

Global Trends in Quality Management Research: Collaboration, Influence and Emerging Priorities

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Abstract: From 2020 to 2025, qualitative research on quality management (QM) has seen large growth. Many of the new studies have been based on surveys and qualitative data collected from several countries. Though this research has been flourishing, there has still been little in the way of bibliometric study in this area. The current study attempts to highlight this gap. It analyzes 2,963 documents from Elsevier Scopus and 1,466 from the Web of Science and reveals dimensions and major interests and goals of QM research. The analysis reveals major actors (authors, institutions, and funding bodies) who have been participating in QM research. This study also presents evidence of collaboration on QM research. In particular, using the VOSViewer program, the study presents intellectual structures and collaboration and research networks. The outcomes of this study, in particular the intellectual structures and research networks, indicate gaps in QM research. This study presents a bibliometric synopsis of QM and provides a historical perspective that assists researchers and practitioners in identifying and understanding existing and future research..

Keywords: Bibliometric analysis, quality management, Scopus, Web of Science, VOSviewer

INTRODUCTION

Quality management (QM) practices are one of the crucial management systems used by organizations looking to maintain their competitiveness and achieve sustained success in today's fast-changing marketplace. QM practices have evolved from simple quality control to integrated QM systems focusing on the workplace and customer satisfaction and engagement (Juran & Godfrey, 2010; Oakland, 2014; Evans & Lindsay, 2020). Despite these advancements and QM practice evolution, a theoretical gap persists regarding the integration of the core, traditional QM concepts and the newest digital technologies of AI, machine learning, big data analytics, and the technologies associated with the 4th Industrial Revolution (Ramakrishnan et al., 2020; Zhang et al., 2021; Kumar et al., 2022). The majority of the existing body of literature studies the technology-related aspects of QM in isolation. The authors call for further exploration of the existing gaps and for further conceptual and empirical developments in QM systems (Jouini & Ben Amar, 2016; Zhang & Xie, 2023; Li et al., 2022).

QM systems are evolving as a direct consequence of these advancements in technology, and QM is now being viewed in a way that allows for erroneous activity detection (Ramakrishnan et al., 2020; Li et al., 2022; Santos-Vijande et al., 2013). However, there are still fragmented theoretical models for the application of these technologies that focus on a single tool as opposed to an integrated model of Humans and Technology (Prajogo & Sohal, 2013; Ahire et al., 2019). There is even less study on the effect that the landing of these technologies has on QM systems in relation to workplace culture, employee participation, and the role of leadership (Santos-Vijande et al., 2013; Li et al., 2022; Prajogo & McDermott, 2020). The outcome of these studies will help create more resilient and flexible QM systems.

QM Frameworks Applied in Different Sectors

The integration of QM frameworks across disparate sectors such as healthcare, education, and service frameworks is still nascent (Kwak et al., 2016; Sánchez et al., 2019). While manufacturing studies have extensive literature, service and healthcare studies have not created large bodies of literature. This shows a lack of frameworks on QM and operational contexts (Ramos & Silva, 2023; Garvin, 1988; Prajogo & McDermott, 2020). QM frameworks in particular need to adapt to the variability of customers, the complexity of the service, the constraints of regulatory policies, and the employment of human resources which QM frameworks must also take into consideration (Juran & Godfrey, 2010; Talib et al., 2011).

Further, QM frameworks must also consider the impacts of technologies. In healthcare, systems such as AI-based diagnostics, and in service systems, systems of predictive maintenance serve to provide better quality outcomes; however, research on the integration of these systems with the human and organizational systems is scarce (Ramakrishnan et al., 2020; Li et al., 2022; Zhang et al., 2021). Furthermore, there are no models on the conceptualization of how the operational needs of a given sector can shape the adoption and use of technology-driven QM systems (Sánchez et al., 2019; Ahire et al., 2019). These challenges must be addressed to create flexible QM systems for specific sectors that fuse technology, human, and organizational systems.

QM Leadership

Most studies focus on how leadership styles and behaviors influence practices and culture for QM in organizations (Talib et al., 2011; Prajogo et al., 2017; Basu & Wright, 2021). Some studies offer more detail on the need for commitment and transformational styles at all levels in order to build and sustain a quality culture that encourages continuous improvement and innovation (Prajogo & Sohal, 2013; Garcia & Gonzalez, 2023). Some studies discuss the lack of clarity and conceptual gaps in leadership styles across different sectors and use of technology in QM (Basu & Wright, 2021; Ahire et al., 2019).

QM centers on the use of a transformational style of leadership, while other styles, including participative, servant, and adaptive leadership, are absent from most studies (Garcia & Gonzalez, 2023; Masi & Cooke, 2000). Unlike transformational leadership, participative leadership is frequent in QM. There are also very few studies on the impact of leadership on employee engagement and the use of technology in order to achieve continuous improvement (Prajogo & McDermott, 2020; Li et al., 2022). Closing these gaps would enable a greater understanding of the impact of leadership on the design and development of integrated, technology-based QM systems.

Technology and Employee Engagement

Employee engagement is a central component of successful quality management, with a dominant influence on overall quality performance (Hendricks & Singhal, 2019; Santos-Vijande et al., 2013). Although some studies describe what participation in quality processes looks like, few frameworks and models integrate participation with the use of technology, and many focus on innovation and organizational learning (Ramos & Silva, 2023; Prajogo & Sohal, 2013).

There is an observed lack of research on the leadership and employee engagement interrelationships particularly as they relate to cutting edge technologies such as AI, cloud technologies, and predictive analytics (Li et al., 2022; Ramakrishnan et al., 2020; Santos-Vijande et al., 2013). There is a need for the refinement of QM systems, balancing the required technology and the systems' interaction with the users that are intended to accomplish the system's goal. QM systems of the future need to be flexible and intelligent to meet the varying needs of organizations. These systems need to be durable, and readily measure and analyze a variety of parameters to assess the overall level of performance, engagement, and satisfaction of employees and users.

Conceptual and Theoretical Gaps

Also, the research has identified the following gaps: the application of traditional adaptive QM frameworks to specific QM contexts outside of manufacturing, the adjustment of leadership roles to

QM and the integration of culture, and the integration of tools QM with a human and organizational framework; and the development of multidisciplinary, comprehensive frameworks that integrate leadership, employee engagement and technology frameworks (Santos-Vijande et al., 2013; Li et al., 2022; Prajogo & McDermott, 2020). The gaps identified in the QM and integrated frameworks of engagement and expression developed through multidisciplinary research, will strengthen both QM systems management and provide organizations with the knowledge necessary to support the enhancement of varied and optimal performance systems across QM.

Research Questions

For this bibliometric study, the following research questions will be posed:

1. What are the major quality management advances and trends between 2020-2025?
2. What authors, institutions, and countries have made the largest contributions?
3. How has quality management research shifted toward the integration of leadership, employee engagement, and technology in recent years?

METHODS

The past five years have shown a marked increase in interest in bibliometric techniques since Wallin (2005) first outlined bibliometric analysis. As described by Adams & Gurney (2022), Kumar et al. (2021), Bornmann & Leydesdorff (2014), and others, the rapid uptake of bibliometric techniques by various disciplines (social sciences, business, economics, engineering, medicine, education) reflects a greater need to analyze research patterns and trends, and to provide a more systematic approach to the development of scholarship and research. For example, the term “bibliometric” relates to more than 35,860 articles in the Scopus database (Elsevier Scopus, 2025).

Donthu et al. (2021), Otitolaiye & Aziz (2023), Van Eck & Waltman (2010), and Aria & Cuccurullo (2017) credited the development of bibliometric analysis to Scopus and Web of Science, along with other specialized tools such as VOSviewer, Gephi, and Harzing’s Publish or Perish. These tools enable researchers to develop elaborate bibliometric networks and visualizations. These networks can capture trends in citations, along with the patterns and evolution of topics and research collaborations on a worldwide scale, and can include various institutions (Cobo et al., 2011; Leydesdorff & Persson, 2010). Citation analysis, co-citation analysis, and bibliographic coupling are some of the basic procedures in bibliometrics, and provide an understanding of key research topics and influential articles (Garfield, 2006; Kessler, 1963; Small, 1973).

