Mapping the Landscape of Higher Education Performance: A Systematic Literature Review, Bibliometric Analysis, and Future Research Directions

Tze Yin Khaw
Universiti Sains Malaysia,
Jalan Universiti, 11700 Gelugor, Pulau Pinang, Malaysia

Azlan Amran*
Universiti Sains Malaysia, Jalan Universiti, 11700 Gelugor, Pulau Pinang, Malaysia
Center for Environmental, Social, and Governance Studies, Universitas Airlangga, Surabaya, Indonesia
Email: azlan_amran@usm.my

Ai Ping Teoh
Universiti Sains Malaysia,
Jalan Universiti, 11700 Gelugor, Pulau Pinang, Malaysia

* Corresponding Author

Abstract
Purpose: As the landscape of higher education continues to evolve, the assessment of higher education institutions' performance stands as a critical endeavour that shapes the future of education, research, and societal progress. This research presents a valuable insight to perform a bibliometric analysis combined with a systematic literature review, and aims to understand the evolution, focus, and future research directions within higher education industry for effective management practices.
Design/methodology/approach: The article selection process adhered to the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines. The collection of articles originated from the Scopus database and included 211 publications spanning from 2004 to June 2024. Biblioshiny, an application available within the R software, facilitates bibliometric analysis by translating outcomes into a variety of visual presentations, whereas VOSviewer software is used to perform keyword co-occurrence network visualization.
Findings: The findings encompass leading journals, most influential authors, country scientific production map, outcomes of keyword analysis, word cloud, trend topics, and thematic map. The focus of HEIs to attain business performance was identified. Additionally, the authors also outline several gaps that proposed future research guidelines.
Practical implications: The outcomes offer valuable insights for researchers, policymakers, practitioners, and top management of HEIs in understanding the evolution and focus of HEIs' performance.
Originality/value: The study presents unique contributions to the prevailing body of knowledge by offering a comprehensive past, present and future research directions concerning performance of HEIs in the last two decades.

Classification: Conceptual paper

Introduction

Higher Education Institutions (HEIs) play a pivotal role in shaping societies and economies by nurturing knowledge, skills, and innovation, and increase graduates' employability (Abbas et al., 2021). As the landscape of higher education continues to evolve, the assessment of HEIs' performance stands as a critical endeavor that shapes the future of education, research, and societal progress.

In an era characterized by rapid globalization, technological advancements, and shifting educational paradigms, the performance evaluation of HEIs has gained unprecedented importance. HEIs can assess their service quality through a variety of performance indicators and metrics, focusing on aspects such as resource allocation, student-centered educational approaches, impactful research, and engagement with stakeholders (Camilleri, 2021a). Performance assessment not only informs institutional decision-making (Yaakub & Mohamed., 2020) but also aids in accountability, quality assurance (Kolar et al., 2019), and resource allocation (Camilleri, 2021a). Consequently, scholarly interest in understanding the multifaceted dimensions of HEIs' performance has grown significantly.

Although there is a growing body of research on HEIs' performance, there remains limited understanding of the evolution, trend, past, present, and future research directions within higher education industry. Existing studies primarily focus on quantitative research concerning determinants (Asiedu et al., 2020; Asif and Searcy, 2014; Rehman and Iqbal, 2020), institutional development (Ashaari et al., 2021; Dioubate et al., 2023), specific applications (Tam, 2014; Thanassoulis et al., 2019), and performance measurement (Abbas et al., 2021; Jauhar et al., 2018; Yaakub and Mohamed, 2020) to improve HEIs' performance. There is a scarcity of comprehensive bibliometric analysis focusing on business management that identify emerging research trends and gaps on performance of HEIs. As a result, this study aims to bridge this gap by providing insights into past, current, and potential future research directions in the field of HEI performance for effective management practices.

Within academic research, literature reviews hold a crucial function in consolidating existing knowledge and evaluating the current state of a particular field. Despite this, within domains like business, management, and related disciplines, scholars often lack a methodical exploration of the available literature (Linnenluecke et al., 2020). Thus, Linnenluecke et al. (2020) suggested visualization of bibliometric data and outcomes derived from a comprehensive systematic literature review. Conducting a comprehensive and meticulous evaluation of published literature within a specific field not only summarize the current knowledge (Webster & Watson, 2002) but also guide future research directions, contributing to the advancement of scholarly understanding.

A systematic literature review and bibliometric analysis study has been explored by researchers on topics such as disruptive human resource management technologies (Priyashantha et al., 2022), cryptocurrency adoption (Sousa et al., 2022), and virtual reality in digital marketing (Zaki et al.,

2023). However, existing literature indicates a lack of significant bibliometric review into HEIs' performance. This research presents a fresh endeavor to perform a bibliometric analysis combined with a systematic literature review, and aims to address the following research questions:

RQ1. What are the most influential journals, authors, and countries of higher education institutions' performance research in the area of business, management and accounting?
RQ2. What has been the focus of higher education institutions' performance literature in the area of business, management and accounting?
RQ3. What can be the future research directions in higher education institutions' performance with a focus on the area of business, management and accounting?

By uncovering influential authors, key journals, identifying underexplored areas, emerging trends, and potential areas, this study aspires to guide researchers, policymakers, practitioners, and top management, towards promising avenues for investigation. Through this bibliometric analysis and systematic literature review, this study offers a comprehensive overview of higher education institutions' (HEIs) performance. The findings contribute to the ongoing transformation of higher education and align academic research with the evolving needs of contemporary society to meet the global knowledge economy.

Methodology

Study Selection Process and Methods
In this research, a Systematic Literature Review (SLR) methodology was utilized to ensure an objective approach to article selection, inclusion criteria, and analysis methods. A systematic review entails a comprehensive and organized search process, supported by a predefined and logical strategy for the selection and examination of pertinent contributions, which are then critically synthesized (Petticrew & Roberts, 2008).

The article selection followed the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines, which are recommended for SLRs (Page et al., 2021). PRISMA is widely recognized as a standard procedure for conducting SLRs across various research fields, including management (Faisal et al., 2023; Kostagiolas & Katsani, 2021), safety research (Ismail et al., 2021), social sciences (Acilar & Sæbø, 2023; Chlomoudis et al., 2022), healthcare (Vijverberg et al., 2017), and business (Ali, 2021; Priyashantha et al., 2022; Sahoo et al., 2022). PRISMA assists systematic reviewers in transparently reporting the reasoning behind the review, the methodologies applied, and the results obtained. The flow of the methodology is depicted in Figure 1.
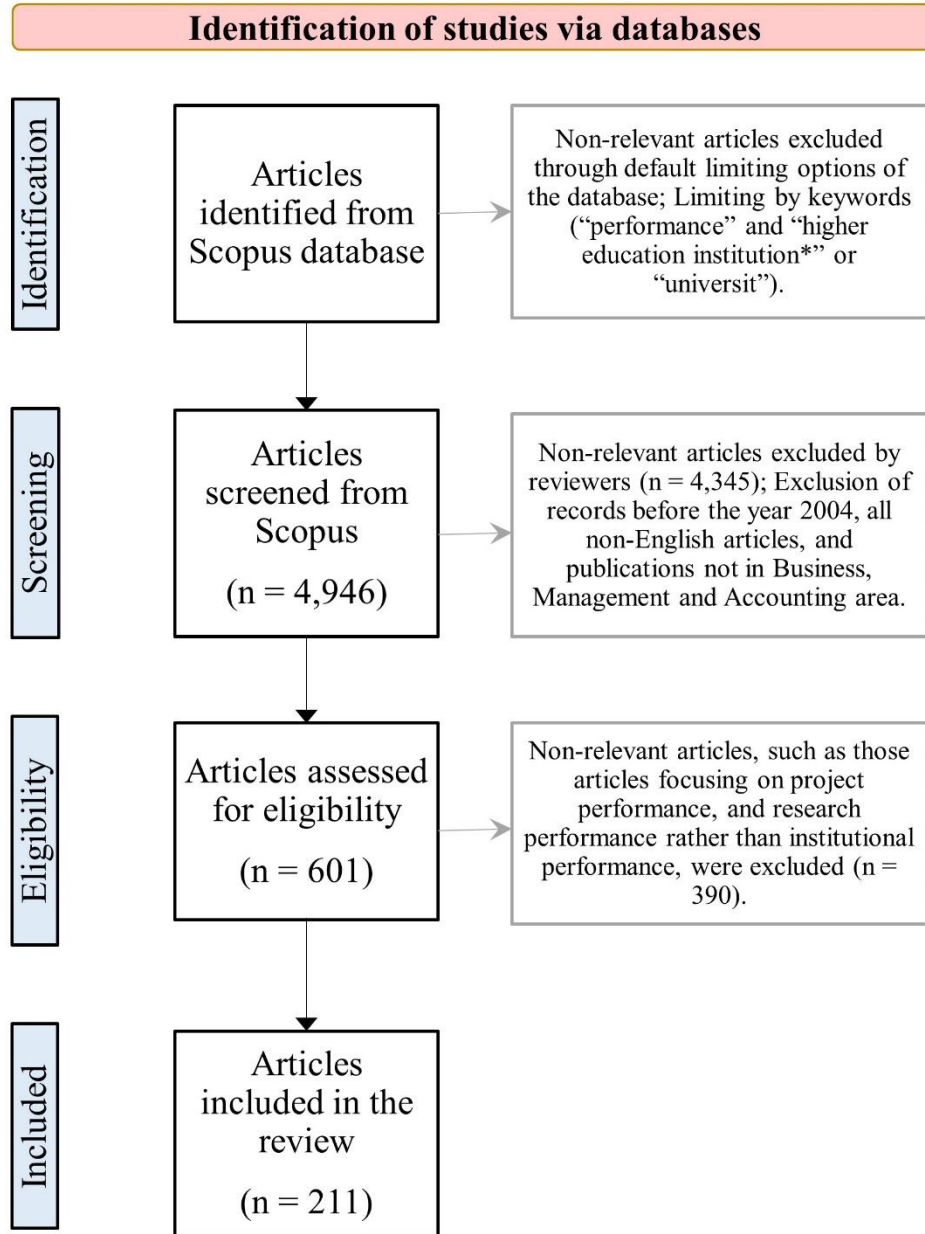
Identification of studies via databases

