown indicator") has been constructed (CWTS, 2007).

Seventh, research rankings tend to be biased towards the natural and medical sciences and the English language. The model global university is English-

speaking and science-oriented (Marginson, 2006). A major part of the Shanghai Jiao Tong ranking is determined by publication and citation performance: 20% citation in leading journals; 20% articles in *Science* and *Nature*; and 20% the number of Thomson/ISI 'HiCi' researchers on the basis of citation performance. This tends to favor universities particularly strong in the sciences, as the assumption that important scientists publish their findings vigorously in international peer reviewed journals holds less for engineering, social and behavioral sciences, and even less for the humanities. Furthermore, in peer-based analyses the problem is to find adequate coverage of scientists in the relevant social sciences and humanities fields because of the many different schools of thought in these fields (Van Raan, 2007). Also citation practices differ. In engineering and applied sciences the number of citations per publication is considerably lower than in, for instance, the medical fields (CWTS, 2007). Such indicators also favor universities from English language nations, because English is the language of research. Recent work on bibliometrical analyses confirms that impact value depends upon whether publications written in languages other than English, particularly French and German, are included or not. Generally the impact of non-English publications is very low. These publications count on the output side, but they contribute very little, if at all, on the impact side (CWTS, 2007).

Since citation indices heavily rely on publications in English, the facility with which academics can disseminate research results in English becomes a critical factor in enhancing institutional reputation. This obviously puts institutions from nations whose first language is English in an advantageous position (Marginson, 2006; Salmi & Saroyan, 2006). Altbach (2006) adds that this effect is enhanced in favor of particular universities from the large US system because Americans mainly cite other Americans and ignore scholarship from other countries more than do academics elsewhere. He concludes that:

> The fact is that essentially all of the measures used to assess quality and construct rankings enhance the stature of the large universities in the major English-speaking centres of science and scholarship and especially the United States and the United Kingdom (Altbach, 2006, p. 3).

The Impact of Rankings on Institutional and Governmental Policies

An international survey, supported by OECD's program on Institutional Management of Higher Education (IMHE) and the International Association of Universities (IAU), has looked into the impact of rankings on institutional and academic behavior, specifically on institutional decision-making and perceptions of government policy-making (Hazelkorn, 2007). Over 70% of the respondents were from institutions that are ranked nationally and over 40% were from institutions that are ranked internationally.

Interestingly, 40% of the respondents were not happy with their current institutional ranking, and 72% and 61% respectively want to improve their national or international ranking. Altogether 57% think the impact of rankings has been broadly positive on their institution's reputation, aided their publicity and consequently positively impacting on attracting students, followed closely by forming academic partnerships, collaboration, program development and staff morale. Almost half, 46%, of the responding institutions have a formal internal mechanism for reviewing their rank. Of these a majority have taken either strategic or academic decisions in response. These results confirm that institutional leaders are taking rankings very seriously, incorporating the outcomes into their strategic planning mechanisms. Mostly they are using the results to identify weaknesses, and develop better management information tools to control the relevant indicators, but sometimes also reorganizing the institution or even hiring more Nobel Prize winners. Respondents were also asked to what extent they believe that rankings influence policy decision by governments. In general they stated that rankings have had an impact beyond their original purpose, impacting on a wide range of issues, such as the allocation of funding, in particular of research grants. A majority of respondents also indicated that they think that rankings favor the well-established universities, and emphasize research and postgraduate strengths. In doing so, they contribute to hierarchy rather than to more institutional diversity. Finally, the respondents stated that they were in favor of rankings carried out by independent research organizations or accreditation agencies, NGO's or international organizations, rather than by media or commercial organizations.

Rankings, Stratification, and System-Level Diversity

The fact that rankings favor the well-established universities, emphasizing their research strengths, thus contributing to hierarchy rather than to diversity, has been argued before and in particularly in relation to global rankings (Marginson & van der Wende, 2007a). In fact, certain countries see rankings and the subsequent stratification as means to assist in creating 'world class' universities and thus meet increasing global competition (Clarke, 2007). The policy impact of global rankings tends to be distinct as global comparisons are possible only in relation to one model of institution, that of the comprehensive research-intensive university. This model is the only one sufficiently widespread throughout the world to lend itself to the formation of a single competition, which, as noted, for the most part is tailored to science-strong and English-speaking universities. Research is not only the most globalized of all activities in higher education, research capacity is a key marker in the higher education landscape because the research standing of higher education institutions and nations feeds into both their capacity to produce globally-salient outputs and their generic attractiveness to other institutions, to prospective students and to economic capital.