Bibliometric analysis can show how networks of collaboration, both geographically and institutionally, can create innovative research, and can also illustrate how research areas evolve, the effect they have and where they are likely to go in the future (Alvarado et al., 2023; Zhang et al., 2019; Herrera et al., 2022; Mogull, 2016; Waltman et al., 2012). Bibliometric methods are popular, probably because they allow researchers to examine trends in research and make informed recommendations on how to direct their efforts in a specific area of research.

The research in this study utilized the search methods below to collect relevant literature on Quality Management from the Scopus and Web of Science databases.

Elsevier Scopus

TITLE (“Quality Management”) AND PUBYEAR > 2020 AND PUBYEAR < 2025 AND (LIMIT-TO (DOCTYPE, “ar”) OR LIMIT-TO (DOCTYPE, “cp”) OR LIMIT-TO (DOCTYPE, “ch”) OR LIMIT-TO (DOCTYPE, “re”) OR LIMIT-TO (DOCTYPE, “bk”))

2. *Web of Science*

“Quality Management” (Title)

Data Overview

Interest in quality management (QM) increased substantially from 2020 to 2024. Scopus recorded 39,726 related publications and the Web of Science recorded 10,069 (Elsevier, 2025; Web of Science, 2025). The objective of this study was to acquire data from this period due to the growing interest in this area of research. To make data processing and analysis more efficient, publications were obtained in files that separate records using commas (van Eck & Waltman, 2010), and saved to a compatible format for Microsoft Excel.

Bibliometric analysis focuses uniquely on the use of data and visualization. For this study, VOSviewer was used for analysis (Van Raan, 2005). Visual networks were developed to uncover the patterns of co-authorship, institutional authorship, and citation networks. This information was used to determine who and what were the dominant authors, institutions, and collaborations within this area of QM. These patterns also allowed for the identification of the dominant themes within the research and the publication patterns of the institutions.

New research in quality management has identified a number of barriers. Some of these barriers include organizational readiness, leadership challenges, and the use of new technologies. (Alshamsi et al., 2020; Avasarala et al., 2021). New technologies like blockchain, cloud computing, and AI, are used to improve how a business can continually enhance their business processes, implement innovations, and make more informed business decisions (Bertot et al., 2020; Janssen et al., 2021; Zhang & Lee, 2022). These technologies improve employee participation and make the business more flexible, allowing the business to easily adapt to changing conditions (Nguyen & Garcia, 2023).

While newer technologies have an impact, QM results can also be affected by how a business chooses to operate or their policies. Research has shown that businesses can have the most positive effects on their business by making sure that their business goals are in line with their quality policies and that they implement straightforward and unambiguous policies (Gil-Garcia, 2021; Lee et al., 2022). It has also been shown that improving the emotional model of a business and helping employees learn and grow can improve quality management policies (Baker & Houghton, 2022).

This study offers a detailed bibliometric review of QM research, from 2020 to 2024, on key authors and institutions, research themes and evolving subjects. This analysis maps the publication landscape and identifies field development and research gaps. Figure 1 (Elsevier, 2025) summarizes the techniques for identification, review, and analysis.

RESULTS

Patterns in General Publications

Following the search strategy, the bulk of the quality management (QM) publications were journal articles, with 1,800 (60.7%) in Scopus and 1,295 (88.3%) in Web of Science (WoS). Figure 2 shows the distribution for other document types. These include book chapters (219, 7.4% in Scopus; 21, 1.43% in WoS), conference papers (758, 25.6% in Scopus; 168, 11.5% in WoS), papers for reviews (158, 5.3% in Scopus; 7, 0.48% in WoS), and books (28, 0.9% in Scopus; 2, 0.14% in WoS). The presence of such document types shows that QM research can be published in almost all document types.

For research domains, the three most frequent domains of QM publications include engineering (16.7% in Scopus; 22.3% in WoS), business, management and accounting (14.8% in Scopus; 27.2% in WoS), and computer science (10.7% in Scopus; 10.0% in WoS), and social sciences (8.7% in Scopus; 3.6% in WoS), and other social domains (Figure 3). This shows the diverse nature of QM publications. Publications from Engineering and business domains are large, but there are also publications in the areas of decision sciences, medicine, and mathematics, among other sciences.

Figure 1: Flowchart for finding, vetting and evaluating published papers on research of quality management from 2020 to 2025

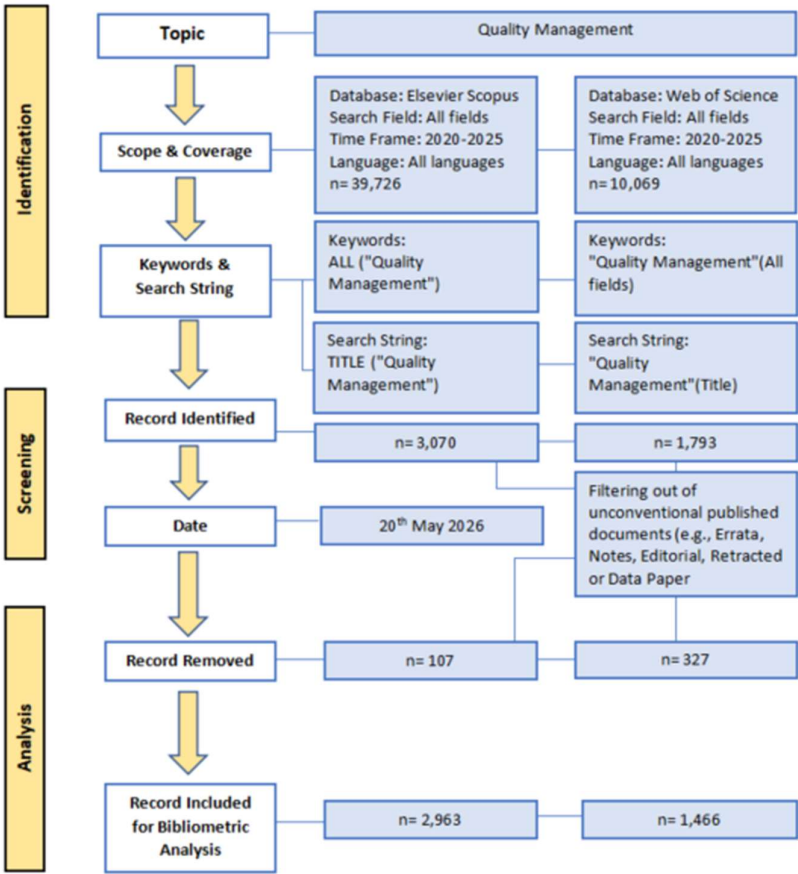
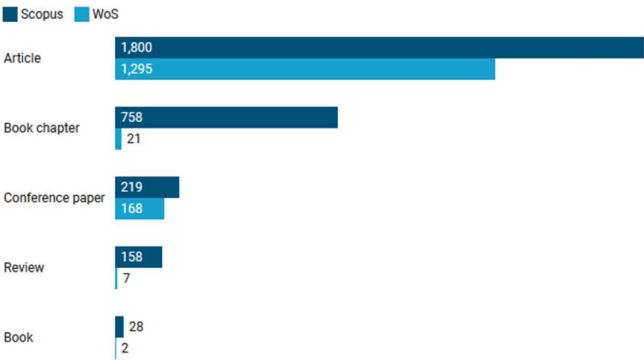
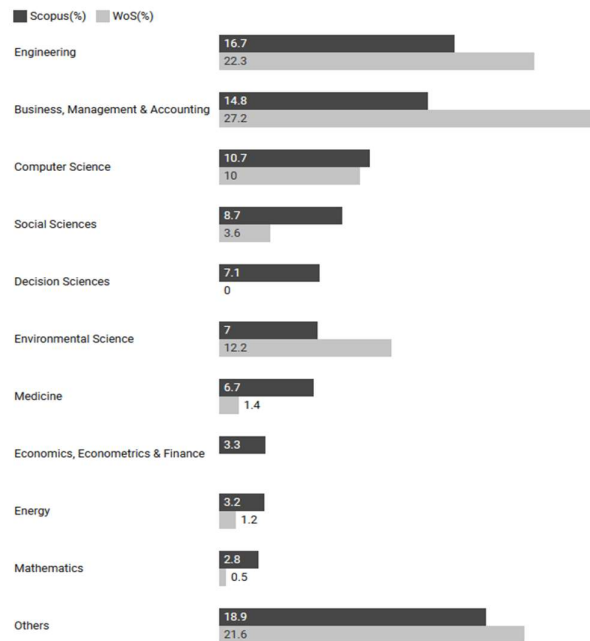