Figure 1: PRISMA flow diagram (Source: Authors' own creation)

The initial phase of the study is to identify search terms using the Scopus database, a resource renowned for its reliability and widespread use in academic research. Scopus offers a comprehensive collection of abstracts and citations from peer-reviewed sources (Baas et al., 2020). The chosen keywords were "performance" and "higher education institution*" or "universit*". These terms were entered into the Scopus search engine using the "AND" operator to locate articles that include both "performance" and "higher education institution*" or "universit*" in their titles, abstracts, or keywords.

To adhere to the PRISMA flow diagram, a structured screening process is required for the identified articles. This process includes retrieving, assessing, and evaluating the eligibility of each article. At each stage, articles that did not meet the inclusion criteria were excluded. The criteria for screening included articles classified under "Business, Management and Accounting studies", published in "English", and within the period from "2004 to 2024". The authors manually conducted the eligibility assessments, focusing on the methodological quality and relevance of keywords, which is crucial for ensuring internal validity (Petticrew & Roberts, 2008). Articles were finally selected based on their methodological consistency, resulting in a total of 211 articles included in this review.

Data Analysis

Bibliometric analyses were conducted using Biblioshiny and VOSviewer as the chosen analytical methods for this study. These methods employ mathematical techniques to explore research scientific activity (Aparicio et al., 2019). Biblioshiny package, the open-source tool available within the R software, is renowned for its extensive capabilities in scientific mapping for bibliometric analysis (Aria & Cuccurullo, 2017). Specifically, the analysis offers two distinct dimensions: firstly, an assessment of performance, scientific productivity, and overall evaluation, and secondly, the generation of scientific maps that uncover the research's structure, progression, and key contributors (Cobo et al., 2012). Furthermore, connections between the keywords are formed based on their co-occurrence within articles, enabling the creation of various linkages (Aparicio et al., 2019). The construction of bibliometric networks often involves the utilization of the VOSviewer software which translates these relationships into visual representations through a map termed "keyword co-occurrence network visualization" (Van Eck & Waltman, 2014). Colors within VOSviewer serve the purpose of denoting the assigned cluster for each node, implying a shared thematic connection. Given our aim to assess the existing understanding of higher education institutions' performance, we employed keyword co-occurrence analysis for this purpose. Aligning with the recommendations of Aria and Cuccurullo (2017) and Van Eck and Waltman (2014), our study employed both the Biblioshiny in the R software and the VOSviewer software to carry out the bibliometric analysis.

Results

Trend of Publication

Figure 2 illustrates the development of publications per annum. The number of publications fluctuate from 2004 to 2016, with no more than ten publications per year. Subsequently, there was a substantial upsurge from 2017, with 24 articles in 2017, peaking at 32 articles in 2019. It is crucial to note that this graph encompasses publications up until the data retrieval point in June 2024, explaining the decline in 2024. This pattern underscores the recent emergence of the topic and its escalating significance, signifying its relevance.
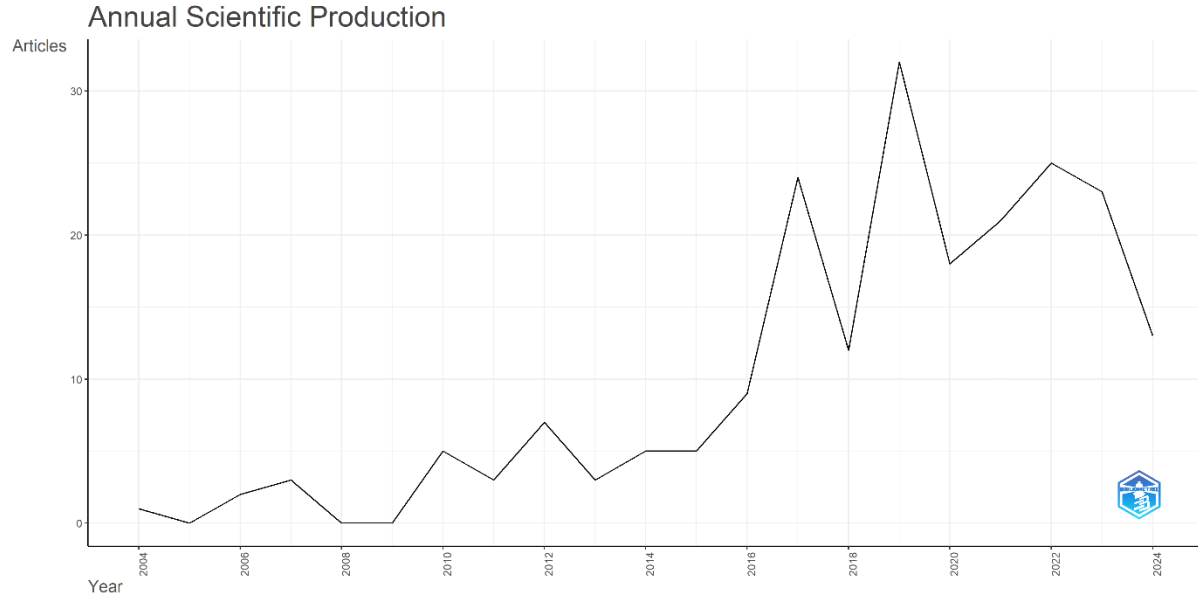
Figure 2: Trend of publication (Source: Authors' own creation using Biblioshiny)

Leading Journals

According to Table 1, the top ten journals in performance of higher education institutions have been identified. The Total Quality Management and Business Excellence, Journal of Intellectual Capital, Corporate Social Responsibility and Environmental Management, Journal of Enterprise Information Management, International Journal of Human Resource Management, Review of Industrial Organization, TQM Magazine, International Journal of Educational Management, Tertiary Education and Management, and Journal of The Operational Research Society were among the leading journals that have the most total citations.

