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Are quality assurance and rankings useful tools to measure 'new' policy issues in higher education? The practices in Europe and Asia

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ABSTRACT

In the last years, 'new' policy issues, such as sustainability, have emerged, and old ones, such as social inclusion, have resurfaced on the political and public agendas. Higher education institutions (HEIs) are increasingly expected to respond to these 'new' challenges. But how are HE systems and HEIs (namely in Europe and Asia) looking at these 'new' policy issues and assessing them? This article focuses on what issues are being looked at by two of the most well-known tools or mechanisms used to assess the quality of HE – quality assurance and rankings – and how are these tools dealing with these 'new' challenges. This article concludes that the role of the 'new' policy issues in the assessment of institutional performance and quality is still very limited. Developing indicators that may be used for accountability purposes or improvement purposes is a major challenge that lies ahead. Facilitating the exchange of ideas, experiences, and knowledge on how to measure performance on the 'new' policy issues and on how to use that information in any of the rationale settings seems to be a promising way forward to get the 'new' policy issues embedded in quality assurance tools.

Introduction

Higher education institutions (HEIs) need to respond to challenges that emerge from society. Social inclusion, sustainability and study success are a few of those challenges that have gone up on the priority lists of society, governments, and HEIs' decision-makers. The Sustainable Development Goals (SDGs) and the pandemic have had an impact on this.

To be able to respond to these 'new' challenges, HEIs need to assess if and how they address those emerging policy issues and how they may develop or adapt policies in an evidence-based way. For that they need information. As such, the central questions of this paper are the following: How are HEIs (namely in Europe and in Asia) looking at

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these 'new' policy issues and assessing them? Do two of the most well-known tools or mechanisms used to assess the quality of HE provide the information needed to deal with the new challenges? And what lessons can be drawn?

In this paper, we address two types of tools or data systems that HEIs frequently use as an input for their strategic policymaking: quality assurance systems (QAS) and rankings. We first explain the 'new' policy issues that are (re)emerging. Second, we describe the two types of tools (quality assurance mechanisms and rankings), focusing on their rationale, scope, and use. Third, we assess how these tools address the 'new' policy issues. Finally, we reflect on the differences in coverage of each tool and on how that may be explained by their characteristics.

The choice of these two tools is mainly due to the fact they provide evaluative information on the performance of HEIs and the quality related to their missions. Additionally, this article is based on a panel session at the CHER conference, in which the role of indicators in quality assurance was discussed from different perspectives. This is also one of the reasons why the descriptions and analyses of the quality assurance systems are provided for the European and Asian contexts: all panels of the conference were supposed to cover the Asian context, preferably in a comparative perspective.

The emergence of 'new' policy issues

Over the last decades, higher education (HE) has grown to be a substantial sector in many societies, having a huge impact on current knowledge societies and being increasingly influenced by them. New policy issues, like sustainability, have emerged, and old ones, such as social inclusion, have resurfaced on the political and public agendas.

Higher education institutions (HEIs) are expected to respond to these 'new' challenges. With this growing and expanding mission of HE, there is an increasing demand among HEIs and their stakeholders for a data-driven analysis of HE and its performance. Internally, HEIs need such an analysis to strengthen decision-making processes and foster strategic development. Externally, stakeholders demand data on these institutions' performance to ensure quality and value for money (Loukkola, Peterbauer, and Gover 2020).

To identify the most salient emerging policy issues, the U-Multirank project has reviewed several (international) HE policy documents (e.g. 2030 Agenda for Sustainable Development), global rankings (THE World University Rankings, THE Impact Rankings, QS World University Rankings, Shanghai Academic Ranking of World Universities (ARWU)), UI Green Metric (UI Green Metric World University Rankings 2019) and large-scale projects (BOLOGNA Follow-up Group (BFUG) for Social Dimension and INVITED (Claeys-Kulik, Jørgensen, and Stöber 2019)). From this review, three major issues emerged: (i) effective teaching and learning & study success; (ii) social inclusion; and (iii) sustainability.

In the European context, study success was prioritized in the 'Renewed EU agenda for higher education' (European Commission 2017). In that policy document, the EU responds to a number of 'mismatches', starting with: 'many parts of the EU are experiencing shortages in certain high-skill professions', pointing especially to the STE(A)M disciplines – Science, Technology, and Mathematics, with Arts sometimes added – but also to teachers and medical professions, although the 'situation varies from region to

region' (European Commission 2017). The EU also noted in this 'Renewed agenda' that one of the main mismatches concerned: 'Persistent and growing social divisions' (European Commission 2017, 3), and emphasizes in its education and training agenda that HE should be inclusive, stating that: 'improved access and completion rates by disadvantaged and underrepresented groups should be targeted'.[1] In that narrative, study success – interpreted as the completion of a degree programme – is coupled to the social dimension. In practice, much of the attention in the social dimension is on access and the social and economic conditions of student life (e.g. in the Eurostudent survey[2]). For both reasons, it is important to know about study success in the institution, preferably with breakdowns to large knowledge areas and to student backgrounds (e.g. underprivileged groups, adult learners). In the EU policies, study success is not only seen as completion rates, but also understood as the attainment of key competences with a focus on employment, as part of students' learning outcomes.

Social inclusion has an essential role in the European higher education agenda, indicated by key policy documents (European Commission 2017), large-scale projects (Tupan-Wenno et al. 2016), and working groups. Within the European Higher Education Area (EHEA) it is widely recognized that there are 'still too many capable students [who] are excluded from higher education systems because of their socio-economic situation, educational background, insufficient systems of support and guidance and other obstacles' (European Commission 2022, 14). As a result, the latest Bologna working documents on the social dimension have called upon its members to develop concrete social inclusion targets, both at the system and institutional levels, that promote widening access, support participation, and the completion of studies within the next decade. The increased political commitment (e.g. EU HE policy, the Bologna process, the UNESCO SDGs), and the urgency to address social inequality, both at the EU level and globally, and to improve monitoring systems, is likely to result in more streamlined data definitions and collection of social inclusion measures in HE, particularly in the EHEA context (European Commission 2022).

