

# Revolution in University Ranking System

W.Y. Leong\* and J.B. Zhang

*INTI International University, Persiaran Perdana BBN, Putra Nilai, 71800 Nilai, Negeri Sembilan*

University rankings play a crucial role in the higher education landscape, shaping perceptions of academic quality, research productivity, and institutional reputation. This paper provides a comprehensive technical analysis of university ranking methodologies, examining the metrics, methods, and implications of various ranking systems. We explore the diverse approaches used by ranking organisations, the strengths and limitations of different methodologies, and the impact of rankings on higher education institutions and stakeholders. By critically evaluating ranking methodologies and discussing emerging trends and challenges, this paper aims to provide insights into the complex landscape of university rankings and inform discussions on their relevance and utility in the global higher education community.

**Keywords:** inclusive education; ranking system; methodology; higher education

## I. INTRODUCTION

University ranking systems evaluate and compare the performance of higher education institutions based on various criteria. A revolution in university ranking systems (Figure 1) is underway, driven by the need for more comprehensive and inclusive methods that better reflect the diverse missions and contributions of higher education institutions (Altbach, 2011; Hazelkorn, 2015; Marginson, 2007a). The key elements of this revolution:

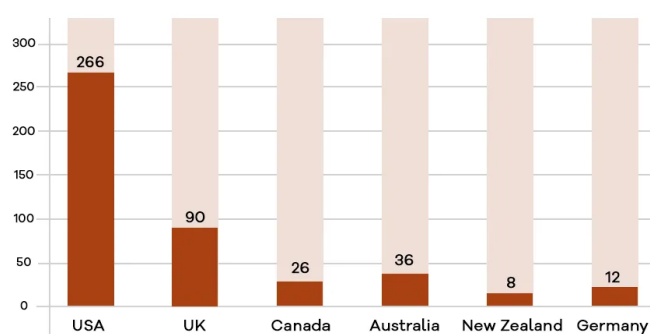


Figure 1. Top Ranks listed on the 2023 Times Worlds University Rankings

Countries arranged by the number of universities in Top Ranks listed on the 2023 Times World University Rankings Shift from Traditional Metrics was shown in Figure 1.

Traditional university rankings often rely heavily on metrics such as research output, citations, and reputation, which tend to favour large, research-intensive universities (Altbach, 2011). The revolution in ranking systems calls for a shift towards more holistic metrics encompassing teaching quality, student outcomes, societal impact, and inclusivity.

**Incorporation of Teaching and Learning Metrics:** The revolution seeks to give greater weight to metrics related to teaching and learning, such as student-faculty ratio, graduation rates, student satisfaction, and teaching excellence awards (Hazelkorn, 2015). These metrics provide a more balanced assessment of an institution's educational mission and its impact on student success.

**Emphasis on Societal Impact and Engagement:** University rankings are increasingly recognising the importance of societal impact and community engagement (Marginson, 2007a). Metrics related to knowledge transfer, community outreach, public engagement, and social responsibility are being incorporated to assess how universities contribute to addressing societal challenges and fostering sustainable development.

**Diversity and Inclusivity Measures:** The revolution advocates for the inclusion of diversity and inclusivity measures in university rankings, such as representation of

\*Corresponding author's e-mail: zhangjingbing2@gmail.com

underrepresented groups among faculty and students, accessibility and affordability of education, support for marginalised communities, and efforts to promote equity and diversity on campus (Salmi, 2009).

