

Performance Evaluation in Higher Education – A Comparative Approach

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Abstract. *Higher education stands as an essential base point in the current knowledge societies, shaping the way to sustainable growth and enhanced life quality. Literature recognizes higher education institutions as powerhouses which, through their own capabilities and partnerships, can champion innovation in a transformative way. Being widely praised for the transformative output they generate through the conducted operations, literature notes that when the educational process is defined by an outstanding quality and performance, multiple benefits arise for all the stakeholders involved. However, since quality and performance are very nuanced and volatile concepts, ensuring them in higher education necessitates a good understanding of the educational ecosystem as well as its ongoing monitoring. To encourage this aim, the selection of proper key performance indicators and the consistent implementation of performance appraisal actions have to be enacted so the end beneficiaries of the educational process and other stakeholders are provided maximal quality. As performance evaluation can be deployed by considering various indicators, higher education institutions need to carefully design, apply its steps and run follow-up actions to determine what is still to be improved.*

Keywords: higher education, performance evaluation, knowledge economy, quality, indicators.

Introduction

The stringent importance of higher education institutions in knowledge conveyance is an essential subject approached by scientific research (Bin Mat Saad et al., 2022; Markowska et al., 2021; Vidican, 2009) as education further propels the society (Öztürk et al., 2022; New & Ghafar, 2012). The dynamics of higher education, as the ultimate level that a person reaches before joining the labor market, is relevant to be studied from the contextual viewpoint as its policy is distinct from country to country (Kromydas, 2017). Every university holds its own features and organisational culture shaped by the values of their stakeholders, which exert great influence over universities' actions and effectiveness (Fralinger & Olson, 2007).

As higher education institutions have always been significant driving forces for social advancement (Moscardini et al., 2020), literature approaches their role in social innovation, their third mission pertaining to social participation (Bayuo et al., 2020) and the catalyzation of the change toward sustainability (Fonseca et al., 2018). In the current times, universities have to successfully face multiple external factors while efficiently educating students, operating

stakeholder management and conducting research actions (Fumasoli & Rossi, 2021). The participation in global competitiveness additionally exposes higher education institutions to the need of sustaining excellence and transnational partnerships (Escandon-Barbosa & Salas-Paramo, 2023). Given the heightened competition between universities (Díaz Méndez et al., 2019), these institutions need to reconfigure teaching practices and the educational offering to adapt to quickly changing industries (Guardia, 2021; Mpofu-Hamadziripi et al., 2022) and must be increasingly attentive to social responsibility, by fostering regional lifelong learning (Dima et al., 2013).

The indispensable mission of universities is unfortunately diminished by scarce governmental assistance, competition from nontraditional training suppliers as well as decreasing high school graduation rates (Tandberg & Martin, 2019). The research of Daraio et al. (2015) emphasizes that the local context plays a paramount role in the university performance reflected in university rankings, as 80 percent of the variation between the institutions is triggered by the differences between the countries to which the universities belong. To intensify performance, properly manage globalization and safeguard their future, higher education institutions need to become persistently internationalized and shift from a teaching intensive to a research-intensive profile (Dima & Vasilache, 2016). Operating in such rough conditions, university reputation and employee competences are primary points of attention for the educational institutions (Spitsin et al., 2016).

At global level, policy agendas have been showing considerable interest for the development and assurance of quality in higher education, which represents a central point for academics (Dougherty & Reddy, 2011). Owning an outstanding quality culture (Barbulescu, 2015; Bendermacher et al., 2017) that involves human actions and commitment to quality (Elken & Stensaker, 2018; Tutko, 2019) is a priority for universities' knowledge dissemination.

Besides quality assurance, higher education institutions were pressured to prove significant performance, according to Pounder (1999). In this sense, a comprehensive model of performance evaluation has to be implemented in higher education institutions (Agasisti & Bertolotti, 2019). Defining the features of good performance indicators and their validity has been widely attempted (Beerkens, 2022), complexity in performance evaluation arising because subjective and objective criteria are referred to (Thanassoulis et al., 2017). As a response to these facts, customization actions have to be conducted to achieve a tailored evaluation of institutions (Ćukušić et al., 2014). One essential factor emphasized by Abidin (2021) in this sense being the satisfaction of stakeholders with the quality of education.

