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# Higher Education System Rankings and Benchmarking

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## **Abstract**

The purpose of this chapter is to discuss the emergence of higher education system rankings and other frameworks that attempt to make sense of the performance of higher education systems. It starts with a review of higher education system rankings and how they attempt to overcome the failings of institutional rankings. It then covers alternative approaches for monitoring higher education beyond traditional rankings. It introduces the approach of benchmarking higher education system performance rooted in the literature on performance, the performance of public services, and the performance of higher education. It offers a view of what is possible to do with an ontological approach to the performance of higher education systems instead of exercises driven by data availability and discusses the challenges of moving forward with such an approach. It concludes by discussing the likely coexistence of the discourses on world-class university with the world-class systems, and the challenge for countries to balance them.

## **Key words:**

Higher education system, performance, ranking, benchmarking, world class

## **Introduction**

The purpose of this chapter is to discuss the emergence of higher education system rankings and other frameworks that attempt to make sense of the performance of higher systems in high-participation systems of higher education, primarily in mature systems in Europe and OECD countries. Most available rankings in higher education refer to institutions. However, the institutions that make the rankings are often only a subset of all the institutions providing higher education in different countries. High-participation-higher education systems are increasingly diverse and can include institutions providing short-cycle tertiary education, which is often occupationally-oriented and with a significant component of work-based learning, or doctoral level education; large comprehensive universities, with wide missions and small specialised institutions, with narrower missions; public and private institutions.

Many want a shift from efforts to produce world class universities to producing world class systems that meet a more diverse range of societal needs, including human capital formation, knowledge creation and innovation, contributing to economic, social, cultural and environmental development of communities, regions, countries and even supra-national areas (e.g. European Higher Education Area). Multi-dimensional performance frameworks that have the system as the unit of analysis and cover the different missions of higher education can help governments and societal stakeholders to govern performance. Namely, they provide a basis for discussing how higher education systems can help meet the needs of societies, how well they are doing it compared to other systems, and what policies can be developed to improve the performance of higher education systems. This can help improve the quality of the student experience and outcomes, the quality of research and scholarship,

the engagement with society, and the equity of the system, as well as ensuring its efficiency and financial sustainability (Sarrico, 2010).

The possibility of comparing systems is becoming feasible as more data, especially international comparable data becomes available (such as from UNESCO, OECD, Eurostat). Benchmarking exercises allow for peer learning. And although higher education policies cannot be easily transferred from one system to another due to contextual contingencies, this type of exercise can be a source of new ideas and innovation in higher education policies.

## Higher Education System Rankings

Global institutional rankings have been major influencers of national policies and institutional strategies ever since their emergence in the early 2000s. Developed during rapid growth in student enrolment and increasing competition between higher education markets, global rankings positioned themselves as supreme judges of quality in higher education, driving student choice, institutional mission, academic behaviour and policy development alike. According to the IREG Inventory on International Rankings, there are currently seventeen global university rankings, nine regional rankings and more than fifteen specialised rankings by different institutional characteristics and fields of study (IREG, 2019).

### What global institutional rankings fail to capture

Global institutional rankings have been subject to criticism over what they measure and whether they measure what is relevant for the improvement of quality of provision and student outcomes. Most rankings have the institution as the unit of analysis, which has originated several problems well documented in the literature (Hazelkorn, 2013; van Vught and Ziegele, 2013; Nyssen, 2018). Institutional rankings fail to capture the breadth of higher education institutions operating in a system. They generally only cover a small subset of institutions, which are predominantly long-standing, research-intensive universities with large student and faculty numbers, and generous budgets and endowments (Sadlak and Liu, 2009; Hazelkorn, 2013). They also assume one-size fits all. They ignore the existence of different student profiles (e.g. academic high-flyer, vocationally-oriented, mature student, local student, overseas student, etc.), who have different preference structures regarding the importance of factors, such as entry grades, staff-student ratios, teaching performance, research performance, facilities, internationalisation, employability, which are commonly used in rankings. (Sarrico et al., 1997).

Higher education systems encompass a greater diversity of institutions than the ones covered by rankings. In Europe, for instance, only 12 per cent of the higher education institutions included in the European Tertiary Education Register are large institutions with more than 20,000 students (ETER, 2014). Furthermore, compared to the more than 18,500 institutions listed by the International Association of Universities, the number of institutions with at least 50 publications in the four-year period 2007-2010 indexed in Scopus, is estimated at less than 10 per cent (Bonaccorsi et al., 2017). This shows that only a small share of institutions across the world do the bulk of research but they do not teach the bulk of students by far. And yet, this small share of research-intensive institutions are the ones that drive global rankings, affecting national policies and institutional practices across the world.