Table 1. University Ranking System

Ranking System (abbreviation)	Initial Year	Sponsoring Organisation	Total # of indicators	Frequency of Publication	Participating Institutions	Website
Academic Ranking of World Universities (Shanghai)	2003	Shanghai Ranking Consultancy	6	Annually	1,000	<a href="https://www.shanghairanking.com">https://www.shanghairanking.com</a>
Carnegie Classification (Carnegie)	1973	Carnegie Commission on Higher Education/Indian aU	8	Approximately every five years	3,939	<a href="https://carnegieclassification.sacenet.edu/">https://carnegieclassification.sacenet.edu/</a>
Center for World University Ranking (CWUR)	2012	Center for World University Rankings	8	Annually	2,000	<a href="https://cwur.org/2024.php">https://cwur.org/2024.php</a>
Leiden Ranking (Leiden)	2011	Leiden University, Netherlands	18	Annually	1,506	<a href="https://www.leidenranking.com/">https://www.leidenranking.com/</a>
QS World University Ranking (QS)	2013	Quacquarelli Symonds Limited	6	Annually	1,500	<a href="https://www.topuniversities.com/world-university-rankings">https://www.topuniversities.com/world-university-rankings</a>
Round University Ranking (RUR)	2010	RUR Ranking Agency	20	Annually	761	<a href="https://roundranking.com/">https://roundranking.com/</a>
SCIImago Institutions Rankings World Report (SCIImago)	2009	SCIImago Lab	12	Annually	4,762	<a href="https://www.sciimagoir.com/">https://www.sciimagoir.com/</a>
The Times Higher Education World University Rankings (Times)	2004	TES Global Ltd	13	Annually	2,000	<a href="https://www.timeshighereducation.com/world-university-rankings">https://www.timeshighereducation.com/world-university-rankings</a>
Clarivate Analytics Innovative University Ranking (CA)(formerly Thomson Reuters)	2015	Reuters	10	Annually	100	<a href="https://clarivate.com/">https://clarivate.com/</a>
U-Multirank (UMR)	2014	European Union and Advisory Board	30	Annually	1,200+	<a href="https://aec-music.eu/">https://aec-music.eu/</a>
US News and World Report - Global Ranking (USN&W)	2014	US News and World Report	12	Annually	1,250	<a href="https://www.litzusa.com">https://www.litzusa.com</a>
University Ranking by Academic Performance (URAP)	2010	Middle East Technical University	6	Annually	3,000	<a href="https://urapcenter.org/">https://urapcenter.org/</a>
Webometrics (Web)	2004	Cybermetrics Lab, Spanish National Research Council	4	Biennial	30,000	<a href="https://www.webometrics.info">https://www.webometrics.info</a>

Transparency and Accountability: There is a growing demand for transparency and accountability in university ranking methodologies. The revolution calls for clear and transparent methodologies that are publicly accessible, allowing stakeholders to understand how rankings are

calculated and make informed decisions based on the results (Salmi, 2016).

Global Collaboration and Benchmarking: Recognising the diversity of higher education systems worldwide, the revolution encourages global collaboration and

benchmarking in the development of ranking systems (Marginson, 2007b). International cooperation enables the exchange of best practices, the adaptation of methodologies to local contexts, and the promotion of cross-border collaboration in higher education (Leong, 2024h).

**Integration of Alternative Metrics:** In addition to traditional quantitative metrics, the revolution advocates for the integration of alternative metrics, such as qualitative assessments, peer reviews, case studies, and stakeholder surveys (Hazelkorn, 2013). These alternative metrics provide a more nuanced understanding of institutional performance and impact beyond numerical indicators.

**Continuous Improvement and Innovation:** The revolution emphasises the need for continuous improvement and innovation in ranking methodologies to adapt to evolving trends, challenges, and priorities in higher education.

Universities, ranking organisations, policymakers, and other stakeholders are encouraged to collaborate in refining methodologies and exploring new approaches to ensure the relevance and credibility of rankings (Liu, 2005).

The revolution in university ranking systems represents a paradigm shift towards more inclusive, transparent, and multidimensional assessments of institutional performance

and impact (Shin, 2011). By embracing diversity, fostering accountability, and prioritising societal relevance, the new generation of ranking systems aims to support the mission of higher education in addressing global challenges and advancing the public good.

## II. THE RISE OF UNIVERSITY RANKINGS AND THEIR INCREASING SIGNIFICANCE IN HIGHER EDUCATION

University rankings have emerged as influential tools in the higher education landscape, providing insights into the relative performance and reputation of academic institutions worldwide. This literature examines the evolution of university rankings, tracing their origins, growth, and increasing significance in shaping higher education policies, practices, and perceptions (Table 1).

**Early Origins of University Rankings:** University rankings have roots dating back to the early 20th century, with publications such as the Academic Ranking of World Universities (ARWU) and the Times Higher Education World University Rankings (THE) (Times, 2024), Figure 2.