Global rankings favor research-intensive universities at the cost of excluding excellent institutions that are for instance primarily undergraduate institutes, such as for instance liberal arts colleges. Salmi and Saroyan (2006) argue that the higher

regard for research institutions arises from the academy's own stance toward research and teaching; and note that this suggests the need to carry out the daunting task of developing objective and reliable metrics that can be accepted universally for assessing the quality of teaching.

The extended and intensified competition fostered by global rankings and their echoes at regional and national level has a number of secular effects with inevitable consequences, unless these effects are modified by policy intervention. Such measures seem particularly necessary to avoid a situation where some higher education institutions build research strength only through the weakening of others, which would seem to constitute little gain in national capacity overall. Rather than just creating more world-class (research) universities, what is needed also are more world-class technical institutions, world-class community colleges, world-class colleges of agriculture, world-class teaching colleges and world-class regional state universities, as Birnbaum (2007) argues. In this context it is important to realize that a "world class university" is expensive. It is estimated that the threshold cost to support such establishments is around 1.5 billion US dollars per year and 2 billion in cases where the university also includes a medical faculty and a university hospital. From this perspective it is estimated that Europe could host at most between 30 and 50 world class universities (Sadlac & Liu, 2007). Van Raan (2007) finds that the group of outstanding large broad research universities would not be larger than 200 members worldwide. He argues that there may be more smaller universities with excellence in research, but that there is no room for further "powerhouses of science" because no more excellent scientists are available worldwide.

As rankings systems reinforce the status of the comprehensive research intensive university model, there is no reason to assume that competition in itself will generate specialization unless the incentive structure favors this. A certain flattening of national system typologies results so as more unitary systems may be the result. In addition, certain conjunctural developments favor a drift towards homogeneity: the trend to institutional autonomy in many nations provides some higher education institutions with greater freedom in determining their mission according to market logic. Every university seeks to lift its rankings and many are prepared to change priorities in order to achieve this. In Europe for instance some polytechnics might seek to reshape themselves to fit the new common program structure secure. This draws attention to the importance of policy measures to sustain existing typologies or to develop new ones as required (see below). Furthermore, intensified competition on the basis of research performance will exacerbate demand for high quality scientific labor, with likely effects also on mobility and price. There already appears to be an increase in the mobility of ISI-defined HiCi researchers though this has yet to be subject to detailed empirical investigation. Thus one likely outcome of the intensified global competition and its mediation by rankings is to increase the stratification of research labor and the academic profession(s) both within national labor markets and between global and national labor markets. The instrumental importance of HiCi and other productive researchers in composing the Jiao Tong index strongly suggests that the global element in labor markets will grow in importance, though by how much is difficult to judge.

In this context van Vught (2006a) is concerned about the potential for simplistic market-type competition strategies in relation to the social dimension of higher education. He argues that the introduction through public policy of increased competition does not necessarily lead to more responsiveness of higher education institutions to the needs of the knowledge society. Rather than being driven by a competition for consumer needs, higher education institutions are driven by a competition for institutional reputation. In addition, the creation of more institutional autonomy in such a "reputation race" leads to costs explosions, related to hiring the best faculty and attracting the most talented students; to institutional hierarchies; and to social stratification of the student body. Along the same lines a Rand Corporation study shows how as institutions develop in size, range and market power they increasingly seek prestige, rather than the satisfaction of student or funder needs, as their principle objective. Other institutions then attempt to meet those needs but they are handicapped by their lack of prestige. The net result is that the system as a whole is less responsive, less diverse and less innovative than it would otherwise be (Brown, 2006). Considering the influence of ranking on higher education opportunity, US actors suggest this should be part of a wider debate on whether a more market-based system of higher education is changing institutional behavior in desirable ways (Clarke, 2007).

Policy should strive to correct the perverse effects arising from league tables, and to advance horizontal institutional diversity and informed student choice using typologies and customised rankings.

Alternative Approaches to Ranking: Best Practice from Europe

A better approach to rankings begins from the recognition that all rankings are partial in coverage and contain biases, and that all rankings are purpose-driven. It is valid to engage in rankings provided they are tailored to specific and transparent purposes (and only interpreted in the light of those), and customized to the needs of different stakeholders. The definition of quality in the context of tertiary education implies that the education meets the aspirations of students, the expectations of society, the demands of governments, business, and industry, and the standards set by professional associations (Salmi & Saroyan, 2006). At the same time, the different purposes and their corresponding data should not be combined using arbitrary weightings. Summarizing the overall ranking of an institution in one single score makes it difficult for students to distinguish among institutions based on the characteristics they find most important (IHEP, 2007). Because "quality is in the eye of the beholder", rankings should be interactive for users, particularly students. Users should be able to interrogate the data on institutional performance using their own chosen criteria. It is necessary to adapt the definition of quality to the interests, learning approaches and circumstances of ever increasing numbers and types of students—no one size fits all. What each student wants to know is not which is the best university, but which is the best university course for her/him. As students are primarily interested in

choosing a course of study, by definition institutional rankings can only provide a proxy for this, at best.