Since 2015 numerous policy documents have focused on social inclusion. In 2015, the Bologna Follow-up Group (BFUG) released a strategy for the development of the social dimension and lifelong learning in the EHEA to 2020, entitled 'Widening participation for Equity and Growth' (BFUG 2015). The new strategy was built on the objective that the student body entering, participating, and completing HE in the EHEA should reflect the diversity of European populations. It encouraged the member countries to work with HEIs to identify underrepresented groups and barriers that these groups face, and to develop a systematic collection of relevant, comparable data to enable effective monitoring and enhance evidence-based policymaking (BFUG 2015). In 2017, the European Commission (EC) released the already mentioned 'Renewed EU Agenda for Higher Education', emphasizing the importance of 'building inclusive and connected higher education systems'. To create inclusive HE systems, it is necessary to ensure the right conditions for students coming from diverse backgrounds. This aspiration is linked to SDG 4: Quality (and inclusive) education. This 'Renewed HE Agenda' identified some of the policy measures that could be taken to overcome the barriers to social inclusion, as suggested in the 2015 Bologna document. In 2018, the Council of the EU issued recommendations on 'promoting common values, inclusive education, and the European dimension of teaching' (The Council of the EU 2018a). In June 2020 the

new principles and guidelines for strengthening the Social Dimension of the EHEA were published, proposing interconnected principles of accessibility, equity, diversity, and inclusion to be incorporated into laws, policies, and practices (BFUG Advisory Group for Social Dimension 2020). The European policy documents signal that social inclusion will receive increased attention in the coming years, also linking to SDGs and the new Bologna guidelines up to 2030. This is also reflected in the 17 SDGs where quality (and inclusive) education (SDG4), gender balance (SDG5) and reduced inequalities (SDG11) go together with climate action (SDG13), responsible consumption and production (SDG 12), and clean water and energy (SDG6).[3] The relative importance of SDGs is reflected in the below policy documents.

In 2019, the EC issued the report 'Towards a Sustainable Europe by 2030' (European Commission 2019), reflecting on the EU's role in attaining the UN's 2030 Agenda for Sustainable Development. This report, not specific to the education sector, stresses that education and research are essential for achieving a sustainable EU economy, meeting the SDGs. Education is creating a sustainability culture and 'improving equal access to inclusive high-quality education […]'. It must therefore 'be the main focus'. Therefore, educational institutions of all levels should be encouraged to embrace the SDGs as guidance for their activities and develop into organizations where skills for sustainability are not only taught, but also actively practiced. This would entail reforms and the modernization of education systems, from building green campuses to adjustments in the curriculum. The same year, the 'Renewed EU Agenda for Higher Education' (2017) emphasized the need for innovative HEIs that can find new solutions to economic, social, and environmental challenges. Inclusive and connected Higher Education systems, referencing SDG 4 (Quality Education), was one of the main priorities defined, while the role of HEIs in promoting environmental sustainability was not specifically discussed (European Commission 2017). One year later (2018), sustainability appeared in the revised recommendations on 'Key competences for lifelong learning'. The Council of the EU stressed the need for a sustainable education across all education levels. More specifically, it adopted a recommendation that all member states should 'mainstream the ambitions of the UN Sustainable Development Goals (SDG), in particular within SDG4.7, into education, training and learning' (The Council of the EU 2018b). Key competences, among other objectives, should help individuals attain a sustainable lifestyle. Sustainability-related knowledge is specifically mentioned under three out of six key competences – 'Mathematical competence and competence in science, technology, engineering', 'Citizenship competence' and 'Entrepreneurship competence' (The Council of the EU 2018b). All those initiatives link the sustainability issue to HEIs, which underlines the relevance and importance of addressing the issue when characterizing the activities and performances of HEIs.

Two types of information tools

Government agencies, buffer organizations, and various other stakeholder organizations have developed a variety of mechanisms or tools that contribute to a more evidence-informed analysis. These tools include rankings, funding formulae, external quality assurance, and other steering mechanisms, such as teaching excellence frameworks and performance contracts. In most of these tools, both qualitative information and

quantitative information are included. The balance between both types of information is however shifting towards a more quantitative, indicator-based approach. This may partly be related to the growing need for international comparison of the quality and perform-ance of HEIs, due to internationalization and the emerging trends of digitalization. In addition, a study by Gover and Loukkola (2018) indicates that quality assurance agencies 'encounter mounting expectations to give indicators more prominence in their processes' (Gover and Loukkola 2018, 16).

In this article, we focus on two types of tools for assessing the quality of HE: quality assurance (QA) and global rankings. For QA, we describe how it is organized in two global regions (Europe and Asia), what missions are covered, what types of information are used, and what the rationale for using that information is. Then, we zoom in on what indicators practitioners within HEIs are using to assess the quality of HE, based on pre-liminary results of the SMART-QUAL project (described later on). Regarding the global rankings, we briefly describe the main ones and then describe an indicator development project within U-Multirank. The main objective of this article is to discuss whether and how the 'new' policy issues are being incorporated into these tools in order to provide HEIs the information they need to face these new challenges.

Quality assurance systems

Introduction to QA

Quality assurance (QA) is defined as 'a process of establishing stakeholder confidence that provision (input, process, and outcomes) fulfils expectations or measures up to threshold minimum requirements' (INQAAHE 2019, 1). There are two approaches to QA: an external approach and an internal approach. External quality assurance (EQA) agencies, with a 'self-critical, objective, and open-minded' character, undertake third-party review activities of HEIs, to determine whether the quality of universities 'meets the agreed or predetermined standards' (Martin and Stella 2007, 34). 'Internal evaluation' focuses on the 'process of quality review undertaken within an institution for its own ends' (INQAAHE 2019, 1). Accordingly, the development and management of an internal QA system is 'at the discretion of the higher education institution, which usually carries out this mandate in the context of available institutional resources and capacities' (Paintsil 2016, 4). Both are inextricably interrelated like 'two sides of a coin' (Vroeijenstijn 1990).

Under neoliberalism, QA became a policy tool for reforming HE systems, assessing HEIs' accountability (Harvey and Newton 2007; Stensaker 2007), as well as the pursuit of academic excellence (Shin 2018; Hou et al. 2015). Since 2000, QA practices, deemed one of the most effective means to ensure the quality of HEIs (Westerheijden et al. 2014; Jarvis 2014), have been widely adopted by HE policymakers and have subsequently been placed on national agendas (Davies and Bansel 2007; Marginson 2011). Shin (2018, 2) argued that 'states prefer to use (external) quality assurance as a strong driver to reform HE, while universities prefer to maintain their prestige without strong state influences'.