Global institutional rankings have been subject to criticism not only regarding their unit of analysis but also the choice of indicators, the arbitrary nature of their weightings, and the limited reliability and quality of data (Hazelkorn, 2013; van Vught and Ziegele, 2013). Rankings tend to concentrate on what is easily measurable (such as resources and research output), but they overlook other important

aspects of the mission of higher education, such as the quality of teaching and learning, and the wider contribution to society. In addition, the indicators and data used to assess research performance have focused primarily on a narrow range of study fields, mostly in biology and medical sciences. Most available performance data on which rankings are based focuses on inputs rather than higher education outputs and outcomes. Finally, global rankings present the performance of higher education institutions using an aggregate score, which disregards the diverse nature of higher education institutions and their contextual contingencies, their different missions, orientations and specialisations and their respective areas of strength (van Vught and Ziegele, 2013).

The growing importance of global institutional rankings has resulted in a division of higher education institutions into so-called “elite” and “mass”, with governments concentrating resources on the former, incentivising research excellence at the expense of teaching excellence and engagement with society (Hazelkorn, 2013; Locke, 2014) (see also the chapter by Wai Lo and Liu, 2021). Apart from national policy, rankings have also influenced strategic decision making at the level of higher education institutions (see also the chapters by Locke, 2021 and Yonezawa, 2021). For instance, a study that compared the strategic plans of 78 high-ranked, low-ranked, and unranked universities in 33 countries revealed notable differences in terms of their strategic orientation (Stensaker et al., 2019). High-ranked institutions had strategies that emphasised research excellence, focus on STEM fields, attracting distinguished academics, and promoting global alliances with other reputable institutions, while low-ranked and unranked institutions focused more on developing collaborations with industry, the public sector and other societal actors.

These shortcomings are widely recognised by the higher education community, and there are several networks, initiatives and scholars that are calling upon global rankings to re-evaluate the way they determine what constitutes a high-quality higher education institution. The Talloires Network of Engaged Universities, for example, is an international association of higher education institutions that has the mission to strengthen the civic and social role of higher education. In 2014, it released a Call to Action Communiqué, which invites global rankings ‘to take civic engagement seriously and to reduce the negative effects of the ranking systems on the public service responsibilities of higher education’ (Talloires Network, 2014, p. 2). Similarly, the Global University Network for Innovation (GUNI), a network of 227 members comprising, among other organisations, higher education institutions and research centres, is committed to strengthening the societal role of higher education through research, the exchange of knowledge and good practices on engagement.

### Alternative approaches for monitoring higher education performance

Global institutional rankings provide information about individual institutions and how they compare to others; however, they do not provide an accurate representation of the overall strength and performance of a country’s higher education system. Aspects that are important to consider when assessing the performance of higher education on a system level, and yet are overlooked by global rankings, include access and equity, quality and relevance, institutional differentiation, and contribution to economic and social development (Salmi, 2013).

There is therefore a need to rethink existing tools used to measure the performance of higher education and develop alternative rankings and alternatives to rankings that are better aligned to the diversity of institutions, their missions and roles in society. This need has become even more urgent considering an unprecedented growth in higher education enrolment worldwide. Global enrolment more than doubled in less than two decades, growing from 97 million in 2000 to 221 million in 2017 (UNESCO, 2018). Predictions suggest that more than 500 million students will be enrolled in higher education by 2035 (UNESCO, nd). This large group of students will need institutions that are strong in

their commitment to provide high-quality education that is able to prepare them to live responsibly and make a positive contribution to their communities.

### Multi-dimensional rankings

Multi-dimensional rankings have emerged in response to the need for a more objective assessment of the performance of diverse higher education institutions. Compared to traditional global university rankings, multi-dimensional rankings tend to be more user-driven, multi-level, and they allow the analysis of institutional performance profiles (van Vught and Huisman, 2013). Multi-dimensional frameworks take into consideration the relative strengths of higher education institutions and allow users to identify good performance in a wider range of dimensions of interest. For instance, U-Multirank is a multi-dimensional and multi-level instrument that divides institutions into performance groups, across a wider span of functions of higher education, including teaching and learning, research, international orientation, regional engagement, and knowledge transfer. It encourages comparisons of institutions with similar profiles, accounting for their specific contextual contingencies. Quacquarelli Symonds, known for its QS World University Rankings, introduced the *QS Stars Ratings*, which is more adapted to the distinct strengths of higher education institutions. Institutions are rated on different aspects of performance, including research, teaching, innovation, employability, internationalisation, inclusion, social responsibility and contribution to arts and culture. Similar to U-Multirank, instead of using league tables, QS Stars Ratings classifies institutions into rating groups.

