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RESEARCH ARTICLE

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Challenges and propositions for research in quality management – Relevance gap revisited

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ABSTRACT

This study explores the enduring relevance gap between academic research and practical application in quality management (QM). It assesses how well scholarly literature addresses the key organizational challenges identified by practitioners, aiming to enhance research impact. Employing the Delphi method, the study captures the top practitioner concerns in 2024 and compares them with data from 2012 and 2018. A systematic review of highly cited academic publications is then used to evaluate alignment with these priorities. Findings highlight significant misalignment, especially in areas such as strategic integration, agility, leadership, and co-creation. The research traces the evolution of QM from compliance-oriented models toward innovation-driven approaches, while identifying barriers, including the increasing lag between research production and application. The study emphasizes the need for more timely, practitioner-relevant outputs and advocates for closer researcher–practitioner collaboration. By combining longitudinal practitioner insights with a citation-focused review, this research contributes original evidence on the persistence of the relevance gap and offers strategies for narrowing it. Limitations include the focus on expert input and established literature, which may overlook emerging topics. Practical recommendations involve fostering interdisciplinary collaboration, enhancing knowledge translation, and improving dissemination practices to increase the real-world utility of QM research.

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Introduction

The *relevance gap* refers to the disconnect between academic research and its application in real-world contexts. It emerges when scholarly work emphasizes theory, complexity, or niche topics that overlook practitioners' urgent concerns (Birkinshaw, Lecuona, and Barwise 2016). In management research, this disconnect persists, limiting the impact of academic insights on organizational decision-making (Kieser and Leiner 2009). Hodgkinson and Rousseau (2009) argue for research that is both methodologically sound and practically meaningful.

A key aspect of the gap lies in limited dissemination: academic work is often cited within scholarly circles but rarely reaches or resonates with practitioners (Birkinshaw, Lecuona, and Barwise 2016). This misalignment is driven by factors such as: 1) *practicality*—lack of actionable outcomes; 2) *accessibility*—academic jargon and publishing norms; 3) *timeliness*—delays from peer review and publication cycles; and 4) *engagement*—minimal collaboration with stakeholders.

Bridging the gap requires interdisciplinary collaboration, knowledge translation into accessible formats, and co-production of research with practitioners, industry leaders, and policymakers. One proven approach is the Delphi method, a structured expert consultation process for identifying and prioritizing challenges (Dalkey and Helmer 1963; Linstone and Turoff 1975). Its refinement as a foresight tool is supported by Rowe, Wright, and Bolger (1991), Okoli and Pawlowski (2004), Skulmoski, Hartman, and Krahn (2007), Hsu and Sandford (2007), and Brady (2015).

Given shifting societal conditions—post-pandemic impacts, inflation, and energy crises—this study reassesses the relevance gap in quality management. It uses the Delphi method to identify top challenges, followed by a literature review to evaluate academic engagement and citation impact.

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The evolution of quality management (QM) reflects shifting societal, technological, and organizational landscapes (Eriksson et al. 2016; Fundin et al. 2018). Modern QM extends beyond defect prevention or compliance—it is a strategic driver of innovation, transformation, and continuous improvement. It intersects with broader management domains such as agile practices, strategic change, and workforce development. A key development is the shift of quality ownership from specialists to senior leadership. Early pioneers like W. Edwards Deming (1986) and J.M. Juran (1999) asserted that quality must be a managerial responsibility. Recent studies have confirmed that leadership engagement in quality initiatives enhances organizational performance and employee commitment (Baird, Hu, and Reeve 2011). In an increasingly volatile environment, agility is critical. Agile practices—emphasizing adaptability, collaboration, and iterative delivery (Eisenhardt and Martin 2000)—align well with QM's focus on responsiveness. Integrating agile and quality approaches has been shown to foster innovation, efficiency, and stronger market responsiveness (Sambamurthy, Bharadwaj, and Grover 2003; Teece 2007).

Strategic integration of QM remains a key challenge. Garvin (1988) stressed the need for QM to be embedded within strategic planning, not treated as an ancillary concern. Strategic quality management supports differentiation in competitive markets and strengthens organizational resilience (Prajogo and Sohal 2003; Talib, Rahman, and Qureshi 2012). Organizational cultures grounded in continuous improvement demonstrate greater employee engagement, innovation, and long-term viability (Schein 2010). Leadership and change management are pivotal to effective QM implementation. Kotter's (2007) eight-step model underlines the role of leadership in embedding quality within the cultural fabric of organizations. Transformational leadership—defined by vision, empowerment, and motivation—has been especially effective in promoting quality-driven transformation (Bass and Avolio 1994). Engaging stakeholders, in line with Freeman's (1984) stakeholder theory, is also vital. Incorporating diverse stakeholder perspectives into strategic decision-making enhances organizational legitimacy, trust, and performance (Harrison, Bosse, and Phillips 2010; Rowley 1997). A notable development in QM research is the emphasis on customer co-creation. Prahalad and Ramaswamy (2004) argued that involving customers in quality design and innovation improves satisfaction and market relevance. Vargo and Lusch (2004) reinforced this through their service-dominant logic, highlighting the value of integrating customer feedback into quality processes. Firms that establish robust feedback loops are more likely to sustain improvement and relevance (Grönroos 2007). To build on prior work, we revisit and refine the research questions posed by Fundin et al. (2018):