In Europe the Centre for Higher Education Development (CHE) in Germany has developed an alternative that is better than other ranking systems. The chief strategic virtue of the CHE rankings, one with far-reaching implications for the character of competition in higher education, is that it dispenses with a spurious holistic (overall or summative) rank ordering of higher education institutions, and instead provides a great range of indicator data in specific areas, including single disciplines collected from individual departments. As CHE states, there is no "one best university" across all areas, and "minimal differences produced by random fluctuations may be misinterpreted as real differences" in holistic rankings systems. The CHE data are presented on a website through an interactive web-enabled database that permits each student to examine and rank their chosen institutions based on their own chosen criteria, that is, to choose their own weighting scheme (CHE, 2006).

The CHE ranking focuses on selected academic subjects (36) offered by a substantial number of universities, which are updated in clusters within a three-year cycle. Even within a single subject, the CHE ranking does not calculate an overall value out of single, weighted indicators, as there is in their view neither a theoretical nor an empirical basis to do so. In relation to the students (mainly new entrants) who are the main target group, the CHE insists that the heterogeneity of their preferences has to be taken into consideration (for instance, whether they are interested in high research activity, intensive teaching, or other themes). Calculating an overall score would patronize them and would obscure the different profiles of universities, with their specific strengths and weaknesses. Hence the CHE ranking is multidimensional by ranking each indicator separately and leaving the decision about their relevance to the user. The CHE ranking does not give individual ranking positions as, in statistical terms, such a procedure ignores the existence of standard errors. Instead the CHE ranking orders universities per area or theme in three groups: top, bottom and intermediate (Müller-Böling & Federkeil, 2007).

The CHE system is internationally acknowledged as best practice in higher education rankings (Usher & Savino, 2007; Van Dyke, 2005; Salmi & Saroyan, 2006). The system complies with the Berlin Principles on Ranking (UNESCO/ IHEP, 2006) as developed by the International Ranking Expert Group (IREG) founded by the UNESCO European Centre for Higher Education (UNESCO-CEPES) in Bucharest and the Institute for Higher Education Policy (IHEP) in Washington. In the context of the Bologna Process, CHE decided to internationalize its ranking, besides data on higher education institutions in Germany, it now also includes Switzerland and Austria, and the Netherlands and Belgium (Flanders) are preparing to join the system.[1] The CHE ranking system is thus well positioned to develop into a European-wide system.

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[1] A project coordinated by the Center for Higher Education Policy Studies (CHEPS) at the University of Twente in the Netherlands and the Centre for Higher Education Development (CHE), with support from the European Commission.

Toward a Typology of Higher Education Institutions in Europe

In the face of the normalizing effects of holistic rankings another policy means of sustaining diversity is to systematize or strengthen institutional classifications or typologies. Moves of this kind to encourage horizontal institutional diversity have recently emerged in Europe, following long-standing experiences in the US. As described above, the European Higher Education Area is large and highly complex. At the same time diversity is seen as important in order to widen access and improve quality. Policy measures to counterbalance mission drift and consequent convergence are therefore particularly important for Europe. Moreover, in order to make diversity useful it needs to be made transparent and well understood. In this context a basic policy requirement in Europe is the development of a typology of higher education institutions, by publicly defining the missions and characters of higher education institutions. In order to encourage institutions to design different missions and profiles, allowing them to excel in a variety of domains, to ensure transparency for stakeholders, and to provide a basis for diversified policy making.

At present such a typology (classification) of higher education institutions in Europe is being developed (van Vught et al., 2005),[2] which would employ a multi-classification approach while making the heterogeneous higher education landscape more transparent. It aims to contribute to a better understanding of the various types of institutions, their different missions, characteristics and provisions, which will support mobility, inter-institutional cooperation and the recognition of degrees, hence the international competitiveness and attractiveness of European higher education (the Bologna aim, see Section "Some Background to the European Context: Patterns of Convergence and Divergence"). The proposed multi-scheme typology acknowledges that institutions can be grouped and compared in a variety of ways. The heart of the typology will be formed by the various characteristics upon which differences and similarities of institutions are mapped, each highlighting a different aspect of the profile of the institution. In this way, the typology will be made up of a number of parallel schemes, each based on a different characteristic. Schemes would focus on education (for example types of degrees delivered, range of subjects offered), on research and innovation, student and staff profile, size and legal status of the institution, and so on. The project's first experiences seem to suggest that data to measure the various indicators are more available for certain schemes than for others and that the level of sophistication of indicators may vary, as well as the extent to which they can be compared across Europe. For instance, whereas indicators for basic research are based on quite well-developed bibliometrical data, indicators for the socio-economic relevance of (applied) research are still in development and more work would also need to be done with respect to teaching, lifelong learning, knowledge transfer, innovation, local and regional engagement, and other areas. Various major efforts at EU level to collect more

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[2] A project coordinated by CHEPS in cooperation with a wide range of stakeholders and with support from the European Commission.

systematic data in these areas, in particular those in the context of the Lisbon Strategy and the connected Open Method of Coordination, will positively feed into the process of developing this typology further.