External QA agencies in most systems use a balanced approach to review the quality of education, in which a set of externally formulated general standards are combined with a 'fitness for purposes'. The agencies provide standards and indicators for institutional self-

regulation without comparing their performances. Since university autonomy remains preserved in EQA, indicators are considered a method for government to conduct 'remote steering and supervision' (Martin 2018, 141). On one hand, universities conduct a self-assessment in compliance with the standards developed by external QA agencies. Then, these agencies employ a group of experts to review institutional self-assessment reports and undertake an onsite visit. On the other hand, a set of core performance indicators are developed, based on broad quality standards to monitor quality progress and measure university accountability.

Given these increasing concerns and requirements around EQA, HEIs have developed Internal Quality Assurance Systems (IQAS), with different levels of maturity, specialization, and scope, to meet their needs. Compared to external QA, internal QA is, in fact, a more recent research concern (Harvey and Williams 2010), likely reflecting the dominance of external agencies in quality issues (Tavares, Sin, and Amaral 2016). Most IQAS are set up by HEIs to support evidence-based strategic decision-making, and they assess different institutional dimensions through a set of indicators related to the HEIs' aims and challenges. In practice, however, the potential of these systems, especially for the purposes of self-reflection and institutional improvement is not fully used.[4] In a study conducted in twelve Portuguese HEIs, Tavares, Sin, and Amaral (2016) found out that, intending to avoid burdensome (external) accreditation in the future, institutions felt compelled to implement an IQAS and apply for its certification. According to these authors,

> although the agency's [talking about the Portuguese Agency for Assessment and Accreditation of Higher Education] intentions were to encourage a shift towards improvement, it appears that accountability continues to be, for the time being, a more pressing concern than improvement. This, in turn, reveals that the analysed institutions find themselves somewhere on the continuum between a reactive and a responsive quality culture. (Tavares, Sin, and Amaral 2016, 1062)

In addition to this, IQAS are often regarded as too-process oriented, box-ticking, and not focused on outcomes. One of the main reasons behind these criticisms is related to the fact that these systems tend to rely on a large number of indicators, which makes their accuracy and timely analysis difficult.[5] A final issue regarding IQAS is the wide variety of indicators and indicator definitions used across HEIs. This is partly inherent to the IQAS's focus on the institutional mission. With the rise of (international) comparison and benchmarking as an input for institutional improvement, this lack of comparability may become problematic.

QA in the European and Asian context

The descriptions and analyses presented in this section are mainly based on the literature review, the preliminary results of a research project (SMART-QUAL), aimed at supporting HEIs in the implementation of effective IQAS, by designing a set of harmonized quality indicators, and on the expertise of the authors of the paper, who are actively involved in the development and implementation of the tools analysed in this paper: QA and rankings.

The context

The relevant European context for describing QA is the EHEA. The EHEA was launched with the Bologna Declaration of 1999. 49 countries agreed to adopt reforms on HE based

on common key values, such as freedom of expression, autonomy for institutions, independent student unions, academic freedom, and free movement of students and staff. Through this process, countries adapt their systems of HE, making them more compatible and strengthening their external quality assurance mechanisms. In a 2020 report, the European Commission revealed that the number of HEIs in EHEA countries increased from 3009 institutions in 1999/2000 to 3537 in 2018/2019. Data also showed that, over 17 years (2000–2017), the number of tertiary students in the EHEA increased significantly (more than 18.2 million) (European Commission/EACEA/Eurydice 2020). In the academic year 2016/2017, there were around 38.1 million tertiary education students enrolled in the EHEA (European Commission/EACEA/Eurydice 2020).

Higher Education in Asia Pacific has been expanding rapidly since the late 1990s. The total number of HEIs in Asia Pacific has increased to 76,387, with more than 115.1 million students enrolled (Calderon 2018). Furthermore, HE expenditure has likewise dramatically increased by more than double compared to 10 years ago, particularly in the Asia and Pacific region (OECD 2017). In response to the massification of HE, as well as to assure the quality of local HEIs, the establishment of QA systems became a national agenda concern in most Asian nations.

QA in Europe

Since 2005, the Standards and Guidelines for Quality Assurance in the EHEA (ESG), revised in 2015 (ENQA 2005, 2015), established a set of shared principles for QA. According to the ESG, HEIs have the primary responsibility for QA, meaning that internal QA is at the core of quality attainment and the development of a sustainable quality culture (Cirlan and Loukkola 2021). Also, in 2018, a new standard entitled 'Educational Organization Management Systems', provided criteria for the alignment of the HEIs' IQAS to the world-known ISO 9001 standard. These initiatives have contributed to the integration and harmonization of HE systems, specifically within the ESG framework, and had an impact on the development of QA in HE worldwide.

Table 1 presents an overview of the standards in the ESG.

The ESG defined a set of shared principles, but these principles have not led to a set of shared institutional indicators on quality. This was one of the first results of the SMART-QUAL[6] project. The main aim of that project is to support HEIs in the implementation of an effective IQAS, by designing a set of harmonized quality indicators, which can be used as a reference. From the activities developed within the SMART-QUAL project

Table 1. Overview of the standards in the European Standards and Guidelines.

(1) Policy for quality assurance
(2) Design and approval of programmes
(3) Student-centred learning, teaching and assessment
(4) Student admission, progression, recognition and certification
(5) Teaching staff
(6) Learning resources and student support
(7) Information management
(8) Public information
(9) On-going monitoring and periodic review of programmes
(10) Cyclical external quality assurance

(literature review and stakeholder consultation), more than 500 quality indicators were identified. To shorten this list a first selection was made, based on criteria like number of times each indicator (or a similar one) was collected; number of different partners who collected the indicator; source relevance (IQAS and source characteristics); coverage; role in decision-making levels; easiness of collection and application; identified strengths and weaknesses; and degree of overlap with other indicators (SMART-QUAL 2022). A final selection of indicators was based on an expert assessment of similarity, priority, and consistency of metadata.

The final list comprises 56 indicators: 27 basic (regarded as fundamental within the framework of the SMART-QUAL project) and 29 recommended (mission-related) indicators.

The indicators are structured in three main categories (SMART-QUAL 2022):

- *University missions*: Teaching and Learning (all the processes around the development of knowledge and scientific, technical, and transversal competences in students); Research (all the processes around knowledge generation and dissemination); and Relationship with Society (all the processes around the impact on society, economy, environment, or the engagement of stakeholders).
- *Quality Standards*: The ESG represent a consolidated, shared, and international framework to organize the list of indicators.
- *Decision-making level*: Three levels are distinguished: (a) Strategic – useful for rectors/directors or policymakers, (b) Tactical – useful for deans/managers, and (c) Operational – useful for teachers/coordinators.