Table 1. Most global cited journals (Source: Authors' own work)

Journals	Publisher	h_index	g_index	m_index	Total Citation	Number of Publication	PY_start
Total Quality Management and Business Excellence	Taylor & Francis Online	4	4	0.333	203	4	2013
Journal of Intellectual Capital	Emerald	2	3	0.133	148	3	2010
Corporate Social Responsibility and Environmental Management	Wiley Online	1	1	0.167	135	1	2019
Journal of Enterprise Information Management	Emerald	1	1	0.125	120	1	2017

International Journal of Human Resource Management	Taylor & Francis Online	2	2	0.167	107	2	2013
Review of Industrial Organization	Springer	1	1	0.048	100	1	2004
TQM Magazine	Emerald	1	1	0.053	96	1	2006
International Journal of Educational Management	Emerald	4	6	0.286	79	6	2011
Tertiary Education and Management	Springer	4	6	0.222	78	6	2007
Journal of The Operational Research Society	Taylor & Francis Online	2	2	0.154	72	2	2012

Most Influential Authors

Figure 3 illustrates data concerning the authors who have exerted the most notable influence in this field. Prominent authors include Decramer, A. (h-index: 3, g-index: 3, total citations: 129), Smolders, C. (h-index: 3, g-index: 3, total citations: 129), Vanderstraeten, A. (h-index: 3, g-index: 3, total citations: 129), Asif, M. (h-index: 2, g-index: 2, total citations: 60), Bach, M.P. (h-index: 2, g-index: 2, total citations: 19), Camilleri, M.A. (h-index: 2, g-index: 2, total citations: 75), Christiaens, J. (h-index: 2, g-index: 2, total citations: 72), Hovemann, G. (h-index: 2, g-index: 2, total citations: 12), Jauhar, S.K. (h-index: 2, g-index: 2, total citations: 23), and Mohammed, A.H. (h-index: 2, g-index: 2, total citations: 6). These individuals stand out as highly influential contributors in higher education and performance research.
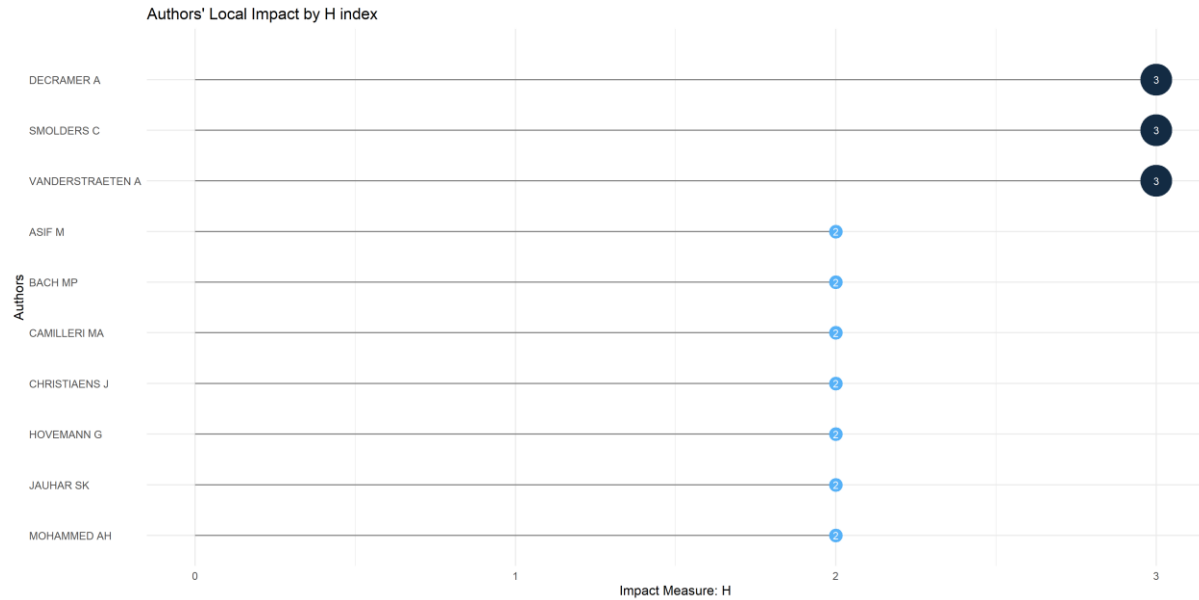
Figure 3: Most influential authors (Source: Authors' own creation using Biblioshiny)

Most Global Cited Documents

Table 2 displays the articles with the highest citation counts. The results indicate notable contributions to the field from Gilal et al. (2019) in Corporate Social Responsibility and Environmental Management, Duque (2013) in the Total Quality Management & Business Excellence, Masa'deh et al. (2017) in the Journal of Enterprise Information Management, Secundo et al. (2010) in the Journal of Intellectual Capital, and Warning (2004) in the Review of Industrial Organization.

Table 2. Most global cited documents (Source: Authors' own work using Biblioshiny)

Authors	Journal	Title	Total Citations
Gilal *et al.* (2019)	Corporate Social Responsibility and Environmental Management	Promoting environmental performance through green human resource management practices in higher education institutions: A moderated mediation model	135
Duque (2013)	Total Quality Management & Business Excellence	A framework for analysing higher education performance: students' satisfaction, perceived learning outcomes, and dropout intentions	120
Masa'deh *et al.* (2017)	Journal of Enterprise Information Management	The impact of knowledge management on job performance in higher education: The case of the University of Jordan	120
Secundo *et al.* (2010)	Journal of Intellectual Capital	Intangible assets in higher education and research: mission, performance or both?	116
Warning (2004)	Review of Industrial Organization	Performance Differences in German Higher Education: Empirical Analysis of Strategic Groups	100
Chen *et al.* (2006)	The TQM Magazine	The application of balanced scorecard in the performance evaluation of higher education	96

Thanassoulis *et al.* **(2017)**	Journal of the Operational Research Society	Evaluating higher education teaching performance using combined analytic hierarchy process and data envelopment analysis	59
Decramer *et al.* **(2013)**	The International Journal of Human Resource Management	Employee performance management culture and system features in higher education: relationship with employee performance management satisfaction	57
Decramer *et al.* **(2012)**	British Journal of Management	The Impact of Institutional Pressures on Employee Performance Management Systems in Higher Education in the Low Countries	54
Franco-Santos and Doherty (2017)	The International Journal of Human Resource Management	Performance management and well-being: a close look at the changing nature of the UK higher education workplace	50

Country Scientific Production Map

Figure 4, illustrates the leading document-contributing country, depicted in the deepest shade of blue. Data sourced from the Scopus database unveils the top five countries that make substantial contributions to the field of higher education institutions' performance. Malaysia emerges as the foremost contributor, with a noteworthy 80 documents, followed by Indonesia with 54, India with 49, the UK with 27, and Spain with 26 papers.
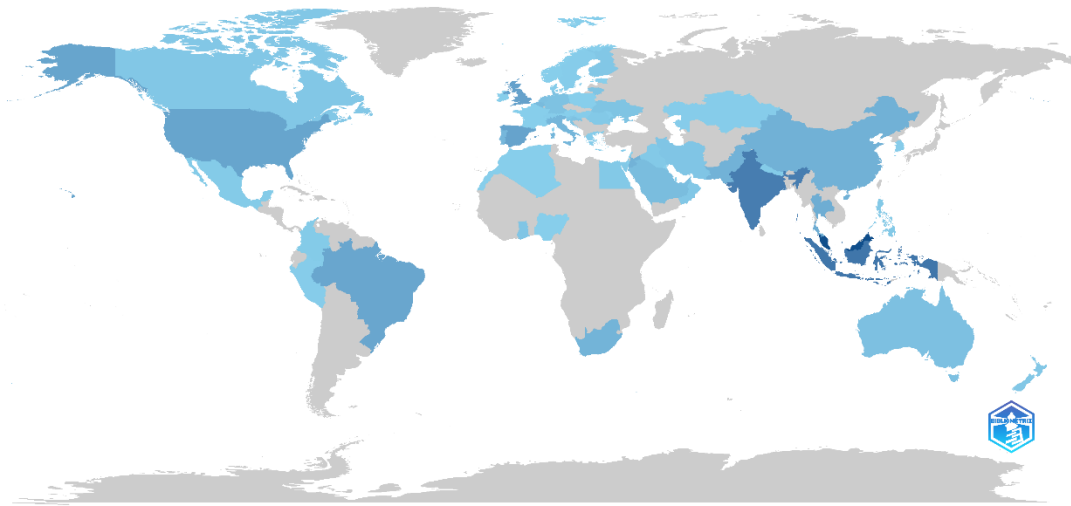

Country Scientific Production

Figure 4: Country scientific production map (Source: Authors' own creation using Biblioshiny)