Figure 2: Distribution of document types by publication (2020-2025)



Source: Elsevier (2026) & Web of Science (2026)

Figure 3. Distribution of published documents by subject categories (2020–2025)

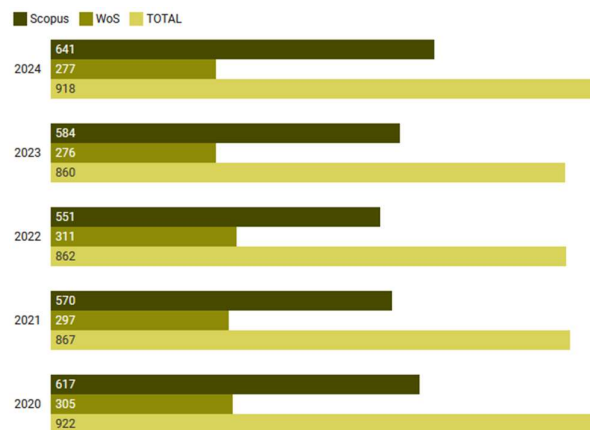


Source: Elsevier (2026) & Web of Science (2026)

Annual Trends in Publishing

Figure 4 shows the yearly distribution of quality management research publications for 2020–2024. The data captures the increasing focus from researchers in the domain. After a sustained period of almost no publications, 2020 marks the beginning of an upward trend, and remains the same for subsequent years. 862 publications occurred in 2022, 860 in 2023, and an additional 916 publications were reported in 2024. This forms an upward trend and signifies the need for research in quality management. This data essentially suggests that the academic community is responding to challenges and innovations in quality management.

Figure 4: Annual trends in publishing



Source: Elsevier (2026) & Web of Science (2026)

Current Trends in Quality Management Research

The significance of quality management (QM) research has risen due to the need for organizational improvement and the promotion of sustained success in all sectors. Businesses have to manage heightened competition and customer expectations. Therefore, QM practices are critical to the

management of business processes, products, services, and customer satisfaction. Research in QM emphasizes that QM is no longer a collection of technical tasks, rather an all-inclusive philosophy of an organization that includes management, workforce, and strategy (Baker & Houghton, 2022; Lee et al., 2022; Prajogo & Sohal, 2013).

One of the most important issues of research and practice is the alignment of quality management systems (QMS) and strategy. Aligning QM practices and strategic goals simplifies processes and improves the organization's sustainability (Alshamsi et al., 2020; Gil-Garcia, 2021). Total Quality Management (TQM), Six Sigma, and similar philosophies are recognized as QM practices that enhance the ability of an organization to respond to the changes in the business environment (Janssen et al., 2021; Zhang & Lee, 2022; Talib et al., 2011).

The foundation of QM is people. Incorporating QM practices and initiatives, plus improvement of employee skills, establishes wellness in the organization (Nguyen & Garcia, 2023; Bertot et al., 2020; Santos-Vijande et al., 2013). Improvement of employee quality and empowerment personifies QM as an organizational philosophy.

An important development in QM research is sustainability. QM frameworks yield better resource use, less waste, and fit with broader sustainability targets after incorporating social and environmental aspects. This is done in part by incorporating a new type of metric that includes social and environmental aspects alongside old-fashioned quality metrics (Alvarado et al., 2023; Scholl, 2020; Bertot et al., 2020).

The transformation of QM practices caused by the evolution of technology is underway. The digitization of quality management with AI, cloud computing, and blockchain technology, support supply chain quality with real-time data and integrated quality decision transparency (Zhang & Lee, 2022; Janssen et al., 2021; Nguyen & Garcia, 2023). Furthermore, the combination of AI and blockchain create quality management systems that are proactive and produce real-time data in complex supply chain environments.

The transformation of QM practices from a set of activities to an integral part of an organization's culture and strategy has begun. QM practices have sustained adaptive innovative practices and integration of technology, sustainability, and employee engagement. These practices will continue to inspire the future of quality management.

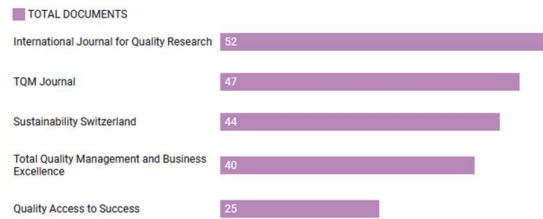
Dissemination of Published Documents

3,095 of the 4,429 publications (69.9%) included in the study sample are peer-reviewed articles in Scopus and Web of Science. Among them, 466 were published in the top five journals. The leading journal is the TQM Journal, which published 110 papers, or 2.5% of the global sample (Elsevier, 2025). Five of the most cited journals in both databases published over 25 papers, indicating the limited but influential sources in the area of study (Figure 5). This shows the pivotal position of major journals in QM to both direct and determine the next steps in the field.

Figure 5: The top five sources used in the study of quality management



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Source: Elsevier (2026) & Web of Science (2026)

The Evaluation of Journal Performance Metrics

Metrics like CiteScore, Scimago Journal Rank, total publications, and Source Normalized Impact per Paper score are part of a bibliometric evaluation of a journal's performance (Otitolaiye & Aziz, 2023). CiteScore is the average number of citations for documents published in a journal in the last three years. Scimago Journal Rank is a three-year system of weighted citations that helps assess a journal's reputation, influence, and impact. On the other hand, SNIP provides the ability to make citation impact comparisons that account for citation practice variation. In SNIP, citations collected in the same field are given a greater weight, making cross-disciplinary citation comparisons more valid.

The quality management journals and conference proceedings that are indexed in Scopus are included in Table 1. Each title is presented with total publications, the type of publication (journal or conference), CiteScore, Scimago Journal Rank, and SNIP. Total publications and the impact of citations are demonstrated in TQM Journal. TQM Journal has the highest total publications with 63 and a high CiteScore of 9.1. TQM Journal, with its high SJR and SNIP, is a highly regarded journal in the domain.

The table shows the expansion of QM research publications, from journals to book series. AIP Proceedings, Lecture Notes in Networks and Systems, and Proceedings of the LACCEI International Multi-conference for Engineering, Education and Technology, examples of conference publications, tend to be low impact compared to TQM Journal or International Journal of Quality and Reliability Management. This is understood, as conferences release research that is in its early stages, while journals contain finished impactful research.

A noteworthy example is the Sustainability (Switzerland) journal, which has 53 publications and a CiteScore of 6.8. This shows the increased combination of sustainability and quality management research. In the same way, Total Quality Management and Business Excellence has a high level of impact and publications. The demonstrated interdisciplinary nature of QM research is observed in the variety of journals dedicated to productivity, reliability, and materials science.