Table 2 shows the final list of indicators used in IQASs per mission, ESG/Standard, and type of indicator (basic or recommended).

From this table, we learn that the distribution of indicators by the mission is skewed towards teaching and learning (with around 67% of the indicators). This is not a surprise,

Table 2. Coverage of the SMART-QUAL quality indicators.

Mission/ESG	Name ESG / standard	Basic	Recommended	Total
Teaching and Learning		19	19	38
1	Policy for quality assurance	3		3
2	Design and approval of programmes	1	1	2
3	Student-centred learning, teaching and assessment	2	5	7
4	Student admission, progression, recognition and certification	3	4	7
5	Teaching staff	2	5	7
6	Learning resources and student support	2	2	4
7	Information management	1		1
8	Public information	1		1
9	On-going monitoring and periodic review of programmes	3	1	4
10	Cyclical external quality assurance	1	1	2
Research		5	5	10
11	Resources	2	3	5
12	Results and impact	3	2	5
Relattionship with Society		4	6	8
13	Recruitment and social inclusion	1	2	3
14	Collaboration with stakeholders	1	2	3
15	Impact on society	1	1	2
Total		27	29	56

Source: SMART-QUAL (2022).

given that, as stated before, QA is focused basically on that mission. In terms of type of indicators, there is a balance between those regarded as basic (27) and those recommended (29). Regarding the standards, there is also a reasonable balance between the ESG standards.

This provided valuable insight into the way the general ESG standards are translated into concrete institutional indicators. For a full overview see Appendix.

QA in Asian countries

In the Asia region, national QA schemes are often managed by a commissioned agency with a national mandate. Under either direct or indirect governmental control, agencies in Asian countries are regarded as an extension of the national government. In addition, due to the governmental policy aimed at establishing top-ranked universities, some QA agencies are even commissioned to play the conflicting dual roles of accreditor and ranker in the initial stage (Hou 2012). After 2000, most Asian governments started to develop national QAS and stipulate IQA mechanisms in the regulatory framework to ensure the quality of local HEIs and programmes. Review standards developed by QA agencies should either follow national quality standards or be approved by the respective governments.

In developing IQA, HEIs, in general, comply with the quality standards set by external QA agencies and central governments. These externally set standards, to some extent, influence the indicators universities will use to assess their performance.

In the early days of their existence, national QA agencies in many Asian countries built the standard framework and a set of indicators based on their definitions of quality. The quality standards developed by most agencies tended to be input and process-based, such as faculty/student ratio, income, enrolment of students, volume of books in libraries, and so on. The focus of QAS shifted to outcomes and student achievement in the following years (Martin and Stella 2007; Harvey 2018). Professional accreditors gained influence on national agencies and, as a result, institutions and programmes are required to demonstrate their output and student learning outcomes rather than inputs. Evidence on graduates' knowledge, skills, and attitudes is required. In Asia, the scope of standards in most QA agencies includes issues such as quality policy, design, and approval of programmes, curriculum development, student support, learning and assessment, student admission, quality of the teaching and of the teaching staff, and existence of a self-improving mechanism, as the description of practice in three countries below illustrates.

Aiming to promote harmonization, by establishing a common HE space in Southeast Asia (SEA), the ASEAN has published the document titled 'ASEAN Quality Assurance Framework (AQAF)', which comprises four quadrants: Quadrant 1 – External Quality Assurance Agencies; Quadrant 2 – External Quality Assurance Standards & Processes; Quadrant 3 – Internal Quality Assurance; and Quadrant 4 – National Qualifications Framework. The ASEAN institutions are supposed to develop their own policies and IQAS and processes for accountability, transparency, and achievement/ improvements. Like ESG, the guidelines put an emphasis on the institutional responsibility in IQA mechanism development, quality culture embedded on campus, and 'the developing IQA policies to monitoring program quality for purposes of continuous improvement at all levels' (ASEAN 2021, 66).

In **Malaysia,** HEIs need to attain at least benchmarked standards in each aspect of HE and to continuously improve their programmes (Hou 2016). These standards include: vision; mission; educational goals; leadership, governance, and administration; curricula design and delivery; assessment of students; student selection and support; academic staff; educational resources; programme monitoring and assessment; and a self-enhancement mechanism.

In **Taiwan** the scope of national QA has evolved. In the first cycle of institutional review conducted in 2011, the Higher Education Evaluation & Accreditation Council of Taiwan (HEEACT) employed several quantitative indicators, such as faculty–student ratios, admission rates, research funding, and research output to evaluate universities. Back then, QA mainly concentrated on three features. First, the institution should have a clear mission to state its institutional identity; second, it should have favourable governance to integrate and allocate resources; third, it should have an internal mechanism to assess student learning outcomes (HEEACT 2012). HEEACT's review standards included self-positioning, government and management, teaching and learning, accountability, and continuous quality improvement. Each institution was accredited by each standard respectively, meaning that the institution would be given five individual results for each standard. Nowadays, the number of standards is reduced to four. These include: Standard I – Governance and Management; Standard II – Resources and Support Systems; Standard III – Institutional Effectiveness; and Standard IV – Self-Improvement and Sustainability.

In **Japan**, the National Institution for Academic Degrees and Quality Enhancement of Higher Education (NIAD-QE) mainly targets national and prefectural universities and emphasizes compliance with the evaluation standards. In the first cycle (2005–2011) these standards were: (1) university mission; (2) education and research structure; (3) academic staff and education support staff; (4) student admissions; (5) academic programmes; (6) institutional performance; (7) student support; (8) facilities; (9) internal quality assurance systems; (10) finance; and (11) management. There were several evaluation standard revisions in the second cycle (2012–2018), in response to international trends in QAS and accountability, with the revised evaluation standards focusing more on learning outcomes, IQAS on teaching and learning and on information disclosure to the public. The new standards for the second cycle were: (1) university mission; (2) teaching and research structure (organizations); (3) academic staff and teaching support staff; (4) student admissions; (5) academic programmes (content and methods); (6) learning outcomes; (7) facilities and student support; (8) internal teaching and learning quality assurance system; (9) finance and management; and (10) public information disclosure on teaching and learning (NIAD-UE 2011).

To meet the public demand for more accountability and to prepare for external reviews, institutions are encouraged to develop initiatives for enhancing student learning outcomes and for ensuring their employability. Many institutions have taken actions by developing core competencies and contemporary skills in broader ways. These include: establishing clear statements of student learning outcomes; collecting and interpreting evidence of student performance; and routinely modifying the standards, policies, curricular structure, and learning support systems based on the opinion of graduates, employers, student e-portfolio, and so on. In other words, student learning outcomes, student employability and student success have been included in the EQA standard framework.