There have also been initiatives that have focused on specific aspects of performance of higher education. Times Higher Education (THE) World University Rankings, for example, introduced the *University Impact Rankings*, which evaluates universities based on their contribution to the Sustainable Development Goals (SDGs), including aspects related to health and well-being, quality education, gender equality, climate action, and sustainable cities and communities. The data collected is based on the research that institutions produce related to the SDGs, but also on their policies and initiatives that relate to sustainable development. *The Moscow International University Ranking "The Three University Missions"* is another initiative focused on moving the focus of global rankings from research to education and societal engagement. The ranking, piloted for the first time in 2017, evaluates university performance with a special focus on education and collaboration with society.

### Higher education system rankings and transparency tools

Attempts to assess the quality and performance of higher education systems as a whole, using information about resources, policy environment and output, date back to the mid-2000s (Sheil, 2010). *The Lisbon Council University Systems Ranking*, for instance, launched in 2008, is considered one of the most elaborate endeavours to build a global ranking of higher education systems (Millot, 2015). This exercise evaluated and ranked the higher education systems of 17 OECD countries based on their performance in six areas, namely inclusiveness (raising the level of qualifications in society); access (facilitating entry to disadvantaged groups); effectiveness (high-quality employable graduates); attractiveness (foreign students); age range (contribution to lifelong learning); and responsiveness (system's ability to reform and adapt to external factors). Despite it being a one-time exercise focused on a small number of countries mainly in good economic standing, the Lisbon Council Ranking deserves recognition for its attempt to uplift the value of teaching and learning, and the societal benefits of higher education.

*The U21 Ranking of National Higher Education Systems* is another initiative that tries to evaluate the strength of a higher education system as a whole. Higher education systems are ranked based on four dimensions, a particular emphasis being placed on the outputs of higher education, including research output and impact, national stock of graduates and researchers, and employability of graduates. While

it is designed to take into consideration the broader context in which higher education systems operate and the strength of the system as a whole, the U21 Ranking has its own shortcomings. Among its most apparent limitations are an overrepresentation of wealthy countries and a bias towards research-oriented universities (Millot, 2015).

Most of the rankings developed until now have been produced by private commercial organisations. The focus of governments and governmental agencies has, for the most part, been on quality assurance and accreditation. However, there are also examples of national initiatives that aim to improve transparency and information about the quality of the higher education provision. The Dutch *Studiekeuze 123* (Studychoice 123), for example, publishes the results of an annual national survey that monitors student satisfaction with the quality of the institution, study programme and the overall student experience. Questions refer to the content of study programmes, skills development and preparation for employment, quality of lecturers and study materials, and academic support and guidance. A similar initiative refers to the Australian Student Experience Survey, which collects and publishes information on students' assessment of their study experience, on an aggregate level but also by higher education institution and study programme. The Ministry of Education and Science of Republic of Macedonia, commissioned in 2015-2016 for the third time a ranking exercise of Macedonian higher education institutions, to monitor how they perform with respect to their teaching, research and social service functions (see the chapter by Surssock, 2021). Since 1999, the UK has been active in monitoring knowledge exchange initiatives of its higher education sector through the Higher Education Business and Community Interaction survey. UNESCO has produced a practical guide to help countries construct a scorecard of performance indicators for their higher education systems (Martin and Sauvageot, 2011).

### Benchmarking

The need for a tool that is able not only to monitor the performance of higher education but also allow for its continuous improvement resulted in the application of benchmarking approaches to the higher education sector. Benchmarking is defined as 'the process of self-evaluation and self-improvement through the systematic and collaborative comparison of practice and performance with similar organisations in order to identify strengths and weaknesses, to learn how to adapt and improve organisational processes' (Burquel and van Vught, 2010, p. 249).

Benchmarking is not a new practice to quality monitoring in higher education. Implicit forms of benchmarking have always existed through practices of peer reviews and site visits. However, the use of benchmarking as a formalised and explicit approach to quality monitoring has been introduced more recently and is gaining traction (Burquel and van Vught, 2010). Compared to other quality approaches, benchmarking enables targets for improvement based on inter-organisational learning. It can generate evidence that can help identify determinants of performance and areas in need of improvement, which could in turn inform the development of intervention measures (Salmi, 2013).

Benchmarking differs from rankings in several fundamental aspects. Rankings promote reputational competition and hierarchical differentiation while benchmarking encourages comparison to identify strengths and weaknesses and allow for learning and improvement. Therefore, the purpose of benchmarking is not only to uncover good performance but also good practice leading to such performance (Burquel and van Vught, 2010). This enables the development of more targeted national and institutional strategies and the provision of better information to different stakeholders (Sheil, 2010).