Table 1: Quality management publishing details for article sources in Scopus database

Source titles	T.P.	Source types	CS	SJR	SNIP
TQM Journal	63	Journal	9.1	0.941	1.625
International Journal for Quality Research	53	Journal	2.7	0.332	0.630
Sustainability Switzerland	53	Journal	6.8	0.672	1.086
Total Quality Management and Business Excellence	51	Journal	8.9	0.860	1.571
AIP Proceedings	38	Conference Proceeding	0.5	0.152	0.291
Lecture Notes in Networks and Systems	34	Book Series	0.9	0.171	0.282
Proceedings of the LACCEI international Multi-conference for Engineering, Education and Technology	34	Conference Proceeding	0.2	0.117	0.117

International Journal of Quality and Reliability Management	33	Journal	5.6	0.575	1.237
International Journal of Productivity and Quality Management	32	Journal	2.1	0.255	0.491
IOP Conference Series Materials Science and Engineering	27	Conference Proceeding	1.1	0.249	0.605

Note: TP- Total Publications, CS-CiteScore, SJR- Scimago journals ranking, SNIP- Source normalized impact per paper

Source: Elsevier (2026)

Quality Management Publishing Metrics from Web of Science

Table 2 compiles pertinent WM publications recorded in the Web of Science, featuring several metrics across sources, including total publications, source type (journals), and the 2023 Journal Impact Factor, the 5-year average JIF, and Journal Citation Indicator. The volume and prestige of sources are assessed using these metrics.

Journal performance exhibits significant variability. Leading journal in the WM field, Science of the Total Environment, has the highest JIF in 2023, at 8.2, and has a 5-year average of 8.6; its broad scope and influence in interdisciplinary studies of environment and WM are evident in its citation impact. As with the above, the Human Resource Management Journal is also of interdisciplinary importance and has a JIF of 5.4 for 2023 and a 5-year JIF of 6.6.

Quality Access to Success is a lower tier journal in WM studies, with a lower JIF. The 2023 and 5-year JIF comparisons are intended to show recent citation impact and extended influence, respectively, whereas the JCI provides an additional impact view, highlighting relative citation impact, which is also lower for the International Journal for Quality Research, despite its average output of articles.

The presence of journals such as PLOS One, which has a medium JIF and JCI, demonstrates how certain journals surpass their discipline boundaries and need to cater for publications from various disciplines, owing to the journals' limited publications on quality management. The aforementioned criteria, collectively, direct quality management research authors to determine the specific influential journals, the impact of the relevant publications, and to select the most appropriate platforms dedicated to their research.

Table 2: Quality management publishing details for article sources in Web of Science database

Source titles	T.P.	Source types	JIF 2023	JIF 5-year	JCI
International Journal for Quality Research	52	Journal	1.2	1.1	0.20
TQM Journal	47	Journal	3.8	-	1.06
Human Resource Management Journal	34	Journal	5.4	6.6	1.37
Sustainability	44	Journal	3.3	3.6	0.68
Total Quality Management Business Excellence	40	Journal	3.6	3.8	0.83
Quality Access to Success	25	Journal	0.5	0.5	0.13
International Journal of Quality & Reliability Management	22	Journal	2.7	2.8	0.55
Science of the Total Environment	15	Journal	8.2	8.6	1.62

Benchmarking: An International Journal	15	Journal	4.5	4.8	1.10
PLOS One	10	Journal	2.9	3.3	0.88

Note: TP-Total Publications, JIF-Journal Impact Factor, JCI-Journal Citation Indicator.

*The Journal Citation Indicator is a measure of the average Category Normalized Citation Impact (CNCI) of citable items (articles and reviews) published by a journal over a recent three-year period. It is used to help us evaluate journals based on other metrics besides the Journal Impact Factor (JIF).

Source: Web of Science (2026)

Distribution of Top Research Stakeholders

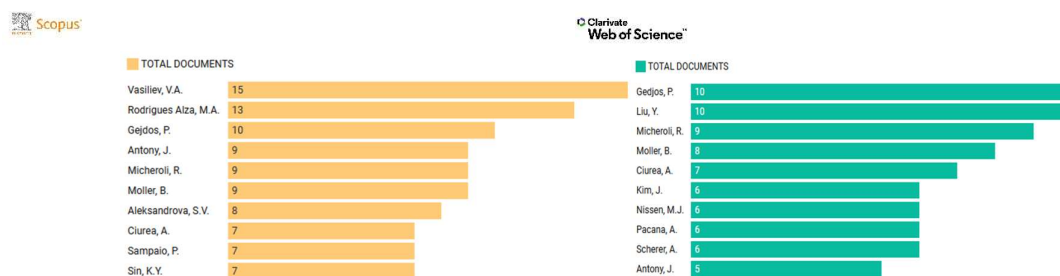
Comparative analysis of prolific quality management researchers from the Scopus and Web of Science databases is depicted in Figure 6. (Elsevier, 2026; Web of Science, 2026). This shows the total number of publications and provides data on their contributions and their impact in this area of research.

The researchers with the most publications in Scopus are Vasiliev, V.A. and Gedjos, P. Others with a solid presence in Scopus are Rodriguez Alza, M.A., Antony, J., and Micheroli, R. Gedjos, P. is the most cited researcher in Web of Science and the others are Liu, Y., Macheroni, R., and Moller, B. Scopus and Web of Science joint authorship (green for Web of Science, yellow for Scopus) provides a solid picture of a researcher's reach and the importance of a cross-database analysis.

Figure 7 (Elsevier, 2025; Web of Science, 2025) ranks the ten most productive institutions in quality management research. The data show that there is a lot of activity in this field at the institutional level. Most notably, in Scopus, Universidad Privada del Norte, with 45 papers, and in Web of Science, the Ministry of Higher Education in Ukraine, with 28 papers, are leading. Also, research activity is visible at the Moscow Aviation Institute National Research University and the University of Johannesburg. The presence of the German, Russian, and Polish universities in the top ten shows that there is a concentrated activity in Quality Management research in those countries.

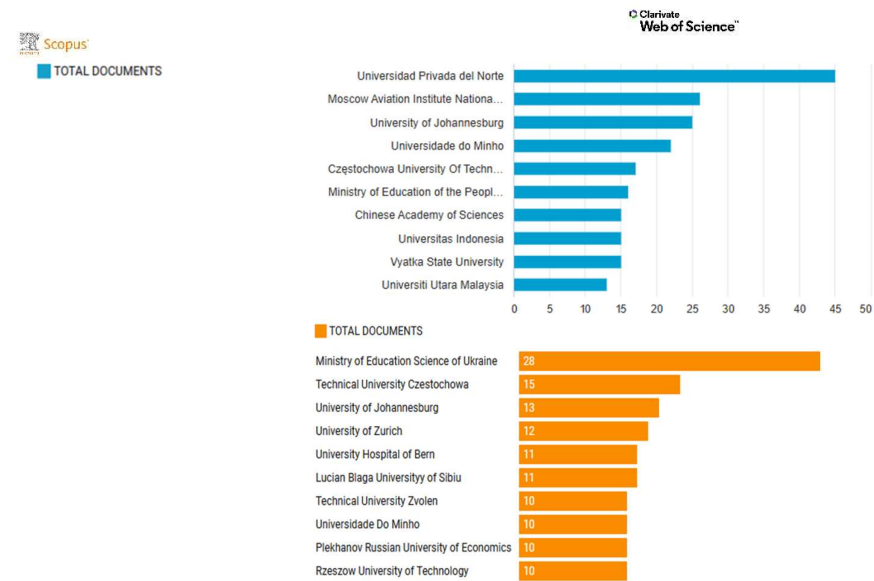
The results underscore the key importance of institutional backing and research infrastructure. The leading organizations, beyond their role in increasing the volume of publications, are also the main players in the distribution of researched knowledge, and the creation of novel knowledge.