QA in a comparative perspective

IQA in Asian countries stays relatively close to the standards set by the EQA. The indicators used cover those externally set standards and attention is given to indicators that relate more to the improvement of their activities and indicators linked to the institutional profile. The latter are slowly changing, as we can see for instance in the way EQA stimulates HEIs to develop and use self-assessment, but there are no guidelines on how that self-assessment should be done.

This impact of the EQA on the data HEIs collect and use for their strategic institutional policy decisions is a marked difference from the European landscape, where the IQA is more leading as the base to define strategic policies.

An overview of the standards used in QA is presented in Table 3.

Rankings

Some 20 years ago, global academic rankings were developed to show what the world's best universities were. The first one (2003) was the Shanghai Academic Rankings of World Universities (ARWU).[7] The ARWU ranking uses six indicators to position HEIs on a league table: alumni winning a Nobel prize or field medal, staff winning a Nobel prize or field medal, highly cited researchers, papers published in Nature or Science, papers indexed in science citation and per capita academic performance. The scores on these indicators are weighted and aggregated into one score. ARWU is very much research focused. It presents a few special rankings, but these are merely subsamples of the larger set of HEIs.

In 2004, Times Higher Education (THE) followed, publishing the World University Rankings.[8] Over the years, the initial global ranking was accompanied by regional and thematic rankings, like the subject ranking, the teaching ranking and, most recently, the Impact Rankings (assessing universities against the SDGs). The global ranking has a strong focus on research performance, although, in the last decade, performance on other dimensions of institutional performance, like teaching, international outlook and knowledge transfer are introduced as components of the overall rank score. The common characteristic of the THE rankings is that they all aggregate the information on the various components into a single score.

The QS World University Ranking[9] assesses HEIs according to six metrics: international students' ratio; international faculty ratio; faculty student ratio; citations per faculty; academic reputation; and employer reputation. The scores are aggregated into one overall score. Special rankings are presented, based on subsamples of the HEIs participating in QS (by subject, graduate employability, MBA, USA HEIs). Recently (2022), QS has added a new 'layer' to assess the institutions' research focus on two SDG categories: inequality and environment.

A more recent global ranking (2014) is U-Multirank[10] (UMR), a EU sponsored transparency tool that strives to allow for the comparison of the performance of HEIs and programmes in five dimensions. In addition to teaching and learning and research, UMR collects data and calculates indicator scores on the performance in knowledge transfer, international orientation, and regional engagement. In total, 33 indicators are used at the institutional level. In addition to the institutional level, UMR collects data at the subject level. The subject-level comparison has more teaching- and learning-related

Table 3. Overview of the standards used in quality assurance.

ESG		Taiwan	Japan	Malaysia
Standard	Sub-standards	Indicator	Standards	Standards
1.1. Policy for quality assurance	• Quality assurance made public		• University mission	• Vision, mission, educational goals
	• Quality assurance as part of strategic management	1.1 Development plans 1.2 Practices and mechanisms to ensure quality governance 2.1 Resource plans to support development		
	• Involvement of internal stakeholders	1.3 Collaborative relationships with partners in academia, government and industry		
	• Involvement of external stakeholders	1.3 Collaborative relationships with partners in academia, government and industry		
1.2. Design and approval of programmes	• Programme design and approval		• Academic programmes (content)	• Curricul a design and delivery
	• Involvement of stakeholders in the development of programmes			
1.3. Student-centred learning, teaching and assessment	• Students' active role in the learning process		• Academic programmes (methods)	
	• Students' assessment			• Assessment of students
1.4. Student admission, progression, recognition and certification	• Application of pre-defined and published regulations covering all phases of the student's "life cycle"	• 1.4 Guarantee of equal access • 4.3 Practices to protect the rights and interests of faculty, staff and students	• Student admissions	• Student selection
1.5. Teaching staff	• Teaching competence	• 2.3 Practices and mechanisms to achieve student learning outcomes	• Academic staff	• Academic staff
	• Fair and transparent processes for the recruitment and development of staff	• 2.2 Practices and mechanisms to support the development of academic careers and improve the teaching capability of the faculty		

Table 3. Continued.

ESG		Taiwan Indicator	Japan Standards	Malaysia Standards
Standard	Sub-standards			
1.6. Learning resources and student support	• Funding for learning and teaching activities		• Teaching structure	• Educational resources
	• Adequate and readily accessible learning resources and student support		• Teaching support staff; • Facilities and student support	• Student support
1.7. Information management	• Collection, analysis and use of relevant information for the effective management of programmes and other activities	• 3.2 Student learning outcomes achieved • 3.1 Institutional effectiveness demonstrated on the institution's self-positioning	• Student learning outcomes	
1.8. Public information	• Publication of information about activities, including programmes	• 3.3 Public accessibility of information to stakeholders	• Public information disclosure on teaching and learning	
1.9. Ongoing monitoring and review of programmes	• Periodic review of programmes			• Programme monitoring and assessment
	• Design and implementation of improvement actions	• 4.1 Practices based on internal and external evaluation results • 4.2 Practices and plans for innovation and sustainable development	• Internal teaching and learning quality assurance	• Self enhancement mechanism
1.10. Cyclical external quality assurance	• Participation in cyclical external quality assurance			
		• 4.4 Practices and mechanisms to ensure financial sustainability	• Finance and management	
			• Research infrastructure	

indicators (including a set of student satisfaction scores) and the set of indicators is tweaked to fit the needs of the subject. In contrast to the other global rankings, the scores are not aggregated in one composite score, producing a league table, but are at the disposal of the user of UMR. The user determines what indicators are most relevant when assessing the quality of the activities of an HEI, and when comparing themselves with other institutions.

What is in these tools on the 'new' policy issues that can help HEIs' decision-makers?

Quality assurance

The ESG standards refer to some of the 'new' policy issues. Effective teaching and learning are covered by the standard on 'Student-centred learning, teaching and assessment'. The standard on selection and admission can be seen as a way to address social inclusion, as are the standards on 'Recruitment and social inclusion' and 'Collaboration with stakeholders'. Although the ESG may already cover some of the 'new' policy issues, practitioners struggle with finding and using concrete indicators to assess the institutional performance on those policy issues. The SMART-QUAL project shows that practitioners deem traditional input and process indicators as the most important when assessing institutional quality. Indicators on 'new' policy issues, if existing, are barely mentioned.