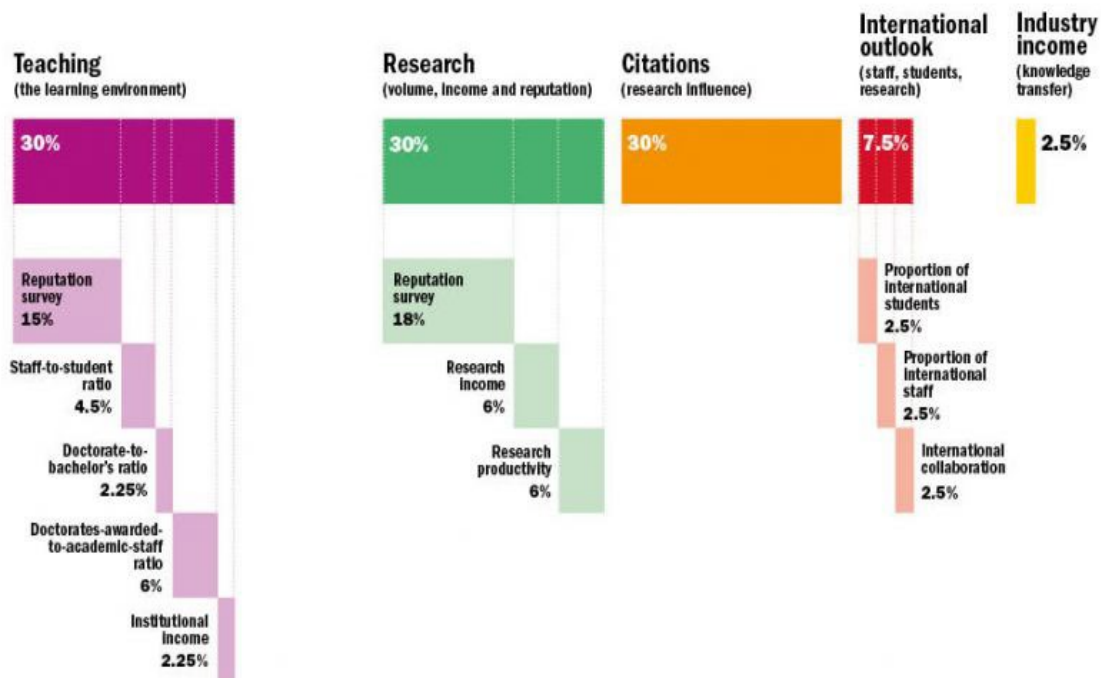


Figure 2. The Times Higher Education World University Rankings methodology

Early rankings primarily focused on academic reputation and research productivity, using peer assessments, faculty surveys, and bibliometric data to assess institutional quality.

**Proliferation of Ranking Systems:** Expansion of ranking methodologies: Over time, ranking organisations have developed more sophisticated methodologies, incorporating additional metrics such as faculty-to-student ratio, citations per faculty, internationalisation, and employer reputation.

**The proliferation of ranking systems:** Numerous ranking systems have emerged, including global rankings (e.g., QS World University Rankings (QS, 2024), U.S. News & World Report), regional rankings (e.g., QS Asia University Rankings, Times Higher Education Asia University Rankings), and subject-specific rankings (e.g., QS World University Rankings by Subject (Figure 3), Shanghai Ranking's Global Ranking of Academic Subjects, (Figure 4)).