Figure 6: Key authors in quality management research in Scopus and Web of Science



Source: Elsevier (2026) & Web of Science (2026)

Figure 7: The top 10 organizations that are involved in the quality management research



Source: Elsevier (2026) & Web of Science (2026)

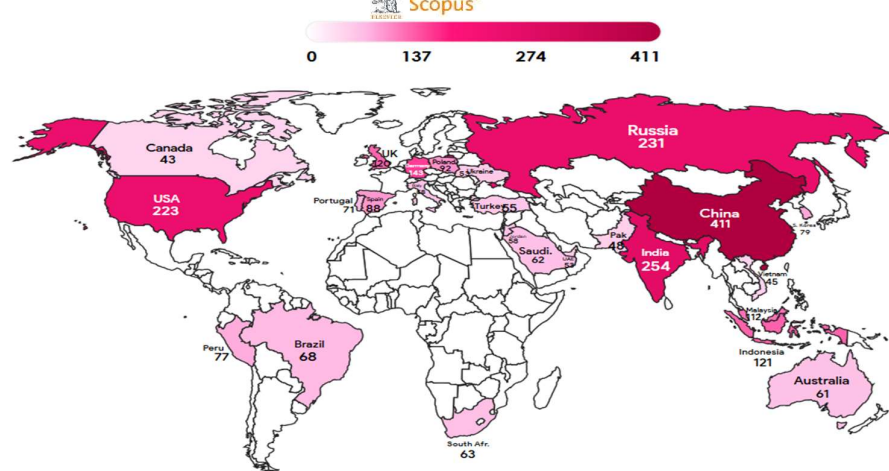
Distribution of Top Contributing Countries

Figures 8 and 9 compare the countries involved in quality management research, using data from Scopus and Web of Science, respectively. The figures illustrate the number of publications per country.

Based on Scopus data (Figure 8), the leading country is China (411), then India with 254, and Russia with 231. This suggests significant research interest in Asia and Eastern Europe. From the data presented in Web of Science (Figure 9), the leading country is again China (183), followed by the United States (123), and India (98). Although there are slight variations in the ranking and the number of publications between the two data sources, the overall patterns point to China, India, the UK, and the USA as the countries with the highest volume of quality management research.

Variations in rankings and volume of publications between data sources are attributed to variations in coverage, indexing, and searching techniques between Scopus and Web of Science. However, all data sources agree on the key geographic regions conducting QM research. The concentration of publications in these regions illustrates the research commitment of the countries, reflected in institutional support, adequate research infrastructure, and the prioritization of quality management research.

Figure 8: The top twenty-five nations that support quality management research (Scopus)



Source: Elsevier (2026)

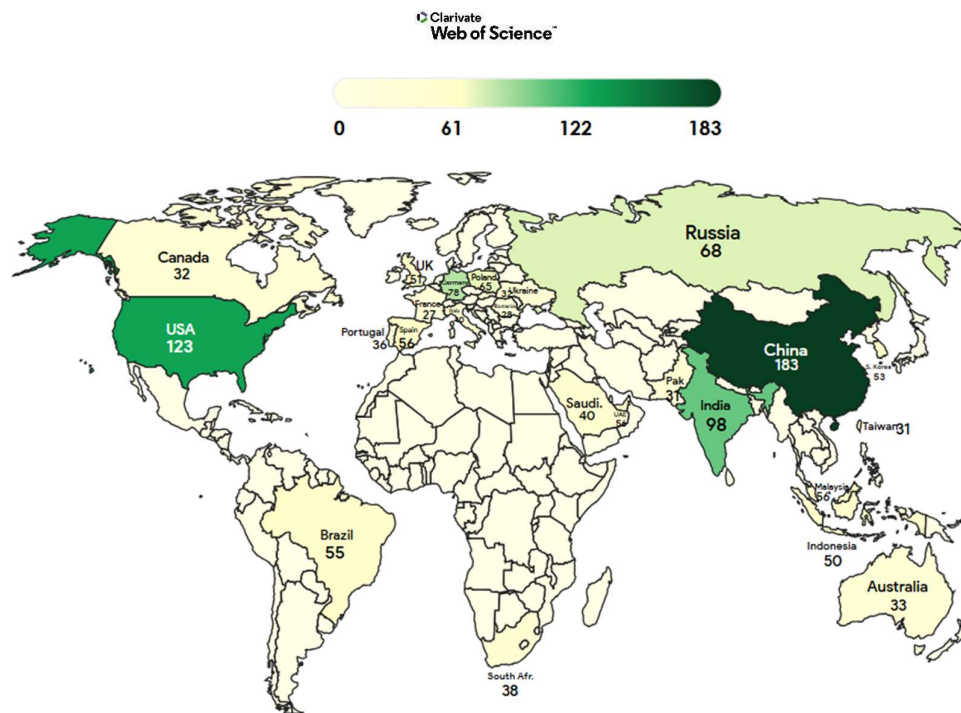
Distribution of Top Funders

Figure 10 (Elsevier, 2025; Web of Science, 2025) provides information on the major funding organizations for quality management research, as analyzed via Scopus and Web of Science, and illustrates the major funding organizations and the relative contributions from each to quality management research.

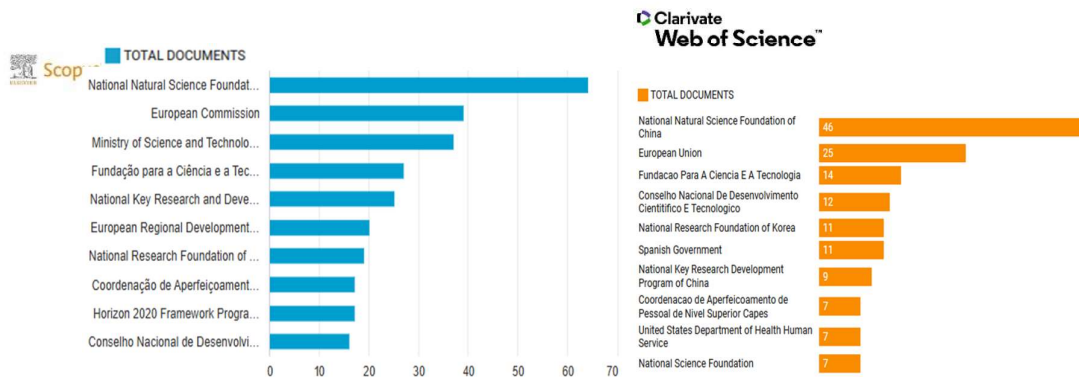
According to both databases, the National Natural Science Foundation of China (NSFC) is the leading funding organization, having supported more publications than any other funding organization. This dominant position illustrates the NSFC's commitment to the advancement of quality management research and the improvement of the management in other fields. The other major funding organizations are the European Commission, the European Union, and the Ministry of Science and Technology of the People's Republic of China. Although there are differences in rank and frequency of documents in Scopus and Web of Science, the overall observation in quality management research is that the research is driven primarily by government and institutional funding.

The results presented demonstrate the role funding drives quality management research. The major funding organizations support a great number of quality management research projects that foster management knowledge and the practical application of management. Proper funding also enables quality management research that incorporates the use of new technologies and collaborative research across multiple institutions.

Figure 9: The top twenty-five nations that support quality management research (Web of Science)



Source: Web of Science (2026)

Figure 10: Top 10 funders contributing to the quality management research

Source: Elsevier (2026) & Web of Science (2026)

BIBLIOMETRIC ANALYSIS ON QUALITY MANAGEMENT RESEARCH

Keyword analysis of research hotspots

Keyword scrutiny was conducted on both Scopus and Web of Science to determine the leading research areas in human resource management (HRM). The Scopus dataset included 2,963 records and 14,916 keywords. Of these, 1,015 keywords were recorded 5 or more times. Web of Science included 1,466 records and 6,063 keywords. Of these, 337 were recorded 5 times or more. VOSviewer was used to generate networks by thresholding keyword co-occurrence to at least 200, thus creating the maps in a format that was readily apparent.