Literature review

Higher education and the need for quality to shape community growth

In a landscape of thorough worldwide competitiveness and knowledge quest, education became a cornerstone of growth, for countries to be globally competitive (Aleandri & Refrigeri, 2013; Beynaghi et al., 2016), and for individuals' personality formation to take place (Erins & Erina, 2015). Supplementary, education is also acknowledged by Sharma and Ankit (2023) and Abuselidze (2022) as an engine that helps individuals reach personal and professional growth. To shelter long-run progress, a knowledge triangle needs to be set by education, research and innovation (Lung (Moladovan) et al., 2012) with the purpose of generating sustainable development (Krstić et al., 2020).

Global-wise, higher education institutions are increasingly recognized for the outstanding impact that they exert on economic and social progress in light of the knowledge society setting

(El Gibari et al., 2018) by participating in sustainable development through teaching, research and social involvement (Blasco et al., 2021; Fonseca & Nieth, 2021). As Benneworth and Fitjar (2019) claim, higher education institutions establish alliances with the industry and the government to create and sustain policies of regional development. Moreover, research of Ghinea et al. (2017) emphasizes that higher education institutions are complex, changing structures that can keep a state of equilibrium on condition that adequate management and incentives exist. According to Valero and Van Reenen (2019), universities manifest impact in the economic area through human capital supply, innovation and demand effects. Besides the economic impact, universities are expected to provide solutions to major social issues within their regions, this determining them to engage in social innovation programs (Carl & Menter, 2021) and directing their own research in this aim (Dotti & Walczyk, 2022).

Universities, in their capacity as knowledge-shaping institutions, have been operating in persistently changing contexts, imposed by demographics, the will of stakeholders and the community (Bedggood & Donovan, 2012). The realisation of universities' mission has also been drastically reconfigured by global phenomena such as technological progress and geopolitical events (Angouri, 2023; Serrano-Velarde, 2010). A report of the European Commission (2020) indicates that the ability of universities to positively shape change also depends on reduced public investments in R&D, university financing and the brain drain phenomenon. To face this fast-changing context, higher education institutions must deploy their expertise (Monteiro et al., 2021). Moreover, to successfully manage arising challenges, universities catalyze social innovation (Puente et al., 2021) and embrace sustainable growth by adhering to various learning tools, for instance systemic design thinking (Peng et al., 2022), living labs (League of European Research Universities, 2006; Păunescu et al., 2022; Verhoef et al., 2019), partnerships between universities and communities (Cobo-Gómez, 2024) and project-based learning (Crespí et al., 2022; Granado Alcón et al., 2020).

Facing increasing request for qualitative education, higher education institutions need to address quality improvement strategies and include quality aspects in all their actions (Borhandden Musah et al., 2023). Quality is defined in education in connection with various matters such as the correlation between results and objectives, error correction and addressing students' educational needs (Khuram et al., 2023). The notion of quality culture is a complex one and it generally includes values, attitudes and focus on quality (Vilcea, 2014). The research of Borhandden Musah et al. (2023) highlights quality culture elements such as leadership, teamwork, ongoing improvement, strategic planning and customer orientation. Additionally, quality culture is also fostered through quality recognition programs, mapping stakeholder concerns, resource mobilization and feedback on quality improvement (Borhandden Musah et al., 2023).

In the view of Giesenbauer and Müller-Christ (2020), a change toward the university 4.0 organisational model must take place, given that communities together with higher education institutions prove a greater focus on education for sustainable development. Education that embeds quality is a driver of sustainable development, this requirement being integrated in the 2030 Agenda for sustainable development (Angheluță et al., 2023). Compared to other fields in society, universities shape the future leaders, policy creators and decision makers belonging to the sustainable development sphere to a greater extent (Iqbal & Piwowar-Sulej, 2022). Hence, these institutions operate in heterogeneous structures at national and worldwide scale (Chankseliani et al., 2021) that involve the safeguarding of sustainable progress (Nölting et al., 2020).