Institutional benchmarking is a method adopted from industry, used widely to monitor and improve the quality of manufacturing and services. One of the pioneer initiatives that applied principles of

benchmarking to the higher education sector was the EU-funded *Benchmarking in European Higher Education* project, carried out between 2008-10 (ESMU, 2008). The project identified benchmarking approaches used in higher education at that time, and based on this knowledge, developed a generic benchmarking methodology. This methodology was then tested in four university benchmarking groups, in areas of strategic interest to the institutions, namely governance, university-enterprise cooperation, curriculum reform and lifelong learning. In addition to defining indicators and identifying institutional priorities and targets, participating institutions had to develop improvement-seeking action plans and report progress following their implementation.

International organisations, such as the World Bank and the OECD have also applied benchmarking in their work on higher education. The OECD was responsible for the AHELO feasibility study, a 17-country initiative, aimed at assessing student learning outcomes from 2007, and in 2011 administered PIAAC to assess adult skills, which also gives information on the literacy and numeracy of higher education graduates. AHELO was an attempt to develop valid and reliable learning metrics (Van Damme, 2015), with the potential to move the emphasis of performance measurement in higher education from research to learning and teaching. Although, the intention was not to build another ranking of institutions, the fact that it used the institution as the unit of analysis was seen as potentially leading to that (Altbach, 2015).

The OECD used benchmarking in its most recent review of higher education systems, conducted in 2017-18. The analysis comprised statistical data and a review of policies and practices, capturing the inputs, activities, outputs and outcomes of higher education systems, and the contexts in which they operate. The aim was to document how well higher education systems perform in their education, research and engagement functions as compared to other systems, using already available data and indicators. The OECD work has demonstrated the complexity of drawing summative conclusions regarding the performance of higher education systems, partly due to data limitations but also the difficulty of establishing a direct relationship between inputs, activities, outputs and outcomes (OECD, 2019). However, the exercise revealed some of the key issues facing higher education systems across the world and reiterated the need to develop a strong evidence base to monitor and improve the performance of higher education.

The World Bank has been using benchmarking methodologies in a number of higher education projects. This approach was used, for instance, in a project that analysed and compared the role of governance as a determinant of institutional and system performance in East Asia and Central America. As part of this initiative, a benchmarking tool comprising various governance dimensions and indicators was developed and tested in various countries across the two regions (Fiszbein and Ringold, 2012). In addition, the World Bank has used benchmarking approaches extensively as part of its Systems Approach to Better Education Results (SABER) programme. As part of this initiative, a benchmarking system for analysing education policy domains in developing countries was developed, which covers all levels of education, from early childhood education to tertiary education, and workforce development. The SABER framework for tertiary education (SABER-TE) was designed as an evidence-based diagnostic tool to help countries benchmark the quality of their policies in seven domains, namely vision for the tertiary education system, regulatory framework, governance, financing, quality, equitable access, retention and successful completion, and relevance of tertiary education for economic development (World Bank, 2016). The benchmarking methodology comprises the collection of data through expert questionnaires, consultation processes with relevant stakeholders, and review of policy documents. The evidence gathered is then assessed against existing effective policies identified through reviews of well-performing higher education systems. Each policy is evaluated with the help of a scoring rubric and categorised as latent, emergent, established or

advanced. The SABER-TE framework was piloted in 2017 in Liberia, Sierra Leone and Bangladesh, and after refinement, was applied in a review of tertiary education in Pakistan. Compared to the OECD work, which comprises policy, practice and metric benchmarking, the SABER-TE instrument focuses mainly on policy benchmarking.

There are also examples of national initiatives that use benchmarking for purposes of monitoring and improvement of different aspects of higher education performance. The Athena SWAN in the UK and Ireland, for example, have been using benchmarking to identify the progress made by different higher education institutions and departments in promoting gender representation in academic positions (see for example the chapter by O'Connor, 2021).

Building on its experience with evaluation frameworks for research (Research Excellence Framework) and teaching (Teaching Excellence and Student Outcomes Framework), the UK has also recently introduced the Knowledge Exchange Framework (KEF) to improve the evidence base and evaluate how higher education institutions perform in relation to their public engagement mission. One of the goals of the KEF is 'to provide HEIs with a useful source of information and data on their knowledge exchange (KE) activities, for the purposes of understanding, benchmarking and improving their own performance' (Johnson, 2020 p. 7).