Scopus used keywords such as: “quality management” (1,159), “total quality management” (648), “quality control” (400), “human” (1,110), “article” (298), and “quality management systems” (216). In Web of Science, the keywords included “quality management” (324), “impact” (216), “performance” (188), “total quality management” (2,093), “transfer learning” (1,451), and “TQM” (127). The research suggests HRM draws from both established frameworks of quality management and modern advancements in technology and frameworks in quality management, such as deep learning and TQM.

Co-occurrence networks analyze keywords in a different way. Here, the size of a node represents the frequency of a keyword, while closeness of nodes shows how closely keywords are associated. Co-occurrence is represented by a line connected by nodes, while a thicker line represents a higher frequency of co-occurrence in published works. In Scopus, link strengths higher than 2000, “quality management” and “total quality management” (highly co-occurring at 3,188), “human” (2,656), “article” (2,629), and “quality control” (2,091), were observed. In Web of Science, the highest co-occurrence links greater than 1,000 were found between “quality management” and “impact” (1,397) and “performance” (1,029).

These findings show that quality management is tied to many performance outcomes and is at the core of HRM research. In addition, newer themes that incorporate sustainability and “green” quality management practices are gaining traction. This shows that HRM research is incorporating more environmentally and socially responsible practices. Keyword analysis affords a clear and concise representation of the research trends, how different topics are related to one another, and gaps in research in this area.

It can be interpreted from these findings that research in HRM relates to traditional concepts of quality management and also new emerging technologies such as AI and deep learning.

The co-occurrence maps also show the relationship of the keywords. In Scopus, for example, a strong relationship between 'quality management' and 'total quality management' was observed (3,188). A similar observation was made for 'quality management' and 'quality control' (2,091). In Web of Science, the strongest co-occurrences (more than 1,000) were between 'quality management' and 'impact' (1,397); and also between 'quality management' and 'performance' (1,029).

These trends suggest quality management doesn't just remain one of the central themes of the HRM research literature; it is deeply connected to a number of performance-related themes. Moreover, the developing themes in the literature, including sustainability and green quality management, suggest that researchers and practitioners are interested in developing environmentally and socially responsible HRM practices. Based on the keyword analysis in general, the research literature has a number of dominant themes, complementary themes, and potential research gaps.

Co-Authorship Analysis

High quality management research is undertaken by researchers in collaboration. Thus, research co-authorship is one way of describing a research collaboration network. Research co-authorship can be used to describe both research institutional collaboration and research collaboration at the level of geography (Smith and Jones, 2021; Liao et al., 2022). This can be used to describe the impact of a scholar on a practice and the diffusion of a practice throughout a region. This can also be used to describe a number of innovation, collaboration, and research best practice integration frameworks (Zhang et al., 2023; Sampson and Gritzmacher, 2022).

At the country level, the Scopus database shows that the most prolific country is China (412 publications) followed by India (254 publications), Russia (231 publications), and the United States (222 publications). In the Web of Science database, China is again the most prolific (185 publications). In second place is the United States (126), followed by India (98), and Germany (82). China has the highest citation metrics in all databases. In Scopus, and the Web of Science, the United States and Germany have link strength metrics indicating research collaboration with the highest impact.

These findings reinforce the need to consider new ways of working together internationally in HRM research. Multinational partnerships make available new ways of thinking, promote new and innovative approaches, and strengthen the flow of optimal practices. Collaborative research partnerships are especially important for dealing with the intricate and sophisticated problems in HRM and advancing research that will be beneficial to the global community.

Figure 13: The nationwide network of co-authors for quality management research publications (Scopus)

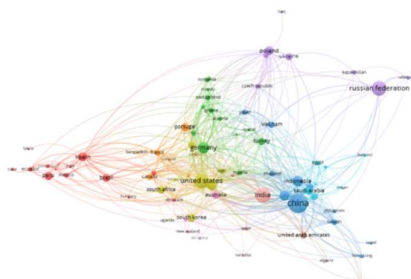
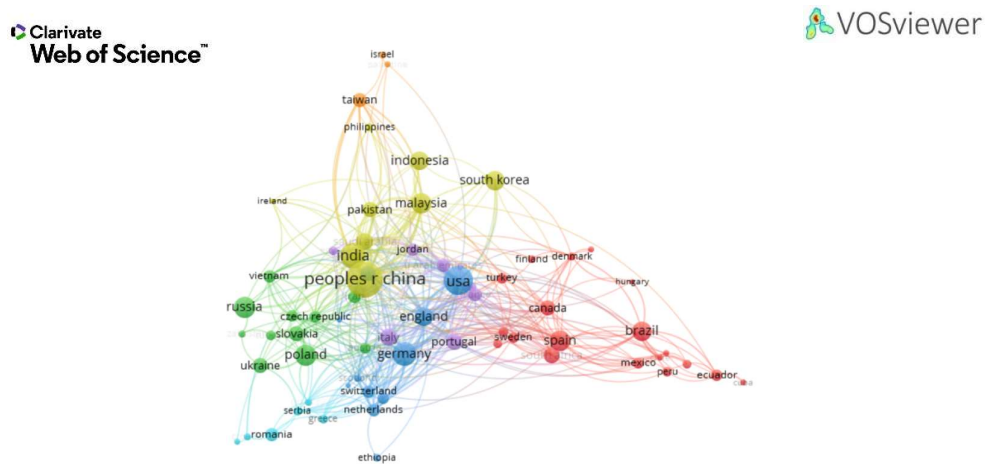


Figure 14: The nationwide network of co-authors for quality management research publications (Web of Science)



Co-Authorship Analysis by Institution

Co-authorship at the institutional level shows much less collaboration between institutions in comparison to individuals and cross-national collaboration. This could be due to the policies, research, or foci at the institution level. Networks of individual authors are likely to be more interconnected than networks of institutions, which may limit the potential to share knowledge and foster creativity and innovative practices (Otitolaiye & Aziz, 2023; Zhang et al., 2019).

The amount of publications suggests that there should be more collaborative research, and the evidence shows that there is less inter-institutional collaboration than expected. The lack of collaboration may be due to differing interests, lack of funding, or lack of resources. Weak inter-institutional linkages are emphasized in Figures 15 and 16 and indicate that collaborative research and knowledge sharing across institutions are likely to be beneficial and fruitful.

The narrowing effect of institutional research strategies and specialization on collaboration is clear. More collaboration across institutions is likely to enhance research and innovation as well as improve the quality and impact of research and publications. Collaborative research and strategic partnerships may be the best way to advance the discipline of quality management.

Figure 15: The national network of institutions that co-author research articles in quality management (Scopus)



Clarivate | VOSviewer

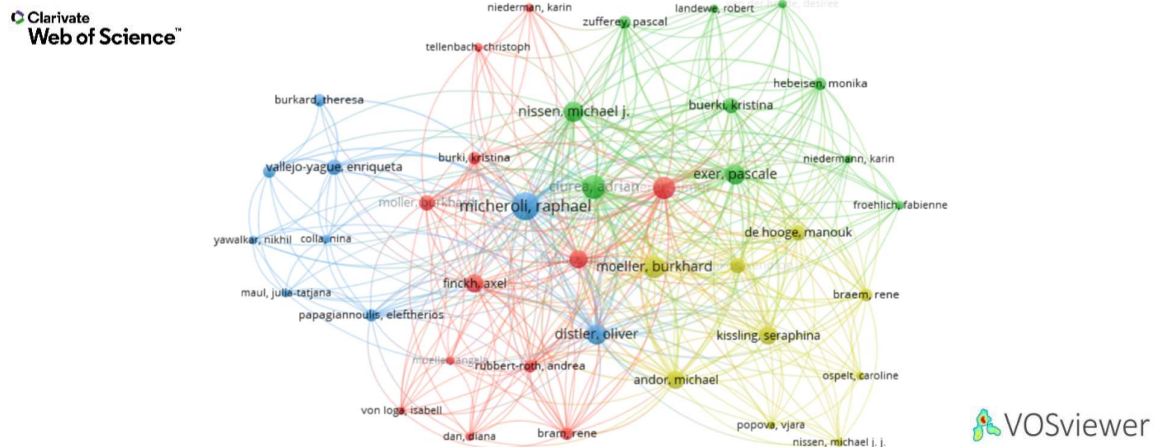
Figures 17 and 18 enable a diagonal bibliographic

Rodriguez Alza is noted within Scopus as having published 13 works with a substantial 472

Total link strength is an indicator of the extent of inter-researcher collaboration and is a measure

Figure 17: Top authors' national network of co-authorship for research articles in

Figure 18: Top authors' national network of co-authorship for research articles in quality management (Web of Science)



Publications with Noteworthy Citation Counts

The most frequent measure of a publication's recognition and influence is its citation count and is directly correlated with the publication's impact. The sample being evaluated consists of the ten most cited articles. To determine the articles most influential to the research of quality management, the articles are documented in Table 3 along with their article titles, journals, authors, years of publication, and citation count (Elsevier, 2025).