Three-field Plot of Keywords Author Country

Figure 5 shows a three-field plot, incorporating author information on the left side, keywords in the middle, and countries on the right side. The magnitude of each node is indicative of the volume of documents contributed by each respective country. The intensity of the interconnected lines signifies the strength of the correlation between these two aspects. The visual representation

underscores Indonesia, Malaysia, United Kingdom, India, and Spain as the top contributors in higher education institutions' performance management.
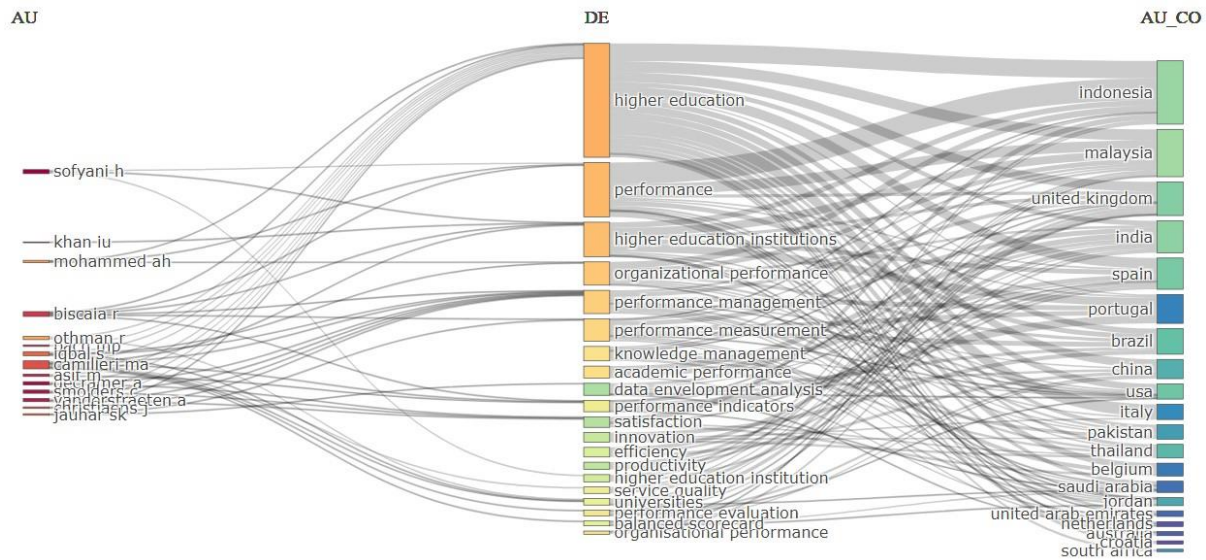

Figure 5: Three-field plot of keywords author country (Source: Authors' own creation using Biblioshiny)

The Keyword Network Visualisation and Content Analysis

In figure 6, the visualization of the network where keywords co-occur illustrates the interconnections among keywords presented as nodes. These connections denote the associations between individual keywords. The intensity of a connection is reflected through the thickness of the connecting line. Thus, from figure 6, it becomes evident that higher education and performance are closely connected as indicated by the thicker line, signifying a strong relationship between them. Furthermore, the linkage of higher education institutions with organizational performance and performance measurement signifies their correlation with higher education.

In addition, keyword co-occurrence provides an additional method for comprehending the arrangement of knowledge and research themes. Four clusters have been generated using VOSviewer (Figure 6). Nodes sharing the same color are indicative of a cluster. Furthermore, a shorter inter-node distance within the same cluster signifies a stronger relationship. A thicker line represents a higher degree of co-occurrence (Gu et al., 2017).

The themes found in red cluster (Cluster 1) are known as the motor themes, primarily focused on performance measurement. This consists of key terms such as: "higher education institutions", "universities", "performance management", "performance measurement", "performance indicators", "balanced scorecard", "performance evaluation", and "service quality". HEIs can assess their service quality through a variety of performance indicators and metrics (Camilleri, 2021a). Successful implementation of the performance measurement tools is important for the higher education sector to effectively evaluate goal attainment. Chang et al. (2012) applied two-stage performance model to evaluate efficiency of HEIs. The data envelopment analysis is executed by Thanassoulis et al. (2017) to generate an efficiency assessment for tutors'

performance, by Zhang et al. (2020) to evaluate resource utilization performance, and by Jauhar et al. (2016) for optimizing HEIs' performance measurement. Abadi et al. (2019), Camilleri (2021b), and Chen et al. (2006) suggested utilization of the balanced scorecard (BSC) as a strategic management instrument facilitates performance assessment from both customer and stakeholder perspectives.

The green cluster (Cluster 2) discussed efficiency for performance. This cluster encompasses the following key elements: "data envelopment analysis", "education", "efficiency", "productivity", "organisational performance", and "performance assessment". The importance of educational efficiency holds significant value for a range of stakeholders. Kotchegura et al.'s (2022) study focused on evaluating the efficiency of the project's outputs to enhance competitiveness of higher education. Kumar and Thakur (2019) and Zhang et al. (2020) employed dynamic data envelopment analysis to gauge efficiency of HEIs. The drive for enhanced efficiency and effectiveness compels the HEIs to contemplate the implementation of employee performance management systems (Decramer et al., 2012). Dioubate et al. (2023) highlighted that resource efficiency plays a crucial role in enhancing decision-making processes and ultimately contributes to the improved performance of HEIs.

The blue cluster (Cluster 3) concentrated on strategies for performance. Within this cluster, the central keywords are "innovation", "knowledge management", "academic performance", "organizational performance", and "quality management". Sciarelli et al. (2020) empirically analyze the impact of both soft and hard quality management on organizational performance in higher education. Researchers also studied various strategies such as green human resource management (Gilal et al., 2019), big data analytics capability (Ashaari et al., 2021; Khaw and Teoh, 2023b), knowledge management (Asiedu et al., 2020; Masa'deh, 2017), intellectual capital (Secundo et al., 2010), knowledge-oriented leadership (Rehman and Iqbal, 2020), communication strategy (Siam, 2017), participative decision making to improve lecturer performance (Sukirno & Siengthai, 2011), diversity management (Setati et al., 2019), and integration of educational technology to foster innovation and sustainable development (Wang & Chang, 2012) for the performance of higher education institutions.

Lastly, the yellow cluster (Cluster 4) focused on stakeholder satisfaction. The key themes are "higher education", "performance", "satisfaction", and "students". The higher education stakeholders encompass various entities, such as students, faculty, employers of graduates, funding bodies, the community, as well as professional and accreditation organizations. HEIs must recognize the crucial capabilities required for the generation of new knowledge, achieving excellence in performance, and satisfying the needs of stakeholders (Asif & Searcy, 2014). Abadi et al. (2019) introduced a framework for evaluating performance in higher education, focusing on the viewpoints of both customers and stakeholders. Kolar et al. (2019) studied the multigroup validation of the connections between service quality, customer satisfaction, and performance within the realm of higher education. Duque's (2013) study affirms a direct correlation between higher levels of student satisfaction and enhanced perceptions of learning outcomes, which reduce dropout intentions. Carlucci et al. (2019) suggested consistent evaluations of teaching performance and systematic monitoring for enhancement of course quality and students' satisfaction.
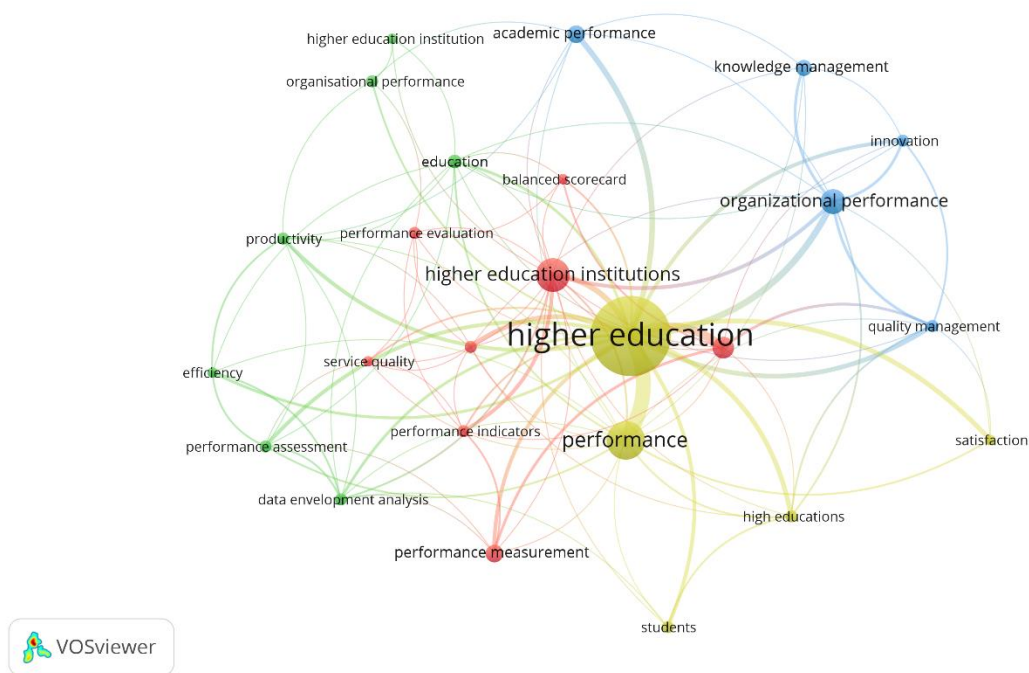
Figure 6: The keyword co-occurrence network visualisation (Source: Authors' own creation using VOSviewer)