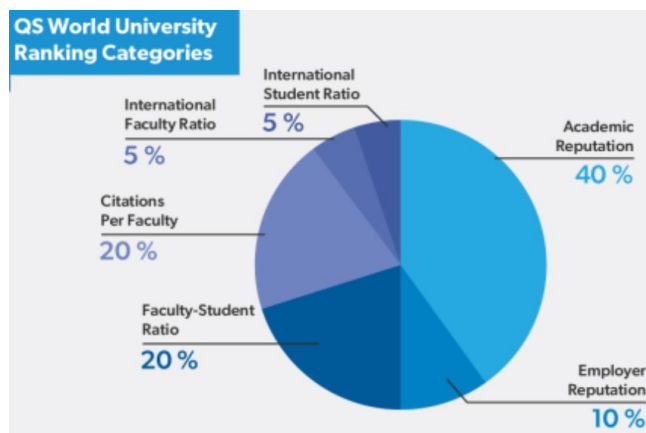


Figure 3. The QS World University Ranking system

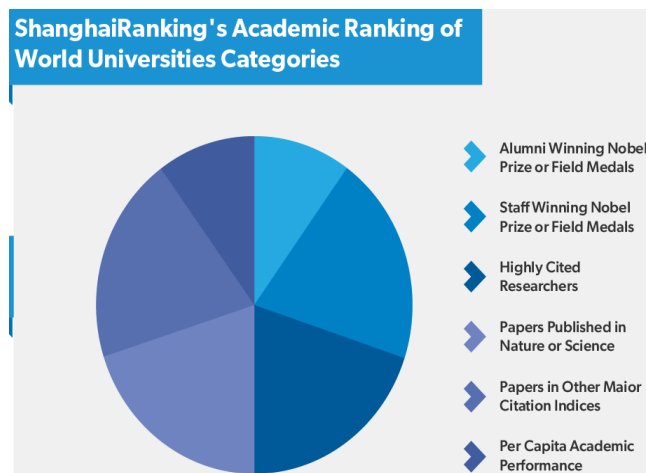


Figure 4. The ShanghaiRanking system

#### A. Growing Significance in Higher Education:

- **Influence on institutional behaviour:** University rankings have become a significant factor in institutional decision-making processes, influencing resource allocation, strategic planning, and marketing efforts.
- **Impact on student choices:** Rankings play a key role in shaping the perceptions and choices of prospective students, influencing enrolment patterns, student mobility, and internationalisation trends.
- **Role in policymaking and funding allocation:** Policymakers and funding agencies increasingly use rankings as a tool for assessing institutional performance, informing funding allocation decisions, and driving policy development and reform efforts.

#### B. Criticisms and Controversies:

- **Methodological limitations:** Critics argue that university rankings oversimplify the complex nature of higher education, relying too heavily on quantitative metrics and failing to capture the full range of institutional missions and contributions.
- **Bias and subjectivity:** Ranking methodologies may be biased towards certain types of institutions or disciplines, favouring research-intensive universities and English-language publications.
- **Potential negative consequences:** Rankings may exacerbate competition among institutions, leading to strategic gaming, data manipulation, and prioritisation of metrics at the expense of broader institutional goals.

#### C. Future Directions and Considerations:

- **Calls for transparency and accountability:** There is a growing demand for greater transparency and accountability in ranking methodologies, including clearer explanations of methodologies, data sources, and criteria.
- **Emphasis on alternative metrics:** Alternative approaches to ranking, such as altmetrics and qualitative assessments, are gaining traction as complements to traditional quantitative metrics.
- **Focus on diversity and inclusivity:** Efforts are underway to develop more inclusive ranking systems that account for the diversity of institutional missions, student populations, and societal contributions.

### III. FACTORS DRIVING THE DEVELOPMENT AND PROLIFERATION OF UNIVERSITY RANKINGS

The development and proliferation of university rankings have been driven by various factors that reflect the changing landscape of higher education, globalisation, and the demand for accountability and transparency. This analysis delves into the key factors fuelling the growth of university rankings, highlighting their implications for higher education institutions, policymakers, and stakeholders (Leong, 2022; 2024e; 2024f).

#### A. Demand for Accountability and Transparency:

In an era of increased accountability, stakeholders, including students, parents, policymakers, and funding agencies, seek objective measures to assess the quality and performance of higher education institutions (Leong, 2024b; Leong, 2024c). University rankings provide a standardised and easily understandable way to compare institutions based on various metrics, satisfying the demand for transparency and accountability in higher education.

#### B. Globalisation and Competition:

Globalisation has led to increased competition among universities for talent, resources, and prestige on a global scale. University rankings serve as a tool for universities to benchmark themselves against their peers internationally and enhance their global visibility and reputation.

#### C. Marketisation of Higher Education:

The marketisation of higher education has transformed universities into competitive enterprises, where reputation and ranking play a crucial role in attracting students, faculty, and funding. University rankings are a marketing tool for institutions to showcase their strengths, achievements, and unique selling points to prospective students, donors, and partners.

#### D. Technological Advancements and Data Accessibility:

Technological advancements, including the availability of big data and online platforms, have facilitated data collection, analysis, and dissemination for university rankings (Leong, 2023d; Zhang 2024a; Kumar, 2023b; 2323a). Ranking organisations leverage advanced analytics, data mining techniques, and sophisticated algorithms to process large volumes of data and generate rankings perceived as objective and reliable (Li, 2024), Table 2.

Table 2. Asian top universities in five world university ranking systems

University Ranking System	Number of Top Asian Universities in Top 200 Universities of the World	The Worst Ranks of Asian Top Universities in Noted Rankings	The Best Ranks of Asian Top Universities in Noted Rankings	Means	Standard Deviation
QS	42	20	196	98.1667	57.01259
SHANGHAI	24	20	195	114.2083	50.09467
WEBOMETRICS	14	51	200	117.5000	39.42617
LEIDEN	13	134	196	168.7692	22.04977
THE	26	21	190	87.7692	52.12931

#### E. Demand for Evidence-Based Decision Making:

Policymakers and funding agencies increasingly rely on evidence-based decision-making processes to allocate resources, set priorities, and drive policy development in higher education. University rankings provide policymakers with quantitative indicators and benchmarks to assess the performance and impact of higher education institutions, informing funding allocation decisions and policy reforms.