The US has a designated National Higher Education Benchmarking Institute, founded in 2004 to facilitate the improvement of post-secondary education, particularly in community colleges. Peer comparison tools are used in most of its projects, enabling participating institutions to benchmark their performance on desired dimensions against other institutions (Guthrie and Seybert, 2018). In addition, the Integrated Postsecondary Education Data System (IPEDS), a database that includes information on all postsecondary education providers in the US, has introduced benchmarking functionalities to its data visualisation. The IPEDS data is collected through questionnaires, which include institutional-level information on enrolment, programme completion, faculty and staff, and financial indicators. The IPEDS database, available on its website, allows institutions to benchmark their performance against another institution or a group of institutions (Guthrie and Seybert, 2018).

Considering the global nature of higher education systems and institutions, an integrated system of performance governance and management comprised of institutional and system-level analyses would provide complementary perspectives on monitoring the performance of higher education. System-level analyses facilitate international comparability and can serve as useful peer learning exercises among countries, particularly with regard to policy making. Comparison at the system level should include countries whose higher education systems share similar profiles, characteristics, objectives and resources, and should account for any contextual differences that may influence performance. National-level analyses facilitate the assessment of the effectiveness of national policies, provide evidence for context-specific interventions, and encourage peer learning among higher education institutions.

### What is possible

Rankings can be credited with bringing the discourse of higher education performance to the forefront of institutional and system policies. And by being a benchmarking exercise of sorts, i.e. a comparison between the performance of different units, they raise the possibility of learning from others. Despite their well-documented flaws, institutions, governments, students, and employers do use rankings as a guide to quality, and rankings end up shaping policy, priorities and resource allocation. Having highly ranked higher education institutions within a region or country is an indicator of economic success and competitiveness, and can act as a magnet to attract capital and business, and talented students



and staff. Rankings influence policy making and have spurred many excellence initiatives in different countries to raise the profile of countries in the rankings, in a globalised market for higher education.

Governments have used statistics and metrics to support policy making, and international organisations, such as the OECD, World Bank and UNESCO, have had a remit to support this through the years. Metric benchmarking can be used as point of departure to more meaningful policy and practice benchmarking that leads to peer learning.

Whereas global institutional rankings have supported the idea of world class universities, there is evidence that governments are increasingly interested in developing their systems of higher education, in their diversity and in their different missions. For instance, in the Netherlands, a strategic agenda states the aim of raising quality while keeping the diversity of its higher education **system**, including addressing the detrimental effects on students and staff from the growing pressure to increase research publications (Netherlands, 2015). Norway set up a working group to assess whether its **system** is designed in a way that effectively meets the needs of society and working life in the country (Norway, 2018).

Countries have recognised the problem of excessive emphasis on institutional rankings and the performance of some institutions, and that an integrated strategy to improve the performance of their systems is preferable to targeting a minority of institutions. Evidence of this shift is the recent OECD programme on Enhancing Higher Education System Performance, which has resulted in the publication of Benchmarking Higher Education Systems (OECD, 2019). It is an attempt to distance the analysis from looking at the institution as the unit of analysis, to looking at the system, with a greater emphasis on balancing the performance on the three main missions of higher education: learning and teaching, research and engagement.

Higher education today contributes significantly to the wellbeing of societies, by contributing to human capital, to innovation and to the wider economic, social, cultural and environmental development (Sarrico, 2017). For that reason, higher education continues to expand, participation and attainment is increasing, and a diverse mix of higher education institutions emerge to serve a more diverse body of students, in an increasingly globalised market for higher education (Marginson, 2016). The sustained growth of higher education reflects its many benefits to individuals and society, which is then reflected on the fact that both governments and individuals have been spending more on higher education. In OECD countries, total expenditure has increased by more than 35 per cent, and per student expenditure has also increased by around 25 per cent between 2005 and 2015 (OECD, 2020).

High-participation systems of higher education raise many concerns (Sarrico, 2018). With increased participation and diversification of the student body and set of providers, internationalisation and cross-border higher education, digitalisation of learning and teaching, questions are raised about the **quality** of the student experience, learning outcomes and learning gain, labour market and social outcomes of graduates (Sarrico, 2017). Widening of participation to new groups has significantly improved **equity** of access, but increased horizontal and vertical differentiation bring additional questions about equity of outcomes across those groups, in terms of socio-economic background, gender, age, ethnicity, indigeneity, migrant status, disability, and territorial distribution. The increasing cost of higher education, including per capita cost, raises the concern of **financial sustainability**. Public expenditure on higher education competes with other demands on the public purse, such as health and pensions, in societies where longevity became the norm. Many systems experience under-resourcing, which may affect quality and equity. As an alternative, many systems are also introducing or augmenting the role of cost-sharing measures to increase the private funding

of higher education, which raises questions of credit constraints by students and/or detrimental effects from student and household debt. An additional concern is that of **relevance**, and how well the objectives of higher education systems are aligned with the needs of society and to what extent higher education effectively engages with industry, government and the social sector to address societal development.