The citations show that these articles developed and published many of the theories foundational to quality management. These articles were published in the years of 2020 through 2024. The analysis of citation data shows the most influential journals to be the Stroke and Vascular Neurology, the Journal of Cleaner Production, and the International Journal of Hospitality Management. Each of the journals published articles that are cited and influential to the field of quality management.

The analysis of the articles shows not only the evolution of quality management as a field, but trends and the rigor of the techniques that are fundamental to the field. The research of quality management can be informed by the articles' analyses. Each of the articles describes cited and influential works to the field and active quality management researchers.

Table 3: The top 10 articles with the most citations in Scopus and Web of Science

No	Author(s)/year	Title	Source	Citations	Database
1	Wang et al. (2020)	China Stroke Statistics 2019: A Report from the National Center for Healthcare Quality Management in Neurological Diseases, China National Clinical Research Center for Neurological Diseases, the Chinese Stroke Association, National Center for Chronic and Non-communicable Disease Control and Prevention. Chinese Center for	Stroke and Vascular Neurology	363	Scopus

		Disease Control and Prevention and Institute for Global Neuroscience and Stroke Collaborations			
2	Wang et al. (2020)	China Stroke Statistics 2019: A Report from the National Center for Healthcare Quality Management in Neurological Diseases, China National Clinical Research Center for Neurological Diseases, the Chinese Stroke Association, National Center for Chronic and Non-communicable Disease Control and Prevention, Chinese Center for Disease Control and Prevention and Institute for Global Neuroscience and Stroke Collaborations	Stroke and Vascular Neurology	338	Web of Science
3	Abbas (2020)	Impact of total quality management on corporate green performance through the mediating role of corporate social responsibility	Journal of Cleaner Production	320	Scopus
4	Abbas (2020)	Impact of total quality management on corporate green performance through the mediating role of corporate social responsibility	Journal of Cleaner Production	266	Web of Science
5	Wang et al. (2022)	China Stroke Statistics: an update on the 2019 report from the National Center for Healthcare Quality Management in Neurological Diseases, China National Clinical Research Center for Neurological Diseases, the Chinese Stroke Association, National Center for Chronic and Non-communicable Disease Control and Prevention, Chinese Center for Disease Control and Prevention and Institute for	Stroke and Vascular Neurology	227	Scopus

		Global Neuroscience and Stroke Collaborations			
6	Wang et al. (2022)	China Stroke Statistics: an update on the 2019 report from the National Center for Healthcare Quality Management in Neurological Diseases, China National Clinical Research Center for Neurological Diseases, the Chinese Stroke Association, National Center for Chronic and Non-communicable Disease Control and Prevention, Chinese Center for Disease Control and Prevention and Institute for Global Neuroscience and Stroke Collaborations	Stroke and Vascular Neurology	221	Web of Science
7	Abbas (2020)	Impact of total quality management on corporate sustainability through the mediating effect of knowledge management	Journal of Cleaner Production	199	Scopus
8	Franco et al. (2020)	Are you good enough? CSR, quality management and corporate financial performance in the hospitality industry	International Journal of Hospitality Management	188	Scopus
9	Chiarini (2020)	Industry 4.0, quality management and TQM world. A systematic literature review and a proposed agenda for further research	TQM Journal	163	Scopus
10	Franco et al. (2020)	Are you good enough? CSR, quality management and corporate financial performance in the hospitality industry	International Journal of Hospitality Management	161	Web of Science

Most Cited Papers

Records of the Scopus and Web of Science databases were used to compile the citations of the ten most cited articles in quality management research in Table 3. The articles cover various fields including; quality management, corporate sustainability, hospitality management, and medical articles on stroke and vascular neurology. The number of citations shows that the articles have been influential to other researchers and have possibly brought focus to other areas of research.

Some of the most cited articles are on the integration between quality management and corporate sustainability. For example, in regards to the influence of total quality management on corporate sustainability, Abbas (2020) has publications that are listed multiple times. This shows the interest in the influence of quality management on corporate sustainability and corporate social responsibility in achieving responsible practices. The articles in both databases show the recognition of the articles and their influence.

Additionally, there are articles, such as Wang et al. (2020, 2022), that address the China Stroke Statistics and focus on the importance of research in the field of epidemiology and its influence on the health outcomes of data-based researched in quality management. Franco et al. (2020) have also published articles that have studied the relationship between quality management, corporate social responsibility, and financial performance in the hospitality sector. Chiarini (2020) has published articles that focus on the relationship of total quality management and the Fourth Industrial Revolution and demonstrates the influence of innovative technology in quality management.

These papers point to a research agenda that encompasses corporate sustainability, technology, and performance, as well as specific management quality frameworks by domain. Differences in citation totals in Scopus and Web of Science signify the need for considering the scope of individual databases to accurately assess an imprint.

Co-Citation Analysis

As for co-citation, it is when publications, journals, or authors are cited together, allowing one to assess the structural and relational configurations of a research domain (Liao et al., 2022). Co-citation trends allow for the association of research themes, and the citation of publications and authors of prominence. The study at hand analyzed co-citation and was designed to show the connections between authors, publications, and journals in the domain of quality management.

With respect to trend analysis, co-citation also allows for the recognition of research themes in study clusters that are interrelated, and leads and critical points in the transformation of research topics over a period of time. Network analysis techniques focus on publications that have been co-cited but also allow for the recognition of foundational research and the identification of evolving domains related to them. Many studies highlight that co-citation is an excellent framework to unveil patterns in various domains, and to study the evolution of quality management as a field (Lee & Chang, 2023; Nguyen et al., 2021).

The co-authorship network in Scopus of the ten most cited papers consists of 112,393 authors, of which 131 fulfill the selection criteria. The largest connected set consists of 50 papers and is organized into five disparate clusters. The red cluster includes Fornell C. and Larcker D. among others, and the turquoise cluster includes Saraph J. V. and Sousa R. among others. The green cluster includes Sadikoglu E., Ahire S. L., and Sila I. among others. It contains the most members and is the most interconnected cluster, which suggests a greater degree of collaboration and transfer of knowledge between institutions.

In the Web of Science, the largest red cluster includes Aquilani B., Sciarelli M., and Fotopoulos C.B., while Kaynak H., Saraph J. V., and Nair A. are in the green and turquoise clusters. The networks show that collaboration ties concerning quality management research are across a plurality of institutions and countries. The collaboration is a hallmark of research in quality management, and is largely responsible for its advancement. This collaboration and its structure is most evident in co-authorship, which is especially represented and illustrated. See Figures 19 and 20.