Over the past decade, national QA systems have been established in Asia and made great impacts on HEIs. As noted, accountability, validity, and evidence-based approaches, remain the major concerns in terms of QA. The standards and indicators in EQA frameworks still are the main drivers for institutional policies regarding management, IQA mechanisms, and resource allocation. This rather limited scope of activities of QA in HEIs is slowly shifting, as many national QA agencies are 'responsible for monitoring institutional and program quality, [being] under pressure from multiple constituencies to address ever more complicated expectations' (Altbach, Reisberg, and Rumbley 2009, 52–53). Therefore, several QA agencies are learning to respond to the changing HE landscape and inviting different HE stakeholders to the development of standards and indicators, including HEIs, students, and employers. By collecting their opinions, the quality standard framework will be more mission-oriented, with new focuses on sustainability and inclusiveness at institutional and programme accreditation. In response, universities in Asia are encouraged to take advantage of institutional research and make great efforts to showcase their uniqueness and features, to facilitate the match between educational objectives and specific institutional missions and visions (Hou 2016). In response to SDGs 2030, a risk-based approach has also gained popularity in the Asian QA context. The standards and indicators framework in EQA is changing to a thematic-based one, which mainly evaluates two areas – students and finance – to ensure the high level of sustainability of an individual institution. In Europe, due to the disruptive pandemic, QA is expected to make 'higher education systems inclusive and connected to society', and to ensure if an institution can 'provide the right conditions for students of different backgrounds to succeed' (European Commission 2021, 1). This trend has now gone to Asia, starting to challenge the quality standards. Notably, diversity, inclusiveness, and engagement are gradually transforming the QA standard scheme from an output-based mode to an impact-oriented mode.

Rankings

The Shanghai ARWU is focused on research activities and, as such, does not address issues like study success, social inclusion, or sustainability.

As mentioned before, THE has started a new ranking on the performance on sustainability (the Impact Ranking). It is currently the only ranking that assesses the performance of HEIs against the SDGs. THE Impact Ranking collects information about education programmes on climate action under SDG13: Climate Action, and education centred around SDGs under SDG17: Partnerships for the Goals. SDG13 'environmental education measures' account for 23% of the total score, while regarding SDG17, around one-third of the score (27.2%) is assigned to education about the SDGs. The metrics under the SDG4: Quality Education focus on inclusive education measures, such as activities that promote lifelong learning and the proportion of first-generation students, but do not assess the education content itself. Such metrics are relevant for the theme social inclusion. In addition, multiple measures are focused on education or outreach programmes provided to local or national communities, such as: 'educational opportunities for local communities to learn about good water management' (SDG6, 3.8%); '[…] energy efficiency and clean energy' (SDG7,4.6%); or 'sustainable management of fisheries […]' (SDG14, 5.1%). Most measures are focused on research, the number of graduates, operational policies, and partnerships.

QS has no indicators on study success, but they have initiated a 'new layer' in which they assess HEIs on research in social inclusion and sustainability. The scores are based on a mapping of publication keywords to specific SDGs.

UMR has several indicators on study success, both at the institutional and subject level, ranging from graduation rates, graduation in time to students' internships and involvement of employers in curriculum design (field level). The scope of social inclusion is more limited. Student and staff data are presented by gender, but there are no further breakdowns by underrepresented groups. Sustainability is missing in UMR. As abovementioned, UMR started a project, in 2018, on identifying, developing, and implementing indicators for 'new' institutional policy issues. The project comprised a literature review, four focus group meetings, in which experts and student representatives were consulted, and a survey among the HEIs participating in UMR.

Based on the result of the literature review, for each of the emerging policy issues, long lists of indicators used or discussed were produced. These long lists were used as the input for the discussions in the focus groups and the feasibility survey. This resulted in shortlists of indicators. The discussions leading to the shortlists were structured around three main criteria: relevance, validity, and feasibility (based on Cave et al. (1997) and Kaiser (2003)). 'Relevance' refers to the importance of the indicator for characterizing the performance of an HEI. This is driven by the primary process of the institution, but also by the societal impact its activities may have. 'Validity' indicates whether the indicator is a proper reflection of the concept it refers to. 'Feasibility' answers the question of whether it is possible to collect data and calculate the scores on the indicator in a timely and cost-efficient way.

The indicator with the highest overall score for effective teaching and learning was 'pedagogically skilled teaching staff as a percentage of all teaching staff'. This indicator scored high on the data collection status (feasibility), making it the preferred candidate

for inclusion in the 2022 release of UMR. A second indicator selected in this theme was 'employability preparation'. It scored high in the feasibility survey and a key element of the indicator 'the number students in internships', which is already collected in UMR. A third indicator is 'digital education investment', for which UMR has started data collection. This indicator scored well in the focus groups and high in the feasibility survey. The prolonged impact of COVID-19 provided an additional nudge for including this indicator.

In terms of study success, 'degree completion rates' was identified as the most promising indicator. Nevertheless, the experts made some critical remarks on the validity of this indicator, and student representatives noted that more incremental measures might be increasingly relevant. Thus, alternative indicators, such as completion rates measured on the micro-level, may be a promising candidate, due to high policy relevance and institutional plans to start collecting data.

For social inclusion, all indicators that captured access for underrepresented students were considered relevant by the participants in the focus groups. However, three characteristics also had higher feasibility scores – age, gender, and disability. Therefore, new questions were added, breaking down new entrants in undergraduate programmes by gender (including the non-binary category), disability and age. In addition, a question was added regarding the existence and scope of 'outreach programmes'. The indicator scored high on relevance and validity, and its importance in promoting social inclusion prior to HE was emphasized by experts.

'Sustainable development' is a policy issue that is high on national and international policy agendas. How this issue can be integrated into teaching and learning is an ongoing discussion, and answers to the question of how to monitor progress in Education for Sustainable Development (ESD) are still debated. The results show that the introduction of a new indicator on ESD is still premature.

Figure 1 presents a tentative assessment of coverage of 'new' policy issues, namely study success, social inclusion and sustainability, by the two types of information tools analysed in this paper: QA (subdivided into EQA and IQA), and rankings (THE, ARWU, QS and UMR).