RQ1: What challenges related to quality management (QM) do practitioners currently face or anticipate in the future?
RQ2: What are the key thematic longitudinal trends of organizational needs?
RQ3: How does QM research address these challenges?
RQ4: What type of QM research can respond to the identified challenges?

By addressing these questions, this study contributes to the ongoing discourse on bridging the research-practice divide, offering a foundation for more impactful and practitioner-oriented research in the field of QM. Theoretically, the study contributes to understanding how QM—as a research field derived from industrial and organizational needs—is interconnected with management research and practice.

This article begins with an overview of the research design, using the Delphi method to identify key organizational challenges ranked by practitioners. A systematic analysis and literature review assess how well these issues are addressed in academic research. Findings from a 12-year longitudinal study (2012, 2018, 2024) reveal gaps between academic discourse and practitioner priorities, particularly in QM. The discussion explores reasons for this misalignment and proposes strategies to enhance research relevance, including interdisciplinary collaboration and improved dissemination. The conclusion highlights key insights, acknowledges limitations, and calls for further empirical studies to better bridge the research-practice divide.

Methodology

Building on the Delphi method's origins (Dalkey and Helmer 1963; Linstone and Turoff 1975), its role as a forecasting tool has evolved through contributions from Rowe, Wright, and Bolger (1991), Okoli and Pawlowski (2004), Skulmoski, Hartman, and Krahn (2007), Hsu and Sandford (2007), and Brady (2015). This study, inspired by ASQ (2013), was conducted in two phases: an inductive Delphi study and a deductive literature review. Drawing on studies from 2012 (Eriksson et al. 2016; Fundin et al. 2018) and 2018 (SIQ 2018), we used an e-Delphi format (Keeney 2010) to build expert consensus (Rescher 1998).

Generation of challenges through three Delphi studies over 12 years

The Delphi study is based on a series of research from 2012 ($n = 390$), 2018 ($n = 376$), and 2024 ($n = 275$) on prioritized organizational challenges. See Table 1.

To initiate the study year 2012, we conducted a workshop with 12 Swedish-based researchers in the quality management (QM) field, all with extensive experience. Using affinity techniques, participants listed future QM challenges on individual Post-it® notes. The notes were then grouped based on similarity and refined into standardized language to eliminate overlapping content. This process resulted in the identification of 65 unique challenges.

A pilot Delphi study was conducted to refine the methodology and further develop the list of challenges. In this stage, 17 QM researchers participated in three rounds of the pilot e-Delphi process. Researchers ranked the top 10 challenges, provided justifications for their selections, and suggested new challenges in each round. This iterative approach allowed for the addition of new challenges and the removal of less significant ones. Feedback from participants helped improve the methodology. After the final review, 38 distinct challenges remained, with duplicates removed. The subsequent Delphi study process resulted in 49 remaining challenges based on respondent ranking and their motivations.

The study year 2018 was conducted in three subsequent stages using the same Delphi study technique. The study was based on the 49 challenges and was conducted as an anonymized survey distributed and collected *via* email. The participants were asked, based on their experiences, to respond, justify, and contribute with their own motivations that they judged would be the most important for organizations in five years. The subsequent Delphi study process resulted in 48 remaining challenges based on respondent ranking and their motivations.

The Delphi study year 2024 planned the data collection like previous studies (2012 and 2018) in three stages to create an in-depth understanding of the challenges of the future. A pilot study was conducted to test the challenges and functionality of the web survey instrument. Participants began by selecting and motivating 10 challenges from an initial list based on the previous study of 48 challenges. In step 2, new insights with new proposed challenges were integrated, which in this year's study meant that six new challenges were highlighted.

All previous justifications received justifications in steps 1 and 2, which meant that they were included throughout the entire study until the ranking in step 3. The participants also had the opportunity to reflect on other participants' perspectives from previous answers in steps 2 and 3. In conclusion, in step 3, the participants have ranked the 10 most significant challenges. Using anonymized digital forms, distributed *via* email through the networks of the Swedish Institute for Quality (SIQ). The study has sought to engage and gather insights from a diverse network of participants to inform future strategies and decisions.

Table 1. Responses throughout the Delphi study process steps over 12 years.

Delphi study process steps (responses)	Year 2012	Year 2018	Year 2024
Step 1	142	170	137
Step 2	122	97	75
Step 3	126	109	73
Total number of responses	390	376	285
No. of new challenges	11	6	6
Total no. of challenges	49	48	54

Source: Author's own work.