The challenge then becomes to devise a methodological approach to measuring and comparing the performance of higher education systems that addresses the varied concerns regarding their performance, and at the same time informs the design, implementation and evaluation of higher education policies to enhance the performance of higher education systems.

Anchored in the performance literature (Talbot, 2010) and in performance management models in the public sector (Bouckaert and Halligan, 2008), integrated models of performance that lend themselves well to higher education systems have been devised (Sarrico, 2018). These models can underpin an ontology-based approach to performance measurement (Daraio et al., 2016), which is grounded on a conceptual analysis of higher education systems rather than one that starts from data availability, such as existing rankings. Such approach will cover the three missions of higher education – learning and teaching, research and scholarship, and engagement with society – and their inputs, activities, outputs, and outcomes. It will measure the performance dimensions of concern, such as quality, equity, productivity, cost, and relevance. This approach to measuring and benchmarking performance of systems can be implemented by combining existing data from different sources, it helps detect gaps in existing data sets, thus providing a roadmap for further development of new and relevant performance indicators that address the current data shortcomings (Sarrico, 2018). The OECD benchmarking exercise mentioned above was developed along these lines (OECD, 2017; 2019) with the explicit aim of providing information for countries to develop better policies to enhance the performance of their systems.

Benchmarking higher education systems across the OECD showed the following (OECD, 2019, p. 29-32):

- *Higher education provides graduates with favourable economic and social outcomes, but the low basic skills of some graduates is a cause for concern.*
- *Inequity of access by socio-economic and migration background is a persistent challenge.*
- *Only 4 in 10 bachelor's students are able to complete on time, and 2 in 10 do not complete at all.*
- *Higher education research and development relies heavily upon public funding, and establishes limited collaboration with businesses on innovation, especially for small and medium enterprises.*
- *There is an increasing focus on engagement activities, but frameworks for measuring these activities do not yet exist.*
- *Open access to scientific documents remains limited.*
- *Although quality is difficult to measure, governments are increasingly trying to link funding and other policies to the quality of teaching and research.*
- *Data limitations prevent comprehensive performance assessment of higher education systems, but improvements in measurements are possible.*

These conclusions are important and reveal how traditional rankings are not addressing the main challenges facing higher education systems.

## Challenges moving forward

One of the challenges moving forward is the gap in data revealed by attempting to compare systems following an ontology-based approach. On the input side, we know more about expenditure, and much less about human resources in higher education, responsible for 2/3 of expenditure across the OECD. Human resources are probably the most important factor in the quality of higher education, but we know little about how they are recruited into the profession, how they are managed and developed, and their impact on higher education performance (OECD, 2020). There is also very little international comparable information on the student experience, engagement, satisfaction and student learning outcomes and learning gain. And for all governmental and institutional rhetoric about third mission, and higher education engagement with society, there is little measurement of the social impact of research and of engagement outcomes.

The danger of these data limitations, compounded by current rankings that use criteria that emphasise research and give little attention to learning and the student experience and higher education's engagement with society, is that institutions and countries may have an incentive to further invest in research and decrease their effort in other core activities of higher education.

There is not much more that can be done in terms of informing performance benchmarking exercises based on current international comparable administrative data available, which is mostly based on an annual UNESCO-OECD-Eurostat data collection (UOE, 2018). Going forward will necessitate dedicated international surveys of actors in higher education (students, staff, graduates, employers) to know more about their experience and outcomes, following similar initiatives for school education, such as the OECD Programme for International Student Assessment (PISA) and the Teaching and Learning International Survey (TALIS).

In addition, to be able to compare the comparable in increasingly diversified systems of higher education, it is important to define relatively homogeneous subsets of institutions (e.g. research universities and universities of applied sciences in European binary systems). An international classification of institutions would be an important step in this respect, following the work of Borden and McCormick (2019) accounting for diverse institutional missions, and Lepori and Borden's (2018) comparison of European and US higher education based on a Carnegie-type classification of institutions, centred on the intensity of provision at different levels of higher education, from short-cycle tertiary education to the doctorate.