The realization of a quality culture and of excellence at academic level is possible by following continuous improvement, benchmarking and accreditation processes (Kayyali, 2023).

Through accreditation, higher education institutions maintain a quality-oriented mindset by ensuring that the providers of education stick to standards which conform to society's expectations (Duarte & Vardasca, 2023; Wike & Cahyasari, 2019). Additionally, accreditation is a method of evaluating the performance of higher education institutions against performance standards, implying quality control and auditing activities (Alenezi et al., 2023; Al-Shareef et al., 2023). The accreditation of academic entities is an external evaluation that is usually requested by regulatory agencies (Al-Eyadhy & Alenezi, 2021).

Excellence is a primary constituent of universities' mission although scholars did not articulate a clear definition of the concept as it is closely linked to social, cultural and economic aspects (AlMarwani, 2023). University excellence emerged alongside the popularity upturn of university rankings, a fact that determined higher education institutions to make academic changes in governance, financing and other elements, according to Tilak (2023). The receipt of the excellence status and excellence indicators by universities enables them to better attract high school graduates in the admission process (Horstschräer, 2012). Striving towards excellence needs to be the ultimate goal of higher education institutions, excellence being perceived as the quality level that goes beyond established standards and it points to several aspects such as the robustness of strategic management, improved academic achievement standards, outstanding student experience, meeting stakeholder needs, research and academic improvement and focus on internationalization (European Association for Quality Assurance in Higher Education, 2014). Providing a more condensed image, Sembiring (2017) claims that excellence in the academic environment is linked to appraisal systems, structures of referral and learning materials.

The concept of performance evaluation in higher education

To foster quality improvement, universities need thorough performance evaluation, relying on key factors and metrics (Azma, 2010), a subject that attracted debates in the higher education sector (Abubakar et al., 2018; Zhang & Shi, 2019) and consistent research concerning performance metrics (Bratti et al., 2004; Xia et al., 2019). Appraising university performance assists these institutions in adhering to more adequate policies of education, research and university management (Nazari-Shirkouhi et al., 2020) and enables the comparison between past actions and strategy implementation, while designing plans for the future (Jalaliyoon & Taherdoost, 2012). Additionally, the aim of performance appraisal and of performance management is to establish if there is a coordination between expected goals and employee performance, focusing on employee behavior and their capabilities (Igbojekwe & Ugo-Okoro, 2015; Santati et al., 2022). Through performance assessment, the initiation of financing schemes is also fostered (Alibekova et al., 2021). Measuring university performance implies benefits pertaining to the human resources side, for instance the promotion of professors, employee progress growth, employee stability assurance and motivation improvement (Balu & Sowmya Erappa, 2019).

As the work of Martins and Ensslin (2022) underlines, performance assessment needs to prove adherence to the strategy and the organizational mission, and as research (Badawy et al., 2018; Elhadjamor & Ghannouchi, 2022) claims, the establishment of KPIs is a critical step since if the appraisal is rooted in the wrong KPIs, decision making processes can be negatively altered. It is also essential to choose indicators which represent to the greatest extent the elements that catalyze operational and financial welfare (Suryadi, 2007). According to Housawi et al. (2020) and McCormick (2019), KPIs have to aim for meaningful improvement, demonstrate reliability, validity, timeliness, cost efficiency and enable easy interpretation of results. Performance evaluation does not lack obstacles, Guarini et al. (2020) discovering that academics react in their

own way to the same requirements in accordance with their perception of academic tasks and their internal drivers. Another drawback highlighted by Peng et al. (2023) concerning performance evaluation is the unclear distribution of assessment factors and the unsound allocation of weight in the process.