The preliminary work on this European typology was carried out in conjunction with a review of the US Carnegie Classification of higher education institutions, including the reasons for and principles of its revision in 2005, when the old single classification system was replaced by multiple parallel classifications, in order to optimize the information-producing advantages of classification while minimizing the downside, its potential to be used as a ranking mechanism (Sapp & McCormick, 2006). Also in the European case, this is the main rationale for taking a multi-dimensional approach; stimulating and enabling higher education institutions to excel in different missions and to develop distinct profiles in a variety of dimensions rather than in one dominant area.

Conclusions and Implications

Through the Bologna Process, Europe is working hard to enhance convergence and transparency in higher education structures at program level, including degree systems, credit transfer and quality assurance. At the same time, more diversity is necessary in order to address the increasingly diversified demand of a growing and more diverse student population and of labor markets and society. Clearly, the integration of higher education systems in Europe did not solve problems of academic and vocational drift and has not (yet) well addressed the needs for lifelong learning, world-class research, and post-doctoral training. Hence the need to address more explicitly the diversity of institutional profiles (van Damme, 2006). Both kinds of trends—convergence and diversification—are needed to enhance the performance of the European knowledge economy and its competitiveness in the global context, this is, to allow more cross-border mobility within Europe, to attract more students from other regions, and to widen access and improve quality.

The various methodological problems of global rankings, the fact that they favor one particular type of institution, the research-intensive university, over all other types of institutions, in granting it global status, and the impact of this phenomenon on institutional and governmental policy making, strongly suggest the need for more differentiated, multi-dimensional approaches. The CHE ranking developed in Germany provides the best and already internationally recognized alternative in this respect. It has various methodologies virtues, complies with the Berlin Principles on Ranking, provides excellent information for students taking the heterogeneity of their preferences into account, and avoids perverse effects on mission drift and student entry. Initiatives are underway to extend this system to a Europe scale.

If it is absolutely necessary to rank institutions, care must be exercised to compare similar institutions. This means going beyond looking at institutions that are similar in name and making sure that they are also similar in mission, organization and program focus. Consequently, classification systems (typologies) are a

precondition for ranking. Both should be multi-dimensional. Classifications should enable and in fact stimulate higher education institutions to develop distinct institutional profiles and to excel in a variety of domains rather than in one dominant area (van Vught, 2006b). The European project on developing a typology for higher education institutions is taking exactly this approach, aiming to create a multi-dimensional space, or a legitimate space for sub-systems where institutional missions can be better realized. The intention is to ensure that competition is more productive; that it is not based on confusion, leading to mission drift and reputation race, but instead based on genuine responsiveness to educational, social, and economic demand. In this way it is hoped that typology and comparison will make a contribution to overcoming the "European knowledge paradox".

The development of more and better indicators for areas other than basic research is a precondition for the proposed multi-dimensional approaches. Reliable metrics are now only available for research, although mainly measured through peer reviewed journal articles. Indicators for the impact and relevance of research are still in development and work on indicators for innovation, knowledge transfer, lifelong learning, local and regional engagement also need extra efforts. But most needed is the development of objective, reliable, and generally acceptable measures to assess the quality of teaching. Comparing institutions internationally on this dimension could counterbalance the uneven statuses of research and teaching. The present primacy of research may reflect the academy's own stance toward both functions, but it is has certainly been enhanced by the current global rankings with their strong research bias.

Europe is clearly making progress on the diversity agenda, yet many further questions and challenges remain. For classifications in particular: even multi-dimensional approaches may drive specific missions more than others (as some lenses or dimensions may still be dominant) and a certain hierarchy may be unavoidable. Thus, dynamic flexibility (the possibility of being able to change position) is important. How can this be ensured in line with institutional development and can ossification be avoided? For both ranking and classification: how can ownership of the sector and the role (potential behavior) and involvement of stakeholders best be taken into account in order to avoid self-fulfilling prophecies (van Vught, 2006b)? How will the different initiatives in Europe correspond to those in US and Asia? How can global transparency in this respect be developed and how can global balance be ensured?

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