A good international comparable evidence base, underpinned by administrative data and survey data to relevant higher education actors, alongside an international classification could sustain a longitudinal perspective on higher education systems' performance. This could and should build on existing national initiatives, through existing dedicated committees of international organisations (e.g. Working Party on Indicators of Education Systems at the OECD, UNESCO Institute for Statistics). Some countries, in particular, already have relatively sophisticated data collection tools, which offer viable tools for analysis at the national level over time and between institutions (e.g. Nordic countries, the Netherlands, the US, UK, Ireland, the ETER data at European level), on existing surveys (e.g. the EU Survey on Income and Living Conditions), and longitudinal studies with some relevance towards higher education (Growing Up in Ireland, Growing Up in Scotland, Growing up in Australia; Millennium Cohort Study).

By repeating benchmarking exercises on a regular temporal basis, the evolution of systems on different dimensions of performance would offer further valuable information to guide countries in policy making over time.

## Conclusion

The world-class university discourse is unlikely to disappear from the international higher education landscape. Nonetheless, the world-class system ideal is emerging as well in many countries' policy debates. Both are likely to coexist. World-class universities may converge to a system of their own, one which is characterised by a specialisation of these institutions as research powerhouses that operate in the international market for students and staff. The recent European Universities Initiative, that also goes beyond national boundaries, to create alliances of universities across Europe, is also an interesting move aiming to further integrate the European Higher Education Area as a supra-national system, able to respond to societal challenges and skills demands at a regional integrated level. The ultimate challenge for countries and regions, will be to sustain well performing overall higher education systems that can coexist with flagship universities that operate at a global level.

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## References

- Altbach, P., G., (2015), 'AHELO: The Myth of Measurement and Comparability', *International Higher Education*, (82).
- Bonaccorsi, A., P. Haddawy, T. Cicero and S.-U. Hassan, (2017), 'The solitude of stars. An analysis of the distributed excellence model of European universities', *Journal of Informetrics*, **11** (2), 435-454.
- Borden, V. M. H. and A. C. McCormick, (2019), 'Accounting for diverse missions: can classification systems contribute to meaningful assessments of institutional performance?', *Tertiary Education and Management*.
- Bouckaert, G. and J. Halligan, (2008), *Managing Performance: International comparisons*. Abingdon, Oxon: Routledge.
- Burquel, N. and F. van Vught, (2010), 'Benchmarking in European Higher Education: A step beyond current quality models', *Tertiary Education and Management*, **16** (3), 243-255.
- Daraio, C., et al., (2016), 'The advantages of an Ontology-Based Data Management approach: openness, interoperability and data quality', *Scientometrics*, **108** (1), 441-455.
- ESMU, (2008), *Benchmarking in European Higher Education. Findings of a two-year EU -funded project*, Brussels: European Centre for Strategic Management of Universities.
- ETER, (2014), *ETER brief 5. What ETER tells us about size distribution of Higher Education Institutions in Europe*: European Tertiary Education Register.
- Fiszbein, A. and D. Ringold, (2012), *Benchmarking the governance of tertiary education systems: The World Bank*, 1-49.
- Guthrie, L. A. and J. A. Seybert, (2018), 'Benchmarking in Community Colleges', in. C. Secolsky and B. Denison, *Handbook on Measurement, Assessment, and Evaluation in Higher Education*, Abingdon: Routledge, pp. 114-127.
- Hazelkorn, E., (2013), 'World-class Universities or World-class Systems? Rankings and Higher Education Policy Choices', in. P. T. M. Marope, P. J. Wells and E. Hazelkorn, *Rankings and Accountability in Higher Education: Uses and Misuses*, Paris: UNESCO, pp. 71-95.
- IREG, (2019). 'IREG Inventory on International Rankings.' accessed 13 February, 2020, at <https://ireg-observatory.org/en/initiatives/ireg-inventory-of-international-rankings/>.
- Johnson, M. T., (2020), 'The knowledge exchange framework: understanding parameters and the capacity for transformative engagement', *Studies in Higher Education*, 1-18.
- Lepori, B. and V. Borden, (2018), *Comparing diversity in the US and the European higher education systems*, Paris: The European Forum for Studies of Policies for Research and Innovation (EU-SPRI).
- Locke, W., (2014), 'The Intensification of Rankings Logic in an Increasingly Marketised Higher Education Environment', *European Journal of Education*, **49** (1), 77-90.
- Marginson, S., (2016), 'High Participation Systems of Higher Education', *The Journal of Higher Education*, **87** (2), 243-271.
- Martin, M. and C. Sauvageot, (2011), *Constructing an indicator system or scorecard for higher education: a practical guide*, Paris: UNESCO.
- Millot, B., (2015), 'International rankings: Universities vs. higher education systems', *International Journal of Educational Development*, **40**, 156-165.
- Netherlands, (2015), *The Value of Knowledge. Strategic Agenda for Higher Education and Research 2015-2025*, The Hague: Ministry of Education, Culture and Science of the Netherlands.
- Norway, (2018), *Long-term plan for research and higher education 2019 - 2028 (Langtidsplan for forskning og høyere utdanning 2019 – 2028)*, Oslo: The Ministry of Education and Research of Norway.
- Nyssen, J. M., (2018), 'The Social Dimension and University Rankings', in. A. Curaj, L. Deca and R. Pricopie, *European Higher Education Area: The Impact of Past and Future Policies*, Cham: Springer International Publishing, pp. 155-169.