In an extensive stance, performance is the reflection of resource usage with the aim of reaching expected objectives and provides clues on the organizational success and the adherence to environmental conditions (El Talla et al., 2018). For higher education, performance is defined by Kivistö et al. (2019) as the actions and tasks that higher education institutions employ, together with the results of the actions. Baltaru (2019) hypothesized and proved that university performance is shaped primarily by the institution's reputation. Additionally, Fernández-Lopez et al. (2018) asserted that knowledge management is a highly relevant determinant of university performance but research has mainly studied knowledge management practices in organizational context, scarcity thus defining studies on universities. Performance in higher education is also dependent on students' academic results, the degree of academic involvement that students demonstrate being a mediator between academic self-efficacy and the academic results of students (Meng & Zhang, 2023). Furthermore, Dobija et al. (2019) underline that performance measurement depends on exogenous variables, such as the education ministry and the state, and endogenous factors, for instance the scope of conducting the assessment and the internal stakeholders, namely academics.

Academic performance evaluation in Romania

When debating on the performance evaluation of higher education institutions in Romania, two main institutions conduct this activity, namely the Romanian Agency for Quality Assurance in Higher Education, abbreviated ARACIS, and the National Council for the Financing of Higher Education, abbreviated CNFIS. According to ARACIS (2020a), the mission of ARACIS is to operate the external assessment of higher education institutions and other such similar entities that exist in Romania, with the purpose to foster a culture of quality in higher education and certifying this aspect based on quality norms, to protect the beneficiaries of higher education by disseminating coherent information and to propose quality improvement policies to the Romanian Ministry of Education, Research and Innovation. In addition, ARACIS stands as an autonomous institution of public character which maintains close cooperation with the Romanian Ministry of Education, universities and other entities in the field (ARACIS, 2022). Regarding the evaluation of doctoral programs, the following criteria are taken into account by the institution:

- a) Institutional infrastructure: institutional, administrative, and managerial branches; financial resources; research capabilities; the quality of human resources;
- b) Educational effectiveness: the number, quality, and diversity of the candidates; the content of the study programs; the evaluation of the progress registered by candidates; the quality of the PhD theses;
- c) Quality management: the existence and implementation of regular internal procedures of quality assurance; informational transparency and access to educational resources; the level of internationalization; the functionality of the system that guarantees the fulfilment of ethical norms and academic integrity (ARACIS, 2020b).

Concerning CNFIS, CNFIS (2024) states that the consultative body is concerned with the issuance of allocation methods of public funding to Romanian state universities, aiming for continuous quality improvement in Romanian higher education. The main goal of this structure is to guarantee that the manner in which universities are organized and managed in Romania ensures equal opportunities for citizens to access higher education programs, regardless of their social or

cultural background. Given that the Ministry of Education decides regarding the financing of universities only after consulting the representatives of CNFIS, academics are bound to take into account the body's methodology when organizing their activity. There are two main aspects that are prioritized in the analyses put forward by CNFIS: the number of students that are enrolled in an institution and the overall level of its academic performance, which is influenced by the results of the evaluation of students and academics, and also by the degree to which the university completes its social responsibilities (CNFIS, 2024).

In evaluating the academic performance of Romanian universities, the Ministry of Education also relies on a meta-ranking realized by a group of experts coordinated by the institution. The methodology on which this project relies reflects the objective of developing higher education according to international standards. After 1989, when Romania started its process of democratization, the political and cultural fields are constantly preoccupied by the issue of reducing the development gaps that exist compared with Western societies. Therefore, the international environment is often the place where models of good practice are searched, including in regard with the higher education system.

In the following section, we are highlighting the importance and particularities of several university rankings on a worldwide scale. Some of these rankings are utilized in the Ministry of Education's endeavor. The above-mentioned meta-ranking calculates a university's score by realizing the average of its results in the following projects: Shanghai Ranking's Academic Ranking of World Universities (ARWU), CWUR World University Rankings, CWTS Leiden Ranking, NTU Ranking – National Taiwan University Performance, QS World University Rankings, SCImago Institutions Ranking, THE World University Rankings, URAP University Ranking by Academic Performance, and US News Best Global Universities Rankings (The Ministry of Education, 2023).