Trends and Future research directions

Keyword Analysis

Within this study, a collection of 657 author's keywords was collected. Figure 7 presents a word cloud visualization illustrating the most commonly applied keywords within this study. Words with higher frequencies are depicted larger and more prominently within the word cloud. The prevalent terms encompass higher education, students, decision making, high educations, higher education institutions, performance, and performance assessment.

Figure 7: Word cloud (Source: Authors' own creation using Biblioshiny)

Trend Topics
Moreover, the affirmation that performance of higher education institutions is gaining more attention recently is also indirectly mirrored in the keywords elucidated in Figure 8. The spectrum of keywords employed from 2014 to 2023 displays a range of terms associated with higher education institutions that were utilized to explore performance. Figure 8 shows that the terms "higher education" in 2017 stood as the most frequently employed keywords. The terms "organizational performance", "survey", "decision making", "students", and "higher education institutions" arose in 2018, and they were applied widely in the forthcoming years.
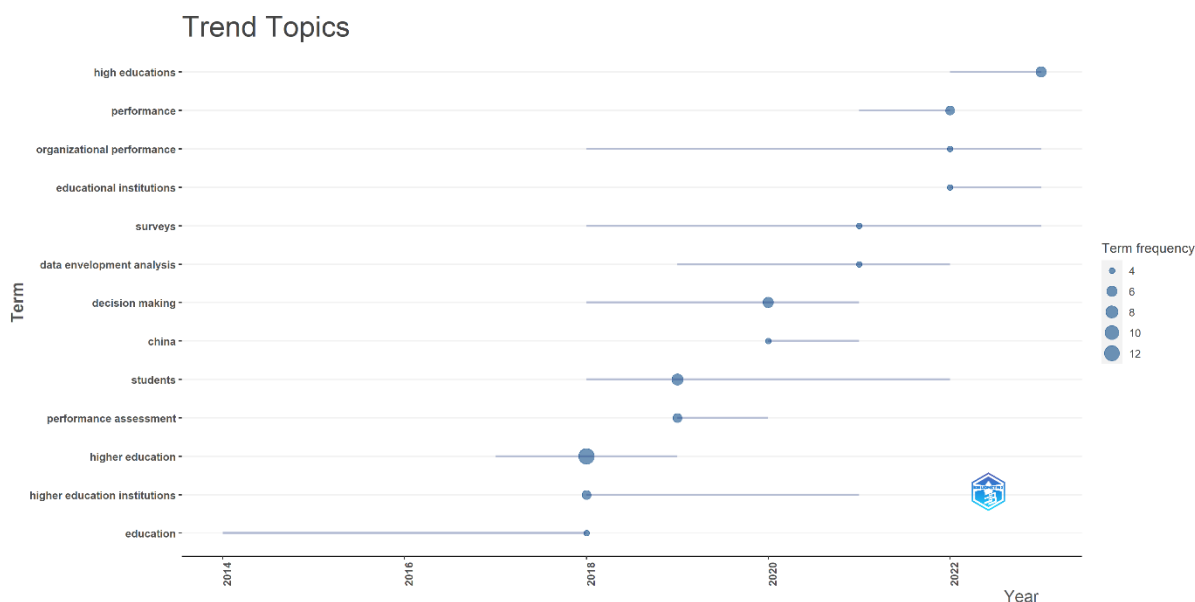

Figure 8: Trend topics (Source: Authors' own creation using Biblioshiny)

Thematic Map

Figure 9 illustrates the thematic analysis carried out concerning performance of higher education institutions. The identified keywords have unveiled pivotal subjects within this domain. This analysis offers a comprehensive view of research and serves as a valuable resource for newcomers in the research field and stakeholders, enabling them to comprehend the promising areas of interest for potential future investigations.

Thematic maps, as proposed by Cobo et al. (2011), enable researchers to examine the development of the research domain across four quadrants. This classification is based on the level of centrality and density within each thematic cluster. Centrality signifies the strength of interactions between clusters, while density measures the intensity of interactions within a cluster. Moreover, centrality indicates the prominence of a specific theme within the research field, while density reflects the progression of that theme over time.

The classification of themes within quadrant 1 is designated as the motor themes within the research domain. These themes hold a central position within the research field and have undergone substantial development by researchers over time. Keywords associated with the motor themes encompass higher education, decision making, and performance. A second cluster within this theme involves keywords such as high educations, organizational performance, and least squares approximations. These clusters were extensively studied and integral to the concept of higher education institutions' performance, exhibit high centrality, high density, and strong internal and external connections, suggesting their significance in this study area.

Themes positioned in quadrant 2 are referred to as basic themes and generally possess less advancement compared to those in quadrant 1. Higher education institutions, education, greenhouse gases, educations institutions, surveys, and learning systems are keywords that were extensively developed yet distinct topics. Despite significantly influencing other topics (high centrality), their internal establishment is comparatively weak (low density), necessitating dedicated attention for further maturation. Understanding this quadrant is crucial since its themes are fundamental for gaining a comprehensive grasp of the subject area.

Themes found in quadrant 3 exhibit a typically robust development (high density), yet they lack strong connections to other themes within the field (low centrality). This quadrant characterizes concepts exhibiting weak internal connections but strong external associations. These themes, considered niche and secondary, have undergone extensive exploration in the past, but their relevance to the current subject is small. The keywords included in this theme are education institutes and sustainable development.

Themes located within quadrant 4 exhibit both low density and centrality, signifying their frail and peripheral nature due to either emerging or declining trends. Both the internal and external connections within these clusters of concepts are relatively weak. The data indicates that themes such as education sectors, resource allocation, strategic planning, performance assessment, and data envelopment analysis might be at the origin of new trends or development within the field.
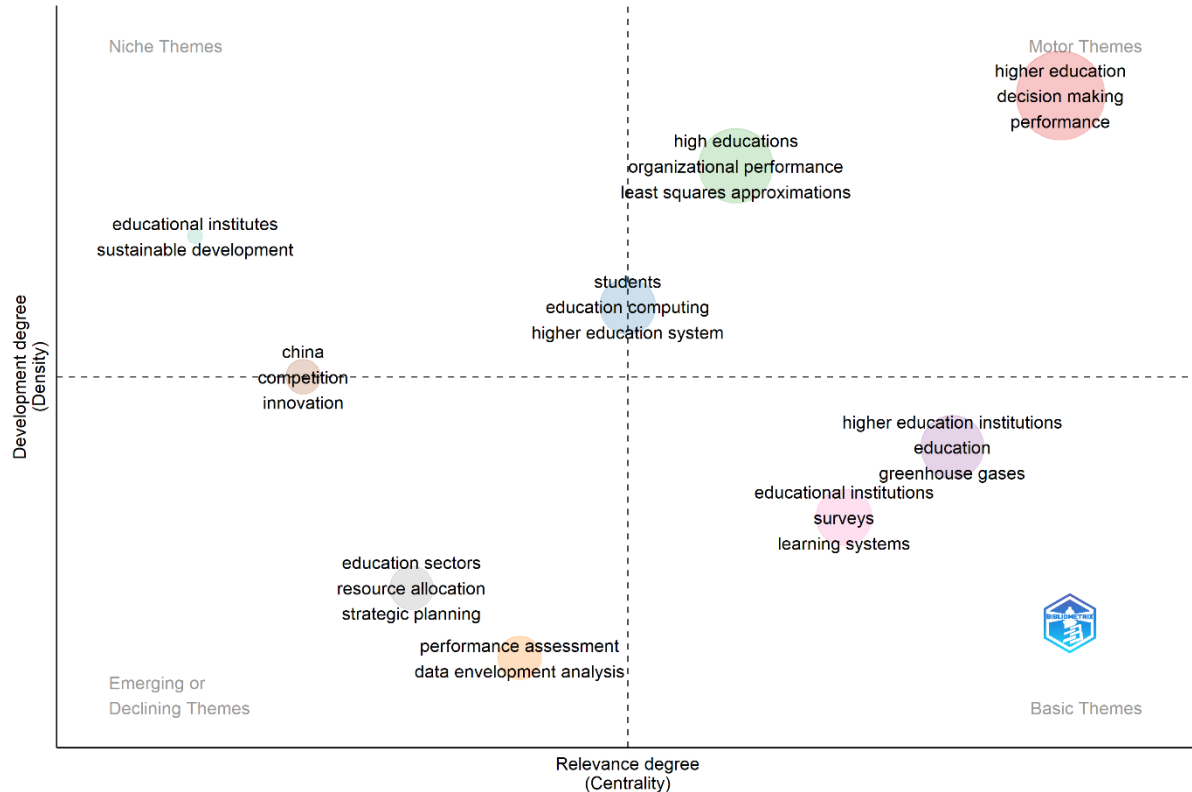
Figure 9: Thematic map (Source: Authors' own creation using Biblioshiny)