Figure 19: The network of reference co-citations for research publications in the quality management (Scopus)

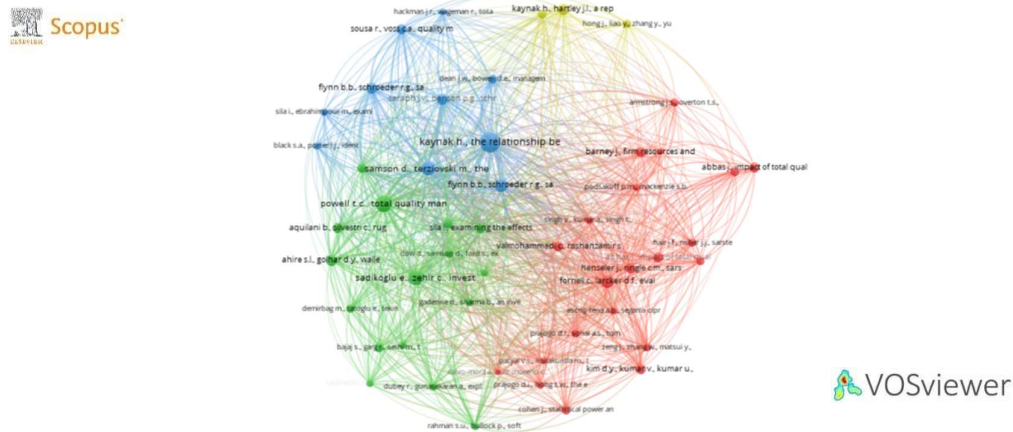
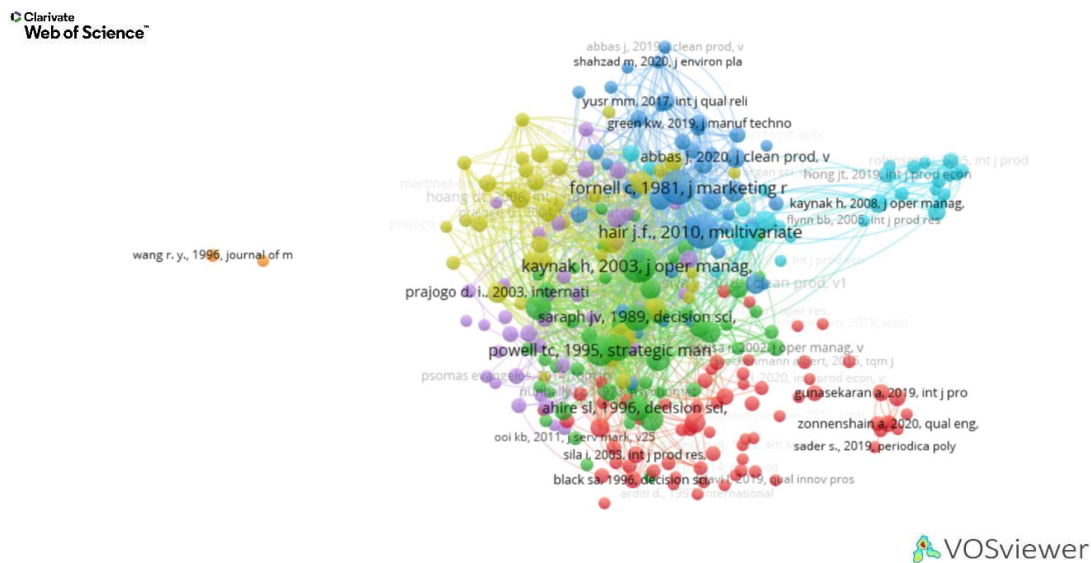


Figure 20: The network of reference co-citations for research publications in the quality management (Web of Science)



Study of Co-Citations among Journals

The Journal co-citation networks for quality management research are shown in Figures 21 and 22. These networks contain 200 nodes. In these networks, nodes are sized based on the number of articles published for that journal, and the distance between nodes depicts relationships based on citation. Those nodes that are cited together will be closer to each other.

The top journals in the Scopus database for total link strength and citation count are Journal of Operations Management, International Journal of Production Economics, and The TQM. These are the primary journals for quality management research and form the building blocks of research in the field. In the Web of Science database, Total Quality Management & Business Excellence, International Journal of Quality & Reliability Management, and Journal of Operations Management are the top journals. This highlights the dominance and reach of these core journals, and the consistency offered by these journals in different databases.

Literature Gaps

QM research has also been limited in the area of the convergence of QM and technology. Many of the advanced technologies, e.g. artificial intelligence and blockchain, are becoming more widely known as facilitators for the enhancement of QM. However, there is little research on the intentional convergence of these technologies across the various functions and domains of an organization. The literature has a tendency to focus on the readiness of an organization to adopt these technologies; and

in doing so, ignores the convergence of the technology with the organizational culture, leadership, and the people within the organization (Bertot et al., 2020; Cordella & Bonina, 2019).

Finally, QM research is limited in the areas of leadership and human capital. While transformational leadership is often the focus of these studies, other leadership styles, e.g. participative or servant leadership, have been largely absent in QM research. The same can be said of the conceptualization of employee engagement, learning and innovativeness, and the QM nexus (Prajogo & Sohal, 2013; Santos-Vijande et al., 2013). These gaps signify that QM research has to be more interdisciplinary in nature, combining technology, leadership, and the human element.

Limitations

There are a few limitations present within this study. The first is the analysis only accounted for publications present in the Scopus and Web of Science databases. Therefore, reports and publications outside of these databases, as well as the 'grey literature', were skipped over. Examples of 'grey literature' include reports, policy briefs, and case studies (Patel et al., 2020; Teece, 2018). The other limitations are the study's reliance on peer-reviewed publications and the time boundary the study operates in. Due to the second of these limitations, this study may have missed some practical implementations. The timeframe this study covers is 2020–2024. The focus on this timeframe may have led to the exclusion of some essential, foundational research. The use of bibliometric research is also a limitation, as this method can only capture quantitative indicators (Murray et al., 2022).

Directions for Future Research

In order to fill existing gaps in QM models, amalgamating innovative technology, leadership, and employee engagement will be essential. The bibliometric research studies can be expanded to include multiple other databases and the grey literature. QM models also need to be sector-specific in healthcare and education, and adapted for various cultural challenges QM models experience in the service sector (Ramos & Silva, 2023; Garvin, 1988).

Using qualitative techniques (e.g., case studies and expert interviews) along with bibliometric methods can shed light on how practices involving multiple organizational components are put into practice. The relationship between specific types of leadership, levels of employee participation, and the use of various technologies needs to be studied if frameworks for performance and sustainability are to be developed. The impact of QM projects on the digitally transforming organizational landscape concerning the advancement of theory and practice will be of significant importance (Nguyen & Kim, 2024; Li et al., 2022).

CONCLUSION

This bibliometric study is the first of its kind to cover the 2020 to 2024 period and provide a detailed account of the state of quality management research, prominent scholars, leading institutions and countries, and the influence of funding. The results reveal the growing interdisciplinary nature of quality management research, and the integration of new QM paradigms with emerging technologies, sustainability, and human capital.

The research identifies a number of gaps, such as the lack of research on QM in specific industries and the integration of all aspects of technology, along with leadership and employee engagement. Analysis of co-authorship and co-citation networks highlighted strong collaboration at both individual and national levels, with relatively weak collaboration at the institutional level, signifying a need for greater collaboration.

It has also been recognized that the higher the number of citations, the more important it is to link quality management with corporate sustainability and organizational performance. Quality management and such innovations as AI and Industry 4.0 are spheres that contribute to building new thinking. The bibliometric results show that quality management (QM) is an emerging field of research and offer starting points for future theoretical and empirical research.

In summary, the advancement of quality management research will require interdisciplinary, integrated, and multi-level approaches that include technology, leadership, and employee engagement and also address sustainability. The promotion of collaboration across institutions, sectors, and countries, as well as the integration of both quantitative and qualitative methods, will be most important for dealing with new challenges and improving the practical and scholarly impact of quality management. This study both describes the current state of research and provides a pathway for future research so that QMR can continue to promote organizational effectiveness and sustainability within a complex and fast changing world.

Conflict of Interest

With regards to this study, the authors have nothing to declare. Those who worked on the study have had input and approved the final manuscript. There do not exist monetary or social connections that would impact the findings in this publication.

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