A similar meta-ranking, which is also influential in evaluating the academic performance of Romanian universities, is realized by an independent group of experts that belong to the higher education system. The results of this project are published by the Qualitas Center of the Babeș-Bolyai University of Cluj-Napoca. The methodology is similar to the one used by the Ministry of Education's meta-ranking. A university's score is represented by the average of its results from the following global university rankings: Academic Ranking of World Universities/ARWU, Center for World University Rankings/CWUR, Leiden Ranking/CWTS, Performance Ranking of Scientific Papers of World Universities/NTU, QS – Top Universities Ranking/QS, Scimago Institutions Ranking/Scimago, Times Higher Education – World University Rankings/THE – Times, University Ranking by Academic Performance/URAP, and Best Global Universities Rankings/U.S. News (Ionescu, 2023).

The above-mentioned university rankings are contributing to the growth in importance of several criteria that are used in the evaluation of Romanian academic performance. For instance, academics have to prioritize in their research endeavors the reputation of the publications where the results of their studies will appear, which depends mainly on the number of citations the published articles have. The number of citations became a key element in determining the efficiency of a scholar's activity, with instruments like the Hirsch index being taken into account when a decision is made regarding the financing of universities. Moreover, the level of internationalization is currently paramount for determining the level of development of a higher education institution. Universities are compelled to increase the number of foreign students that are enrolled. Both students and academics are encouraged to participate in exchange programs like Erasmus, which is organized by the European Union (EU). For scholars, interacting with the

manner in which higher education institutions are managed in an international environment can also be helpful in the attempt to shape models of good practice that can be implemented at a local level.

The influence of global university rankings reflects the current hegemony of quantitative tools in evaluating academic performance. Although this hegemony is accepted by most of the Western academic field, it is not undisputed. For instance, the University of Zurich decided in March 2024 to withdraw from one of the above-mentioned rankings, the *Times Higher Education – World University Rankings*. The managers of the institution argued that such projects are biased by their prioritization of quantification, which leads to an increase in the number of scientific publications, while clear qualitative improvements are lacking (SwissInfo, 2024). Future studies could analyze if such initiatives have an impact on the manner in which Romanian institutions are viewing the evaluation of academic performance.

In Romania, the level of a scholar's performance can be the basis for a financial incentive, which represents 10% of the beneficiary's salary (The Ministry of Justice, 2017). However, there is no national methodology for evaluating the candidates' applications. Universities have the liberty of selecting the criteria they consider fit for making a decision. For example, Constanța Maritime University is taking into consideration two aspects that are considered equally important. On one hand, it focuses on the results of the research activity and the international reputation of the academic. In this regard, factors considered important by CNFIS are analyzed. On the other hand, it evaluates the academic's contribution to the development of the university and to the improvement of its public image (Constanța Maritime University, 2019).

The institution's approach has the particularity of using both quantitative and qualitative methodological tools. While the results of the research activity can be easily quantified, the role in the improvement of the university's public image leaves room for qualitative instruments. If properly implemented, this hybrid strategy can increase the level of scientific rigor (Box-Steffensmeier et al., 2008). From a different perspective, it can be noticed that while the first criterion is relevant for the international scientific field, the second one focuses on the local level. It can be argued that having an important contribution to the latest scientific debates can increase international academic cooperation, while contributing to the development of the institution you are affiliated with is helpful primarily for the local competition for students and financing between universities. Carnegie (2023) states that adapting higher education systems to the latest evolutions of the 21st century (technological, social, economic, political, etc.) requires emphasizing the advantages of cooperation for reaching sustainable progress.