Discussion and Future Research Directions

Discussion

This current research contributes to the existing body of knowledge concerning the performance of HEIs. Employing bibliometric analysis, the study examined 211 articles sourced from the Scopus database. Notably, there was a remarkable exponential surge in recent years. The recent emergence of publications further indicates a surge in performance of HEIs, suggesting a shift in the focus of higher education management. Consequently, it is apparent that higher education sector is advancing and undergoing substantial growth.

The most influential journals, authors, and countries of HEIs' performance research in business, management and accounting (RQ1) were identified. The Total Quality Management and Business Excellence was among the leading journals that have published the highest number of articles. Based on the bibliometric analysis, it is evident that Decramer, A., Smolders, C., and Vanderstraeten, A. have received the highest number of total citations, establishing them as the most influential authors within the subject of research. Moreover, there was a growing involvement of scholars from regions beyond Europe and the United States, which are Malaysia, Indonesia, and India, prominently outpaces the United Kingdom and Spain in the HEIs' performance research. Notably, HEIs' performance research has a global footprint, encompassing both developed economies like the UK and Spain, and emerging economies such as Malaysia, Indonesia, and India, which have emerged as significant contributors over the last two decades. This trend highlights the geographical expansion of the field. Furthermore, several areas shaded in grey, such

as Japan, Singapore, Iceland, and Russia, revealed countries with no scientific production in the last two decades. These regions offer potential areas of concentration for future collaborative research endeavors within the realm of higher education and present unexplored opportunities for conducting location-specific studies in HEIs' performance.

We successfully identified the focus of HEIs' performance (RQ2) using main clusters content analysis (Figure 6). Cluster analysis serves as a valuable method to discern prevailing themes and interests within the research community. The extensive variety of clusters topics also reflects the remarkable maturity and expansion of HEIs' performance. The red cluster underscores the significance of performance measurement as a central topic within this field. The focus on terms such as "performance evaluation", "performance measurement", and "performance indicators" indicates a shared interest in quantifying and evaluating the performance of HEIs. This aligns with contemporary literature emphasizing the importance of robust measurement tools to assess the quality of services offered by these institutions. Scholars like Camilleri (2021a) suggest that performance indicators and metrics play a pivotal role in evaluating service quality. Furthermore, studies by Abadi et al. (2019), Camilleri (2021b), and Chen et al. (2006) highlighted the utility of performance models like the balanced scorecard to facilitate effective evaluation and goals attainment. This cluster exhibits strong interconnections with other clusters, constituting the central focus of performance research within higher education.

The green cluster's concentration on efficiency-related terms highlights the growing concern among researchers for optimizing the utilization of resources and improving overall institutional efficiency. This cluster underscores the research community's dedication to enhancing effectiveness and competitiveness by optimizing operational processes and resource utilization. The concept of academic efficiency is particularly relevant, as demonstrated by studies employing dynamic data envelopment analysis to gauge HEIs' efficiency (Kumar & Thakur, 2019; Zhang et al., 2020). The higher education sector in China experienced notable improvements in overall efficiency and productivity. Most of this productivity enhancement were attributed to technological advancements (Zhang et al., 2020). Additionally, government entities have established policies for distributing funds to publicly funded educational institutions contingent upon their efficiency levels within HEIs (Kumar & Thakur, 2019).

The blue cluster delves into strategies that contribute to HEIs' performance improvement. Notable keywords such as "innovation", "knowledge management", and "quality management" reflect an interest in exploring various approaches to drive institutional performance. This cluster showcases the researchers' commitment to investigating strategies that leverage innovation, knowledge dissemination, and quality enhancement to boost overall performance. The studies within this cluster highlight diverse strategies, such as green human resource management, big data analytics capability, and knowledge-oriented leadership, all of which align with the broader goal of advancing institutional performance. This cluster also demonstrates associations with the other clusters, especially the yellow cluster. Quality serves as the complete mediator for the satisfaction of both employees and students (Kolar et al., 2019). The yellow cluster's focus on stakeholder satisfaction, indicating the cohesive integration of these themes across diverse dimensions of HEIs' performance. By emphasizing themes such as "performance", "satisfaction", and "students", this cluster captures the interconnectedness of performance and stakeholder needs. This cluster

highlights the increasing recognition of the diverse range of stakeholders – students, faculty, employees, and others – and their roles in shaping HEIs' performance.

Future Research Directions

The utilization of the trend topics (Figure 8) and thematic map (Figure 9) has led to the recognition of fundamental gaps and potential future directions (RQ3). Considering these outcomes, we delve into the fundamental gaps and offer insights into future research prospects within the realm of higher education. A considerable number of topics remain unexplored or are just beginning to emerge.

It is evident that the scholars have predominantly focused on strategies to achieving HEIs' performance, however, the area of strategies to improve HEIs' performance is remarkably diverse. More analysis and comparisons on operational strategies are needed for the remaining topics. Future research may focus on digitalization in the higher education sector, including study on digital transformation management and digital leadership. Moreover, it is recommended for researchers to explore integration of future technologies for higher education, such as smart learning material, virtual learning, chatbots, artificial intelligence and other emerging technologies to ensure more innovative and engaging teaching and learning experience, which can be one of the competitive advantages of HEIs to satisfy the stakeholders.

Due to the growing dependence on technology within the higher education sector, there has been a heightened focus on cybersecurity within the higher education industry in recent times. HEIs hold substantial sensitive information, encompassing valuable intellectual assets, research findings, as well as personal details of both students and faculty (Cheng & Wang, 2022). It is recommended for future research to concentrate on cybersecurity, privacy, cyber threats, vulnerabilities, and related topics to reduce any occurrences of information technology-related issues in higher education.

With resource allocation and strategic planning being the keywords found in the emerging themes, it is essential for researchers who are interested in effective management of HEIs performance to explore strategic resource planning. University performance is significantly shaped by its human capital, organizational capital, and relational capital (Chatterji & Kiran, 2023). The availability of financial resources, including surplus income and staff-related expenses, impacts the sustainability performance of HEIs (Núñez Chicharro et al. 2024). Additionally, leadership styles play a crucial role in bridging organizational culture and quality culture, thereby significantly impacting university performance (Albaroudi & Iqbal, 2024; Elbawab, 2024).

Drawing lessons from the Covid-19 pandemic, HEIs should also proactively equip themselves for effective risk management in the future. Given the complex and dynamic business environment of higher education industry, HEIs may face technological risks, financial risks, management risks, political risks, and students-related risks (Khaw & Teoh, 2023a). Since risk management in higher education industry has not gained sufficient attention among researchers, therefore, future research may concentrate on comprehensive risk management framework, institutional policies, and risk management planning to aid HEIs in responding risks and uncertainties.

The United Nations (UN) General Assembly presented the 2030 Agenda for Sustainable Development, providing a collaborative framework for tackling sustainability concerns. Furthermore, as reported by Times Higher Education in 2023, a university's sustainability credentials, and green approach have emerged as a pivotal determinant for students when making enrollment decisions. Green practices such as corporate social responsibility and campus greening can enhance the reputation of higher education internationally. Therefore, further investigation can also be conducted into environmentally friendly behaviour, green practices, and green management for sustainable development.