#### F. Rise of Knowledge-Based Economies:

In knowledge-based economies, the quality of higher education institutions is seen as a key determinant of national competitiveness, innovation, and economic growth. University rankings serve as a tool for governments and policymakers to monitor the performance of their higher education systems, identify areas for improvement, and

invest strategically in education and research (Leong, 2022; 2024e; 2024f).

The development and proliferation of university rankings are driven by a complex interplay of factors, including the demand for accountability and transparency, globalisation and competition, marketisation of higher education, technological advancements, evidence-based decision-making, and the rise of knowledge-based economies (Zhang, 2024b; Leong, 2024d). While rankings provide valuable insights into institutional performance and reputation, stakeholders must critically assess their limitations and implications for the diversity, equity, and quality of higher education. Moving forward, efforts to enhance transparency, methodological rigour, and stakeholder engagement are essential to ensure that university rankings serve as credible and meaningful tools for advancing the goals of higher education.

#### **IV. ROLE OF GLOBALISATION, COMPETITION, AND MARKETING IN FUELING THE GROWTH OF RANKINGS**

Globalisation, competition, and marketisation have played significant roles in fuelling the growth of university rankings, transforming higher education into a global marketplace where institutions compete for talent, resources, and prestige. This discussion explores how these factors have influenced the development and proliferation of rankings:

##### **A. Globalisation:**

Globalisation has increased interconnectedness and mobility in higher education, with students, faculty, and research collaborations crossing national borders. As universities seek to position themselves on the global stage, there is a growing demand for tools to assess and compare institutions internationally. University rankings provide a standardised framework for benchmarking institutional performance and reputation across diverse geographical contexts, facilitating global comparisons and enhancing international competitiveness.

##### **B. Competition:**

Intensifying competition among universities for students, faculty, research funding, and international partnerships has driven the growth of rankings. Rankings serve as a competitive tool for universities to enhance their visibility,

attract top talent, and differentiate themselves from their peers. Institutions strategically invest in areas likely to improve their ranking positions, such as research output, faculty quality, and internationalisation efforts, to gain a competitive edge in the global higher education market.

##### **C. Marketisation:**

The marketisation of higher education has transformed universities into competitive enterprises where reputation and ranking are critical factors in attracting students, donors, and funding. Rankings serve as a marketing tool for universities to showcase their strengths, achievements, and value propositions to prospective students, parents, and partners. Higher-ranked institutions often enjoy greater brand recognition, prestige, and perceived quality, which can translate into increased applications, higher tuition revenue, and enhanced fundraising opportunities.

##### **D. Influence on Institutional Behaviour:**

The influence of globalisation, competition, and marketisation on university rankings has led to changes in institutional behaviour and strategic priorities. Institutions allocate resources and invest strategically in areas likely to improve their ranking, such as research excellence, faculty recruitment, infrastructure development, and internationalisation efforts. Rankings shape institutional decision-making processes, guiding strategic planning, resource allocation, and marketing strategies to enhance institutional visibility and competitiveness (Huang, 2008; Leong, 2024a; 2024g; Zhang, 2024).

##### **E. Criticisms and Concerns:**

While rankings provide valuable insights into institutional performance and reputation, they also face criticism for oversimplifying the complex nature of higher education and perpetuating inequalities between institutions. Critics argue that rankings prioritise research output and reputation over teaching quality, student outcomes, and societal impact, leading to a narrow and biased assessment of institutional excellence. Concerns have been raised about the potential negative consequences of rankings, including strategic gaming, data manipulation, and the erosion of institutional autonomy and diversity.

Globalisation, competition, and marketisation have significantly influenced the growth and development of university rankings, shaping institutional behaviour,

perceptions of academic quality, and the global higher education landscape. While rankings provide valuable insights into institutional performance and reputation, stakeholders must critically assess their limitations and implications for diversity, equity, and quality in higher education. Moving forward, efforts to enhance transparency, accountability, and methodological rigour are essential to ensure that rankings serve as credible and meaningful tools for advancing the goals of higher education in a globalised and competitive environment.