Final reflections

In the last years, issues such as sustainability and social inclusion became 'hot trends' in the political and public agendas, being HE systems and HEIs increasingly expected to respond to these 'new' policy issues. But how are HEIs (namely in Europe and in Asia) looking at these 'new' policy issues and assessing them? More specifically, what policy issues are being looked at by two of the most well-known tools or mechanisms used to assess the quality of HE – quality assurance and rankings – and how are they dealing with the new challenges?

The notion of quality standards and indicators in HE has been affected intricately by global rankings and EQA systems in the Asian context. The former, with a focus on elitism, adopts the concept of excellence and academic competition as core quality measures; the latter, in response to the massification of HE, adopts the approach of 'the fitness for purpose' to assess accountability of an individual HEI. The basic standards or minimal threshold on input and process indicators are often used to check the

	EQA	IQA	THE	ARWU	QS	UMR
study success	● (large)	● (large)	• (small)			● (large)
social inclusion	● (medium)	· (tiny)	● (medium)		· (tiny)	• (small)
sustainability	· (dot)	· (dot)	● (medium)		· (small)	

Figure 1. Tentative assessment of coverage of 'new' policy issues in information tools. Note: size of the circle indicates relative coverage.

institutional operation and programme development. In other words, standards and indicators in QA and accreditation opt to be relativistic, less absolutist, and inward-looking. As such, different conceptual frameworks, and evaluation models, for measuring HE quality, led to a divergence in the development of standards and indicators (Van Damme 2004).

In most Asian HE systems, external drivers, 'as an externally imposed phenomenon' (Van Damme 2004, 136), for the establishment of IQA mechanisms within HEIs, are probably more pressing than internal demands from institutions. Due to the impact of global rankings and a need for the internationalization of QA, a move from 'the fitness for purpose' standards to a specific set of 'quantitative and measurable' indicators became a trend in Asia. Subsequently, due to an increasing concern over objectivity, fairness, and transparency of QA and accreditation arrangements, EQA in the Asian context started to apply an outcome-based model to measure the performance of HEIs, in accordance with a growing reliance on a quantitative dataset. Therefore, a convergence of quality standards and indicators in varying instruments is likely to occur and to be gradually accepted within the QA community. However, this tendency would implicitly result in the homogenization of the HE system, thus jeopardizing the innovation of HEIs. This trend towards homogenization limits the opportunities for HEIs in Asia to show what they are doing regarding the 'new' policy issues. The development of valid, reliable, and feasible metrics to capture those 'new' policy issues is still at an early stage, which makes it unlikely that these issues will be introduced in the QA standards. The need for contextualization makes it even more unlikely.

In Europe, ENQA developed the ESG, as an attempt to establish sets of standards and guidelines for QA in the EHEA that apply to all universities in Europe, irrespective of their local contexts, structures, and size. These standards are divided into three parts: IQA; EQA; and QA agencies. What preliminary data of the SMART-QUAL project

showed is that a relatively common core of standards and indicators is used in IQA among European universities. Moreover, the information gathered within these IQA is not used for self-reflection and institutional improvement, as expected, but mainly to feed the accreditation demands from external accreditation agencies, that is, for accountability purposes. Also, the IQAS seem to be more focused on inputs and processes, than on outcomes. Data from this project also showed that 'new' policy issues have not yet found their way into the QA process (although there are already some indicators that refer to them). That may be due to three reasons: (1) the SMART-QUAL project was not focused on these specific 'new' issues; (2) basic data on those issues are not yet widely collected (see the results of the UMR project); and (3) there is no consensus on how to develop valid indicators regarding these emerging issues. Nonetheless, there is a strong need for contextualizing the performance on those 'new' policy issues, which makes it difficult to find a general definition. That context refers not only to regional, national, and cultural differences, but also to the mission profile chosen by each HEI.

The previous reflections suggest that QA is not the quick way forward in assessing the institutional quality regarding the 'new' policy issues (social inclusion and sustainable development). The SMART-QUAL project shows that there is a clearly felt need among HEIs to report on the performance of 'new' policy issues, but that knowledge on 'how to do it' is lacking. A similar situation can be found in Asia, where QA agencies need to reformulate or renew their standards; they want to bring in the 'new' policy issues, but that proves to be extremely difficult due to a lack of common ground on how to do that. Global rankings are, by their nature, not well-equipped in presenting contextualized data and ARWU and QS are not the tools that may fill the gap QA has left. THE has seized the opportunity by publishing the Impact Ranking. For a growing number of traditional research universities information is collected, covering parts of the 'new' policy issues. UMR has started a process of developing new indicators on the 'new' policy issues. Data collection appears to be feasible, but first results on a limited number of indicators are not yet available.

The role of the 'new' policy issues in the assessment of institutional performance and quality is still very limited. Existing initiatives use it in a competitive setting (THE Impact Ranking) or a transparency setting (UMR). Developing indicators that may be used for accountability purposes or improvement purposes (either in formalized QA mechanisms or in ranking or transparency tools) is a major challenge that lies ahead. Facilitating the exchange of ideas, experiences, and knowledge on how to measure performance on the 'new' policy issues and how to use that information in any of the rationale settings seems to be a promising way forward to get these 'new' policy issues embedded in quality assessment tools.

Notes

1. https://education.ec.europa.eu/education-levels/higher-education/higher-education-initiatives/inclusive-and-connected-higher-education (accessed 4 May 2022).
2. https://www.eurostudent.eu.
3. https://sdgs.un.org/goals.
4. https://www.universityworldnews.com/post.php?story=20190205081112460 (accessed 4 May 2022).

5. https://smartqual.eu/wp-content/uploads/2021/05/IO1.A1_State-of-the-Art-QMS_Clustering_Report.pdf.
6. SMART-QUAL – Structured indicators to manage HEIs' Quality Systems is a project co-funded by the Erasmus+ KA2 programme. The consortium of the project is composed of different European HEIs and Quality Assurance agencies, and a Research & Development organization. These are as follows: University of Minho (Portugal); Conexx-Europe (Belgium); University of Aveiro (Portugal); A3ES – Agency for Assessment and Accreditation of Higher Education (Portugal); Politecnico di Torino (Italy); Universitat Internacional de Catalunya (Spain); AQU – Catalunya Catalan University Quality Assurance Agency (Spain); Vrije Universiteit Brussel (Belgium); and SKVC – National Agency for Quality Assurance in Higher Education (Lithuania).
7. https://www.shanghairanking.com/rankings.
8. https://www.timeshighereducation.com/.
9. https://www.topuniversities.com/.
10. www.umultirank.org.