Implications

This research study makes valuable contributions to the literature on performance of higher education institutions in several distinct ways. Firstly, the results obtained from descriptive statistical analysis have shed light on the most influential journals, authors, and scholarly articles pertaining to HEIs' performance in the area of business, management and accounting. These findings hold significant importance for researchers working within this area.

Secondly, the utilization of Biblioshiny and VOSviewer as the analysis tools have led to the creation of visual representations that offer an organized overview of the publications. These visual aids prove to be beneficial for new scholars entering this field as they can gain a comprehensive understanding of the extensive resources available in this area of knowledge. This includes aspects such as global collaboration among countries and co-authors, the selection of relevant keywords, and the concentration of unexplored topics within the realm of higher education.

Moreover, the thematic clusters that have been identified through this research can serve as a valuable resource for scholars specializing in higher education. These clusters provide a basis for engaging in thorough and insightful discussions on emerging themes, further expanding the existing literature, and constructing a strong theoretical foundation.

Considering organizational viewpoints, this research findings can offer valuable insights in understanding the evolution and focus of HEIs to attain business performance. The study results can serve as a foundation for the formulation of policies. Policymakers can tailor policies to address the unique needs identified in this research, thus enhancing the overall quality of higher education. This research also assists senior management of HEIs in making informed decisions while formulating operational strategies and allocating resources.

Limitations and Recommendations

This study provides a comprehensive and in-depth examination of the existing literature concerning HEIs' performance. However, it is important to acknowledge certain limitations in this study that should be considered for future research endeavors. A significant limitation of this study lies in its reliance on data sourced solely from a single database, which is Scopus. While this approach is common in bibliometric studies to prevent article duplication, it also leads to the omission of relevant research articles available in databases such as Web of Science, Pubmed,

Scimago Journal Rank, Google Scholar, and others. This exclusion potentially deprives the research of valuable insights in the field. Consequently, the outcomes of this study are confined by the scope of the Scopus database. Additionally, it is important to highlight that bibliometric evaluations face constraints due to factors such as sample size and the temporal scope influenced by the emerging nature of the studied field. Besides, the selection of articles for final review may be subjective because it was conducted manually by reviewers. Therefore, it is recommended for readers to consider various limitations. The applicability of these findings necessitates periodic validation from scholars.

As a way forward, it is advisable for future research to explore other databases and remain open to new publications emerging in this research domain. This expanded approach would contribute to a more holistic understanding of the subject. It is also recommended that researchers further enhance our examination by assessing various review methodologies, for instance, employing a meta-analysis could provide diverse perspectives on HEIs' performance and potentially uncover insights that our study might not have fully considered.

Conclusion

In this research investigation, a bibliometric analysis was performed on Scopus publications related to performance of HEIs. The study yielded significant findings, summarized as follows: Firstly, biblioshiny was conducted on 211 Scopus articles within this theme. This involved analysing trend of publication, leading journals, most influential authors, country scientific production map, three-field plot, word cloud, trend topics, and thematic map. Next, VOSviewer was utilized to obtain a keyword co-occurrence network visualization, to reveal clusters of subjects in performance of HEIs. Consequently, the research questions were successfully addressed. The most influential journals, authors, and countries of HEIs' performance research in the area of business, management and accounting (RQ1) were identified. We also successfully identified the focus of HEIs' performance (RQ2) using main clusters content analysis. Future research directions have also been identified with the utilization of the trend topics and thematic map (RQ3). This research findings contribute to identifying gaps in the research landscape. This research also offers valuable insights for policymakers and HEIs' top management in achieving institutional performance, as well as scholars and researchers interested in higher education research. This study exclusively applied the Scopus database to retrieve articles, disregarding alternative databases. Despite this limitation, the research provided a reliable and precise overview of the analysis of key scholarly publications concerning HEIs' performance. In the future, scholars could improve their article selection methodology by incorporating databases like Web of Science, Scimago Journal Rank, Google Scholar, and various other relevant sources.

References

Abadi, S., Widyarto, S., & Shukor, N. S. A. (2019). Customer and stakeholder perspective using analytical hierarchy process method for evaluation performance of higher education. *International Journal of Supply Chain Management*, *8*(3), 1057.

Abbas, J., Kumari, K., & Al-Rahmi, W. M. (2024). Quality management system in higher education institutions and its impact on students' employability with the mediating effect of industry–academia collaboration. *Journal of Economic and Administrative Sciences*, *40*(2), 325-343.

Acilar, A., & Sæbø, Ø. (2023). Towards understanding the gender digital divide: A systematic literature review. *Global knowledge, memory and communication*, *72*(3), 233-249.

Albaroudi, H. B., & Iqbal, S. (2024). Role of leadership styles in connecting quality culture and university performance: a higher education perspective from Saudi Arabia. *The TQM Journal*. Vol. ahead-of-print No. ahead-of-print.

Ali, M. (2021). A systematic literature review of sustainable entrepreneurship with thematic analysis. *World Journal of Entrepreneurship, Management and Sustainable Development*, *17*(4), 742-764.

Aparicio, G., Iturralde, T., & Maseda, A. (2019). Conceptual structure and perspectives on entrepreneurship education research: A bibliometric review. *European research on management and business economics*, *25*(3), 105-113.

Aria, M., & Cuccurullo, C. (2017). bibliometrix: An R-tool for comprehensive science mapping analysis. *Journal of informetrics*, *11*(4), 959-975.

Ashaari, M. A., Singh, K. S. D., Abbasi, G. A., Amran, A., & Liebana-Cabanillas, F. J. (2021). Big data analytics capability for improved performance of higher education institutions in the Era of IR 4.0: A multi-analytical SEM & ANN perspective. *Technological Forecasting and Social Change*, *173*, 121119.

Asiedu, M. A., Anyigba, H., Ofori, K. S., Ampong, G. O. A., & Addae, J. A. (2020). Factors influencing innovation performance in higher education institutions. *The Learning Organization*, *27*(4), 365-378.

Asif, M., & Searcy, C. (2014). Determining the key capabilities required for performance excellence in higher education. *Total Quality Management & Business Excellence*, *25*(1-2), 22-35.

Baas, J., Schotten, M., Plume, A., Côté, G., & Karimi, R. (2020). Scopus as a curated, high-quality bibliometric data source for academic research in quantitative science studies. *Quantitative science studies*, *1*(1), 377-386.

Camilleri, M. A. (2021a). Evaluating service quality and performance of higher education institutions: a systematic review and a post-COVID-19 outlook. *International Journal of Quality and Service Sciences*, *13*(2), 268-281.

Camilleri, M. A. (2021b). Using the balanced scorecard as a performance management tool in higher education. *Management in Education*, *35*(1), 10-21.

Carlucci, D., Renna, P., Izzo, C., & Schiuma, G. (2018). Assessing teaching performance in higher education: a framework for continuous improvement. *Management Decision*, *57*(2), 461-479.

Chang, T. Y., Chung, P. H., & Hsu, S. S. (2012). Two-stage performance model for evaluating the managerial efficiency of higher education: Application by the Taiwanese tourism and leisure department. *Journal of Hospitality, Leisure, Sport & Tourism Education*, *11*(2), 168-177.

Chatterji, N., & Kiran, R. (2023). The influence of human, organizational and relational capital of universities on their performance: a developing economy perspective. *Journal of Intellectual Capital*, *24*(3), 799-829.

Cheng, E. C., & Wang, T. (2022). Institutional strategies for cybersecurity in higher education institutions. *Information*, *13*(4), 192.

Chlomoudis, C., Konstantinou, A., Kostagiolas, P., & Pallis, P. (2022). Information needs and information-seeking behaviour of maritime students: a systematic literature review using the PRISMA method. *Library Management*, *43*(5), 353-369.

Cobo, M. J., López-Herrera, A. G., Herrera-Viedma, E., & Herrera, F. (2012). SciMAT: A new science mapping analysis software tool. *Journal of the American Society for information Science and Technology*, *63*(8), 1609-1630.

Chen, S. H., Yang, C. C., & Shiau, J. Y. (2006). The application of balanced scorecard in the performance evaluation of higher education. *The TQM magazine*, *18*(2), 190-205.