Academic performance evaluation at global level

At worldwide scale, the performance of higher education institutions is measured through eight university rankings (Moskovkin et al., 2013), out of which the research focus is placed on Times Higher Education World University Rankings and QS World University Rankings. According to Times Higher Education (2023), Times Higher Education World University Rankings 2024 embodies 18 performance indicators which form five pillars: teaching, research environment, research quality, industry and international outlook. Each pillar and component indicator has its own weight in the final computation of the dimensional and overall score. A detailed image of the ranking's composition is provided in Table 1.

Table 1. The structure of Times Higher Education World University Rankings 2024

Pillar	Component indicators
Teaching (29.5%)	Teaching reputation (15%)
	Staff-to-student ratio (4.5%)
	Doctorate-to-bachelor's ratio (2%)
	Doctorates-awarded-to-academic-staff ratio (5.5%)
	Institutional income (2.5%)
Research environment (29%)	Research reputation (18%)
	Research income (5.5%)
	Research productivity (5.5%)
Research quality (30%)	Citation impact (15%)
	Research strength (5%)
	Research excellence (5%)
	Research influence (5%)
International outlook (7.5%)	Proportion of international students (2.5%)
	Proportion of international staff (2.5%)
	International collaboration (2.5%)
Industry (4%)	Industry income (2%)
	Patents (2%)

Source: Times Higher Education (2023).

As for QS World University Rankings, the ranking for year 2024 includes nine dimensions, namely academic reputation, employer reputation, faculty student ratio, citations per faculty, international faculty ratio, international student ratio, international research network, employment outcomes and sustainability, their weight in the final rank computation being indicated in Table 2.

Table 2. The structure of QS World University Rankings 2024

Pillar	Weight
Academic Reputation	30%
Employer Reputation	15%
Faculty Student Ratio	10%
Citations per Faculty	20%
International Faculty Ratio	5%
International Student Ratio	5%
International Research Network	5%
Employment Outcomes	5%
Sustainability	5%

Source: QS Quacquarelli Symonds (2023).

Apart from university rankings, quality in higher education at global level is ensured by several accreditation bodies, either local, regional or global ones, out of which the research refers to the following, in line with EHEA (n.d.), ENQA (2023) and World Education Accreditation Council (n.d.):

- The European Quality Assurance Register for Higher Education (EQAR) - supplies reliable information regarding the quality assurance agencies which exist in Europe, to improve the trust between the higher education institutions on the continent;
- The European Association for Quality Assurance in Higher Education (ENQA) - helps the community of quality assurance agencies from the European Higher Education Area to

sustain innovation and upscale processes in quality assurance in accordance with the changes in the higher education field;

- World Education Accreditation Council (WEAC) - aims to certify that the quality assurance standards of higher education institutions, schools and institutes comply with international standards of quality.

Performance evaluation indicators in higher education

In the effort of shaping success and sustaining the performance of employees, higher education institutions operate various kinds of assessment standards, for instance quality culture and the Six Sigma methodology (Borhandden Musah et al., 2023). In addition to these evaluation instruments, universities can assess their performance by considering their impact on the community, expressed through the offering of research centers, addressing community welfare, the receipt of awards for the produced impact and the creation of partnerships with institutions (El Talla et al., 2018). A great degree of utility in performance evaluation is also proven by the European Foundation for Quality Management (EFQM) model, a holistic tool that enables a comprehensive examination of conducted activities and integrates customer satisfaction, personnel satisfaction and community impact (Curpănu, 2021).

According to Camilleri (2020), the metrics guiding performance assessment in universities can be derived from publicly-available indicators and ratings, while the performance assessment process can be internally or externally based. In what regards higher education institutions in Romania, the Romanian Quality Agency in Higher Education (ARACIS) notes that performance indicators have to be used by universities as a guiding point when overseeing the quality of the educational process and when proving quality assurance (Nicolescu & Dima, 2010).

Supplementary metrics through which higher education institutions can evaluate their quality degree and performance are further displayed in Table 3.