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Appendix 1. Quality indicators scoreboard

TEACHING & LEARNING

Name of Harmonized Indicator	Description	Nature
1 - Policy for quality assurance		
BASIC		
Fulfillment of objectives	Percentage of strategic planning objectives fulfilled	**Quantitative**
QA procedures definition	Application of procedures for internal quality assurance	**Qualitative**
QA results and impact	Percentage of improvement actions performed	**Quantitative**
2 - Design and approval of programmes		
BASIC		
Design of programmes	Appropriateness of intended learning outcomes, teaching, and assessment methods	**Qualitative**
RECOMMENDED		
Programmes offer	Percentage of second and third cycle programmes	**Quantitative**
3 - Student-centred learning, teaching and assessment		
BASIC		
Student engagement	Programmes designed with the participation of students	**Qualitative**
Teacher-student balance	Ratio of students to FTE teaching staff	**Quantitative**
RECOMMENDED		
Academic staff workload	Ratio of teaching hours offered per FTE teaching staff	**Quantitative**
Assessment system	Teaching staff peer evaluation of assessment/examination protocols	**Qualitative**
Efficiency rate	Ratio between credit units required for graduation and credit units actually enrolled since the first year in the programme	**Quantitative**
Student mobility	Ratio of international agreements that have incoming or outgoing mobility per programmes offered	**Quantitative**
Time to degree completion	Average duration of studies	**Quantitative**

TEACHING & LEARNING (CONT.)

Name of Harmonized Indicator	Description	Nature
4 - Student admission, progression, recognition and certification		
BASIC		
Drop-out rate	Percentage of students dropping out from a programme	**Quantitative**
Graduation rate in a specified time	Percentage of students completing their studies within the expected number of years	**Quantitative**
Progress rate	Percentage of passed credit units	**Quantitative**
RECOMMENDED		
Student academic results	Average of final qualifications of graduates	**Quantitative**
Student enrollment in postgraduation	Ratio of PhD students per students enrolled	**Quantitative**
Student profile	Gender and socioeconomic diversity	**Qualitative**
Student's placement by first choice	Demand coverage index	**Quantitative**
5 – Teaching staff		
BASIC		
Teaching staff holding a PhD	Percentage of FTE teaching staff holding a PhD per FTE teaching staff	**Quantitative**
Training of teaching staff	Percentage of FTE teaching staff who participated in activities to improve their teaching skills per FTE teaching staff	**Quantitative**
RECOMMENDED		
International staff	Percentage of international visiting teaching staff	**Quantitative**
Student satisfaction with teaching staff	Average satisfaction with the quality of teaching staff, quality of teaching and teaching staff engagement	**Quantitative**
Teacher-non-academic staff balance	Ratio of FTE teaching staff to FTE non-academic staff	**Quantitative**
Teaching staff mobility	Percentage of teaching staff joining the ERASMUS+ Program	**Quantitative**
Teaching staff profile	Percentage of teaching staff in each professional category	**Quantitative**

6 – Learning resources and student support
BASIC

Facilities	Percentage of classroom offer regarding the total need	**Quantitative**
Library services	Ratio of library resources per FTE student	**Quantitative**

RECOMMENDED

Student satisfaction with facilities	Average level of satisfaction of students with facilities and other resources	**Quantitative**
Teaching & learning expenditure	Percentage of expenditure dedicated to Teaching & Learning activities	**Quantitative**

7 – Information management
BASIC

QA data collection system	Application of a system for data collection in different processes	**Qualitative**

8 – Public information
BASIC

Public information	Percentage of degree programmes with public information on quality available	**Quantitative**

9 – On-going monitoring and periodic review of programmes
BASIC

Graduate employment rate	Percentage of graduates employed	**Quantitative**
Overall student or graduate satisfaction	Average valoration of the quality of the courses offered	**Quantitative**
Student satisfaction with teaching & learning	Average level of satisfaction of students with the organization of courses	**Quantitative**

RECOMMENDED

Graduate employment in related job	Percentage of graduates employed in job related with study programme	**Quantitative**

10 – Cyclical external quality assurance
BASIC

Compulsory accreditation of programmes	Percentage of programmes fully accredited in compulsory accreditation	**Quantitative**

RECOMMENDED

Voluntary accreditation of programmes	Percentage of programmes fully accredited in voluntary accreditation	**Quantitative**

RESEARCH		
Name of Harmonized Indicator	**Description**	**Nature**

11 - Resources
BASIC

Research funding	Ratio of revenue raised for research per FTE teaching staff	**Quantitative**
Research projects	Percentage of approved competitive projects	**Quantitative**

RECOMMENDED

Academic inbreeding	Percentage of academic staff hired that has not obtained a PhD in the same university	**Quantitative**
Members in research units	Percentage of teaching staff integrated in Research Units	**Quantitative**
Research engagement	Research effort index per FTE teaching staff	**Quantitative**

12 – Results and impact
BASIC

Intellectual property dimension	Ratio of revenue from royalties and license agreements per FTE teaching staff	**Quantitative**
Research citations	Ratio of citations in indexed articles at SCOPUS per FTE teacher	**Quantitative**
Research publications indexed	Percentage of articles published in 1st-quartile journals of the scientific area per total number of articles published in year n in that area	**Quantitative**

RECOMMENDED

Patents	Ratio of patent grants registered by, at least, one member of the HEI per FTE teaching staff	**Quantitative**
Research grants	Ratio of ongoing scientific research grants per FTE teaching staff	**Quantitative**

RELATIONSHIP WITH SOCIETY

Name of Harmonized Indicator	Description	Nature
13 – Recruitment and social inclusion		
BASIC		
Recruitment of international students	Percentage of international students enrolled	**Quantitative**
RECOMMENDED		
Financial aid to students	Percentage of students who receive a scholarship based on social background	**Quantitative**
Life-long learning	Ratio of participants in life-long learning programmes per students enrolled	**Quantitative**
14 – Collaboration with stakeholders		
BASIC		
Research partnerships	Ratio of agreements of collaboration in Research and Transference with third parties per FTE teaching staff	**Quantitative**
RECOMMENDED		
Collaboration with stakeholders	Ratio of protocols/agreements established with external organizations per FTE teaching staff	**Quantitative**
Students-industry link	Ratio of students involved with external entities per students enrolled	**Quantitative**
15 – Impact in society		
BASIC		
Spin-offs	Ratio of spin-offs established per FTE teaching staff	**Quantitative**
RECOMMENDED		
Sustainability	Ratio of sustainable actions in environmental and social issues per students enrolled	**Quantitative**