Decramer, A., Smolders, C., & Vanderstraeten, A. (2013). Employee performance management culture and system features in higher education: relationship with employee performance management satisfaction. *The International Journal of Human Resource Management*, *24*(2), 352-371.

Dioubate, B. M., Norhayate, W. D. W., Anwar, Z. F., Fauzilah, S., Faiz, H. M., & Hai, L. O. (2023). The Role of Cybersecurity on the Performance of Malaysian Higher Education Institutions. *Jurnal Pengurusan*, *67*, 1-12.

Duque, L. C. (2014). A framework for analysing higher education performance: students' satisfaction, perceived learning outcomes, and dropout intentions. *Total quality management & business excellence*, *25*(1-2), 1-21.

Elbawab, R. (2024). Linking organisational learning, performance, and sustainable performance in universities: an empirical study in Europe. *Humanities and Social Sciences Communications*, *11*(1), 1-14.

Faisal, M. N., Sabir, L. B., & Sharif, K. J. (2024). Operationalizing transparency in supply chains using a systematic literature review and graph theoretic approach. *Benchmarking: An International Journal*, *31*(4), 1270-1294.

Franco-Santos, M., & Doherty, N. (2017). Performance management and well-being: a close look at the changing nature of the UK higher education workplace. *The International Journal of Human Resource Management*, *28*(16), 2319-2350.

Gilal, F. G., Ashraf, Z., Gilal, N. G., Gilal, R. G., & Channa, N. A. (2019). Promoting environmental performance through green human resource management practices in higher education institutions: A moderated mediation model. *Corporate Social Responsibility and Environmental Management*, *26*(6), 1579-1590.

Gu, D., Li, J., Li, X., & Liang, C. (2017). Visualizing the knowledge structure and evolution of big data research in healthcare informatics. *International journal of medical informatics*, *98*, 22-32.

Ismail, S. N., Ramli, A., & Aziz, H. A. (2021). Influencing factors on safety culture in mining industry: A systematic literature review approach. *Resources Policy*, *74*, 102250.

Jauhar, S. K., Pant, M., & Dutt, R. (2018). Performance measurement of an Indian higher education institute: a sustainable educational supply chain management perspective. *International Journal of System Assurance Engineering and Management*, *9*, 180-193.

Khaw, T. Y., & Teoh, A. P. (2023a). Risk management in higher education research: a systematic literature review. *Quality Assurance in Education*, *31*(2), 296-312.

Khaw, T. Y., & Teoh, A. P. (2023b). The influence of big data analytics technological capabilities and strategic agility on performance of private higher education institutions. *Journal of Applied Research in Higher Education*, *15*(5), 1587-1599.

Kolar, T., Erčulj, V., & Weis, L. (2019). Multigroup validation of the service quality, customer satisfaction and performance links in higher education. *The Service Industries Journal*, *39*(13-14), 1004-1028.

Kostagiolas, P., & Katsani, A. (2021). The management of public libraries during COVID-19 pandemic: a systematic literature review through PRISMA method. *Library Management*, *42*(8/9), 531-549.

Kotchegura, A., De Martino, M., & Farazmand, A. (2022). Enhancing Competitiveness of the Russian Higher Education: The 5-100 University Excellence Program through the Lens of Efficiency and Performance. *International Journal of Public Administration*, *45*(2), 185-197.

Kumar, A., & Thakur, R. R. (2019). Objectivity in performance ranking of higher education institutions using dynamic data envelopment analysis. *International Journal of Productivity and Performance Management*, *68*(4), 774-796.

Linnenluecke, M. K., Marrone, M., & Singh, A. K. (2020). Conducting systematic literature reviews and bibliometric analyses. *Australian Journal of Management*, *45*(2), 175-194.

Masa'deh, R., Shannak, R., Maqableh, M. & Tarhini, A. (2017). The impact of knowledge management on job performance in higher education: The case of the University of Jordan. *Journal of Enterprise Information Management*, *30*(2), 244-262.

Núñez Chicharro, M., Mangena, M., Alonso Carrillo, M. I., & Priego De La Cruz, A. M. (2024). The effects of stakeholder power, strategic posture and slack financial resources on sustainability performance in UK higher education institutions. *Sustainability Accounting, Management and Policy Journal*, *15*(1), 171-206.

Page, M. J., McKenzie, J. E., Bossuyt, P. M., Boutron, I., Hoffmann, T. C., Mulrow, C. D., ... & Moher, D. (2021). The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. *International journal of surgery*, *88*, 105906.

Petticrew, M., & Roberts, H. (2008). *Systematic reviews in the social sciences: A practical guide*. John Wiley & Sons.

Priyashantha, K. G., De Alwis, A. C., & Welmilla, I. (2022). Disruptive human resource management technologies: A systematic literature review. *European Journal of Management and Business Economics*, *33*(1), 116-136.

Rehman, U. U., & Iqbal, A. (2020). Nexus of knowledge-oriented leadership, knowledge management, innovation and organizational performance in higher education. *Business Process Management Journal*, *26*(6), 1731-1758.

Sahoo, P., Saraf, P. K., & Uchil, R. (2022). Identification of critical success factors for leveraging Industry 4.0 technology and research agenda: a systematic literature review using PRISMA protocol. *Asia-Pacific Journal of Business Administration*, (ahead-of-print).

Sciarelli, M., Gheith, M. H., & Tani, M. (2020). The relationship between soft and hard quality management practices, innovation and organizational performance in higher education. *The TQM Journal*, *32*(6), 1349-1372

Secundo, G., Margherita, A., Elia, G., & Passiante, G. (2010). Intangible assets in higher education and research: mission, performance or both?. *Journal of intellectual capital*, *11*(2), 140-157.

Setati, S. T., Zhuwao, S., Ngirande, H., & Ndlovu, W. (2019). Gender diversity, ethnic diversity and employee performance in a South African higher education institution. *SA Journal of Human Resource Management*, *17*(1), 1-8.

Siam, M. R. (2017). The effect of communication strategy on the relationship between strategy execution (organisational level) and organisational performance: a middle level managers' perspective at higher education institutions. *Journal for Global Business Advancement*, *10*(2), 158-186.

Sousa, A., Calçada, E., Rodrigues, P., & Pinto Borges, A. (2022). Cryptocurrency adoption: a systematic literature review and bibliometric analysis. *EuroMed Journal of Business*, *17*(3), 374-390.

Sukirno, D. S., & Siengthai, S. (2011). Does participative decision making affect lecturer performance in higher education?. *International journal of educational management*, *25*(5), 494-508.

Tam, M. (2014). Outcomes-based approach to quality assessment and curriculum improvement in higher education. *Quality assurance in education*, *22*(2), 158-168.

Thanassoulis, E., Dey, P. K., Petridis, K., Goniadis, I., & Georgiou, A. C. (2017). Evaluating higher education teaching performance using combined analytic hierarchy process and data envelopment analysis. *Journal of the Operational Research Society*, *68*, 431-445.

Times Higher Education. (2023), "*How a green approach to Tech can attract and engage students*", THE Campus Learn, Share, Connect. Retrieved May 25, 2024, from https://www.timeshighereducation.com/campus/how-green-approach-tech-can-attract-and-engage-students

Van Eck, N. J., & Waltman, L. (2014). Visualizing bibliometric networks. In *Measuring scholarly impact: Methods and practice* (pp. 285-320). Cham: Springer International Publishing.

Vijverberg, R., Ferdinand, R., Beekman, A., & van Meijel, B. (2017). The effect of youth assertive community treatment: a systematic PRISMA review. *BMC psychiatry*, *17*, 1-18.

Wang, M., & Chang, C. C. (2012). Technology in higher education and human performance. *Knowledge Management & E-Learning: An International Journal, 4*(3), 231-235.

Warning, S. (2004). Performance differences in German higher education: Empirical analysis of strategic groups. *Review of industrial organization*, *24*, 393-408.

Webster, J., & Watson, R. T. (2002). Analyzing the past to prepare for the future: Writing a literature review. *MIS quarterly, 26*(2), xiii-xxiii.

Yaakub, M. H., & Mohamed, Z. A. (2019). Measuring the performance of private higher education institutions in Malaysia. *Journal of Applied Research in Higher Education*, *12*(3), 425-443.

Zaki, H. O., Fernandez, D., Dastane, O., Aman, A., & Sanusi, S. (2023). Virtual reality in digital marketing: research agenda based on bibliometric reflection. *Marketing Intelligence & Planning*, *41*(4), 505-524.