Table 3. Metrics for quality and performance appraisal in higher education institutions

Indicator	Source
- university personnel display commitment to institutional success - university personnel appreciate quality improvement - expertise is a criterion when selecting teams - university staff participates in activities linked to quality - before designing university programs, the opinions of customers are considered - the university pays attention to customer complaints pertaining to the creation of high quality - the university searches for customer feedback on quality increase - there are regular verifications on the value of customer service - the university can clearly pinpoint the interest points and needs of stakeholders - the university articulates a clear vision - the university delineates quality objectives and strategic agendas - the university employs specific quality objectives - the institution regularly generates action plans for quality - the university rewards employees for outstanding results - the recognition structure is clear for all university personnel - the recognition structure encourages commitment toward quality increase - employee involvement in quality improvement is fostered by the recognition system - the university rewards the excellent proposals of university personnel for recognition structure improvement - the university displays timely recognition of personnel's good performance - independent quality audit is implemented by senior management	Borhandden Musah et al. (2023)

Indicator	Source
- senior management nurtures quality initiatives at individual level - senior management is committed to quality - senior management enables quality management resources - the university operates an attitude survey on a regular basis - the university evaluates the quality of its members' relationships on a regular basis - the university evaluates the performance of its members on a regular basis - the university assesses the contentment level of its members on a regular basis - the university pays attention to customer complaints regarding quality improvement - the university has flexible working procedures which enable empowerment - the university has a flexible system which permits enhanced quality involvement - the university provides empowerment to quality involvement teams - the university provides empowerment to teams in charge with problem solving - the university operates programs of quality awareness - the university supplies feedback on quality progress to employees - the university establishes workshops on quality enhancement for employees - the university employees have proper knowledge regarding quality procedures - the university fosters the participation of employees in quality enhancement activities - the university has standard procedures for quality service delivery - the central policies of the university are organized in its strategic plans	
Balanced Scorecard: - institutional capability (internal management, the quality of the internal and the external communication structure, the quality of reports supplied by information management systems, student supply of medical services, institutional space offering) - educational effectiveness (design of the curriculum, educational offer promotion, partnerships with representatives of the community, school results evaluation, appraisal of financial activity) - quality management (institutional self-evaluation procedures, implementation of quality assurance procedures, educational resource accessibility optimization, systematic evaluation of the activities operated by students and professors, information transparency on study programs)	Jicman Enache et al. (2021)
- the operations and general performance of the university - the interaction between students and the university (students' number and rate of retention) - the effectiveness of the institution (program initiation, managerial and quality monitoring procedures) - development of resources (students' and personnel's capability enhancement) - future preparation (partnerships, planning quality)	Latif et al. (2022)
Teaching performance: - resources (student per faculty member ratio, university members with PhD, library availability, demand fulfilment) - results (rate of success, appraisal and graduation, dropout rate) - external image (national students, internships, national and foreign students participating in Erasmus programs)	El Gibari et al. (2018)
Research performance: - number of articles that were published in professional journals - journal impact factor - number of published books - number of edited books - number of chapters published in books which are refereed - number of edited chapters in books which are refereed - citation number - citations as impact indicators - registration of patents - research grants obtained - research project participation - honors and awards received	Tamtekin Aydin (2017)

Indicator	Source
- number of papers that were presented in conferences - number of invitations concerning paper presentation - number of overseen dissertations - supervision of one or more master's students - supervision of one or more PhD students - holding the role of academic journal editor - roles of professional association - professional interaction with overseas colleagues	
Financial metrics - return rate on capital - annual increase in income - cost minimization - educational revenue Student metrics: - fulfilment of students - quality of services - students' growth number - contentment of graduates - employment rate of graduates Internal process metrics: - service supply timeframe - information technology - publications with scientific character - facilities' efficiency - standard procedures Development and growth - capabilities of employees and professors - fulfilment of employees and professors - teaching innovation - personnel empowerment - personnel retainment - incorporation of new technologies in the courses	Nazari-Shirkouhi et al. (2020)

Source: Borhandden Musah et al. (2023), Jicman Enache et al. (2021), Latif et al. (2022), El Gibari et al. (2018), Tamtekin Aydin (2017), Nazari-Shirkouhi et al. (2020).

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