- OECD, (2017), *Benchmarking higher education system performance: Conceptual framework and data. Enhancing Higher Education System Performance*, Paris: OECD.
- OECD, (2019), *Benchmarking Higher Education System Performance*. Paris: OECD Publishing.
- OECD, (2020), 'Human resources in higher education', in, *Resourcing Higher Education: Challenges, Choices and Consequences*, Paris: OECD Publishing, pp. 103-144.
- OECD, (2020). 'OECD Data.' accessed 12 February, 2020, at <https://data.oecd.org/>.
- Sadlak, J. and N. C. Liu, (2009), *The World-Class University as Part of a New Higher Education Paradigm: From Institutional Qualities to Systemic Excellence*. UNESCO European Centre for Higher Education: Cluj University Press.
- Salmi, J., (2013), 'If rankings is the disease, is benchmarking the cure?', in. P. T. M. Marope, P. J. Wells and E. Hazelkorn, *Rankings and Accountability in Higher Education: Uses and Misuses*, Paris: UNESCO, pp. 235-257.
- Sarrico, C. S., (2010), 'On Performance in Higher Education: Towards performance governance', *Tertiary Education and Management*, **16** (2), 145-158.
- Sarrico, C. S., (2017), 'Making the skills of higher education graduates more visible', in. C. S. Sarrico, A. McQueen and S. Samuelson, *State of Higher Education 2015-16*, Paris: OECD, pp. 17-37.
- Sarrico, C. S., (2018), 'Benchmarking Higher-Education System Performance: A Look at Learning and Teaching', in, *Assessing Quality in Postsecondary Education: International Perspectives*, Kingston: McGill-Queen's University Press.
- Sarrico, C. S., (2018), 'Performance and Quality Management in Higher Education', in, *Encyclopedia of International Higher Education Systems and Institutions*, Dordrecht: Springer Netherlands, pp. 1-7.
- Sarrico, C. S., (2018), 'Performance Indicators in Higher Education', *Encyclopedia of International Higher Education Systems and Institutions*, 1-5.
- Sarrico, C. S., S. M. Hogan, R. G. Dyson and A. D. Athanassopoulos, (1997), 'Data envelopment analysis and university selection', *Journal of the Operational Research Society*, **48** (12), 1163-1177.
- Sheil, T., (2010), 'Moving beyond university rankings: developing a world class university system in Australia', *Australian Universities' Review*, **52** (1).
- Stensaker, B., et al., (2019), 'Stratified University Strategies: The Shaping of Institutional Legitimacy in a Global Perspective', *The Journal of Higher Education*, **90** (4), 539-562.
- Talbot, C., (2010), *Theories of Performance. Organizational and Service Improvement in the Public Domain*: Oxford University Press.
- Talloires Network, (2014), *Call to Action: 2014 Talloires Network Leaders Conference*, Cape Town: Talloires Network.
- UNESCO, (2018), *Global Education Monitoring Report 2019: Migration, Displacement and Education – Building Bridges, not Walls*, Paris: UNESCO.
- UNESCO, (nd). 'Policy reviews and quality assurance in higher education.' accessed 12 February, 2020, at <https://en.unesco.org/themes/higher-education/policy-reviews-quality-assurance>.
- UOE, (2018), *UOE data collection on formal education. Manual on concepts, definitions and classifications*, Montreal, Paris, Luxembourg: UNESCO-OECD-Eurostat.
- Van Damme, D., (2015), 'Global higher education in need of more and better learning metrics. Why OECD's AHELO project might help to fill the gap', *European Journal of Higher Education*, **5** (4), 425-436.
- van Vught, F. and J. Huisman, (2013), 'Institutional Profiles: Some Strategic Tools', *Tuning Journal for Higher Education*, **1** (1), 21-36.
- van Vught, F. and F. Ziegele, (2013), 'U-Multirank: a user-driven and multi-dimensional ranking tool in global higher education and research', in, *Rankings and Accountability in Higher Education: Uses and Misuses*, Paris: UNESCO, pp. 257-281.
- World Bank, (2016), *What Matters Most for Tertiary Education Systems: A Framework Paper. Systems Approach for Better Education Results Working Paper Series*: The World Bank.