## V. CRITICISMS AND CONTROVERSIES SURROUNDING UNIVERSITY RANKINGS

University rankings have become influential tools in the higher education landscape, but they also face criticism and controversy regarding their methodologies, relevance, and impact. This discussion explores some of the common criticisms and controversies surrounding university rankings:

### A. Methodological Limitations:

One of the most common criticisms of university rankings is their reliance on quantitative metrics and standardised methodologies, which may oversimplify the complex nature of higher education. Critics argue that rankings prioritise easily quantifiable factors such as research output, citations, and reputation while overlooking other important aspects of institutional performance, such as teaching quality, student outcomes, and societal impact. Methodological limitations may lead to disparities in rankings outcomes, favouring research-intensive universities and English-language publications while neglecting the contributions of smaller institutions, non-traditional providers, and disciplines (Luo, 2024).

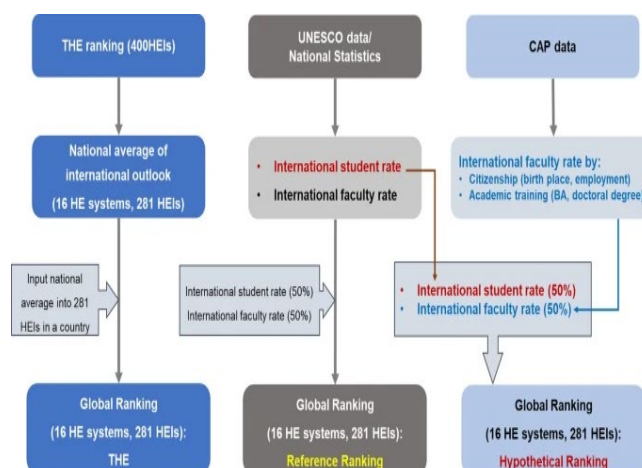


Figure 5. Global rankings fluctuate by different measures of international faculty members

### B. Bias and Subjectivity:

Another criticism of university rankings is their susceptibility to bias and subjectivity, both in the selection of metrics and in the interpretation of data. Rankings methodologies may be biased towards certain types of institutions or disciplines, favouring research productivity over teaching quality or prioritising metrics that benefit institutions in developed countries. Subjectivity in rankings methodologies, such as peer assessments and reputation surveys, may introduce inconsistencies and inaccuracies, leading to perceptions of unfairness and inconsistency.

### C. Simplification and Generalisation:

Critics argue that university rankings oversimplify the diverse missions, goals, and contributions of higher education institutions, reducing them to a single numerical score or rank. By focusing on a narrow set of metrics and indicators, rankings fail to capture the multidimensional nature of institutional excellence and diversity, leading to generalisations and misconceptions about institutional quality and value (Leong, 2023a). Simplification in rankings methodologies may also undermine the unique strengths and contributions of institutions that do not fit the traditional mould of research-intensive universities.

### D. Unintended Consequences:

There are concerns that university rankings may have unintended consequences, such as strategic gaming, data manipulation, and the erosion of institutional autonomy. Institutions may engage in strategic behaviour to improve their ranking positions, reallocating resources and prioritising metrics likely to boost their scores, even if they



do not align with broader institutional goals. Rankings may also contribute to the homogenisation of higher education, as institutions strive to emulate the practices and priorities of higher-ranked peers, leading to a loss of diversity and innovation in the sector.

#### E. Lack of Transparency and Accountability:

Transparency and accountability are key principles in ranking methodologies, but there are concerns about the lack of transparency in the data sources, calculation methods, and weighting schemes used by ranking organisations. Stakeholders, including institutions, students, and policymakers, may lack confidence in rankings results if they are unable to understand or verify the methodologies used. A lack of accountability in rankings methodologies may undermine their credibility and utility as tools for assessing institutional performance and driving improvement in higher education.

## VI. CONCLUSIONS

University rankings play a significant role in shaping perceptions of academic quality, research productivity, and institutional reputation, but they also face criticism and controversy regarding their methodologies, relevance, and impact. By addressing common criticisms and concerns, ranking organisations can enhance the credibility, transparency, and utility of rankings as tools for assessing and improving higher education worldwide. Moving forward, efforts to enhance methodological rigour, transparency, and stakeholder engagement are essential to ensure that university rankings serve as credible and meaningful tools for advancing the goals of higher education in a globalised and competitive environment.

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