Data collection procedure to extend the longitudinal study

The study's data collection process began with a review of previously addressed challenges from the 2018 Delphi study. In February 2024, a survey was developed, followed by a pilot study to test the survey and response functionality. In early March 2024, the first stage of the survey was conducted. The survey was available from March 15 to April 2, 2024, with one reminder sent within this period. A total of 2,188 respondents participated. The order of challenges was determined based on the rankings from the 2018 Delphi study. Challenges were retained if respondents provided justifications for their inclusion, and all challenges received such justifications. The second stage took place in mid-April 2024, with the survey running from April 29 to May 14, 2024, and one reminder was sent during this period. A total of 2,116 respondents participated. In this stage, six new challenges were introduced based on input from the first stage, while the remaining challenges were presented in reverse order compared to the first stage. A new challenge had to be formulated in at least three similar ways to be included, resulting in the introduction of six new challenges from the first stage. No additional challenges met the criteria for inclusion in the third stage. Challenges were retained if respondents provided justifications, and all challenges received such justifications. The third stage took place in mid-May 2024, with the survey running from May 28 to June 12, 2024, and one reminder was sent within this

period. A total of 2,079 respondents participated. The order of challenges in this stage was determined based on the number of votes received in the second stage (see Table 2).

Delphi study data analysis

In the compilation and analysis of the ranking for the Delphi study 2024, the same ranking model (importance weight) was used as in the previous studies from 2012 and 2018. The model is based on a weight distribution that gives a relatively higher value to the challenge ranked highest. The ranking model assigns different weights to responses, ensuring that higher-priority items have a greater influence on the overall analysis. This method prevents all challenges from being treated equally and instead reflects their relative significance. By giving more weight to top-ranked items, the model highlights the most pressing issues while still considering lower-ranked ones. This approach is particularly useful in decision-making, as it ensures that the most critical challenges receive the necessary attention and resources. Additionally, weighting helps maintain consistency across studies, making it easier to track changes in priorities over time (see Table 3).

Ethical declarations

This study was conducted in accordance with established ethical research principles and practices. Participation in all three phases of the Delphi studies (2012, 2018, and 2024) was entirely voluntary. All participants were provided with clear information about the purpose of the study, the nature of their involvement, and their rights as research participants prior to data collection.

Informed consent was obtained from all participants at each stage of the research process. In the 2012 and 2018 studies, participants were informed via accompanying documents distributed through email, and consent was implied through active participation in the ranking and justification tasks. In the 2024 study, the informed consent process was embedded directly into the digital survey platform used for all three rounds. Participants were required to confirm their consent before proceeding to the survey questions.

Anonymity was maintained throughout the Delphi process by utilizing digital forms and anonymized responses. Participants' identities were not disclosed at any point during data collection, analysis, or publication. Data were handled confidentially, and all responses were aggregated to ensure that individual contributions could not be traced back to specific respondents. The study was designed to respect the autonomy, privacy, and confidentiality of all participants, in line with ethical standards for empirical social research.

Formal ethical approval was not required for this study, as it did not involve any intervention, collection of sensitive personal data, or participation from vulnerable populations. The research consisted solely of voluntary,

Table 3. Model for ranking of challenges (importance) in the last and third steps of the Delphi studies.

Rank	Challenge weighting (Points)
1st (Main Challenge)	1.00
2nd (Second Main Challenge)	0.50
3rd (Third Main Challenge)	0.33
4th Challenge	0.25
5th Challenge	0.20
6th Challenge	0.17
7th Challenge	0.14
8th Challenge	0.12
9th Challenge	0.11
10th Challenge	0.10

Source: Author's own work.

Table 2. Data collection procedure in the last Delphi study 2024.

Step	Survey testing	Survey time interval	Reminder sent	Respondent selection	Order of challenges	Criterion for retaining challenges	Criterion for introducing new challenges
Step 1	Early March 2024	March 15, 2024–April 2, 2024	Yes	2,188 respondents	Based on rankings from the Delphi study (2018)	Motivations from respondents	–
Step 2	Mid-April 2024	April 29, 2024–May 14, 2024	Yes	2,116 respondents	Six new challenges were consolidated based on input from Step 1; other challenges were presented in reverse order compared to Step 1	Motivations from respondents	At least three similar formulations
Step 3	Mid-May 2024	May 28, 2024–June 12, 2024	Yes	2,079 respondents	Order based on the number of votes in Step 2	–	–

Source: Author's own work.

anonymized expert surveys on organizational challenges, which fall outside the scope of procedures typically requiring institutional ethical review. Nonetheless, the study adhered to internationally recognized ethical standards, including the core principles of *respect for persons*, *beneficence*, and *justice*, as outlined in the Belmont Report (National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research 1979), and complied with applicable data protection regulations in accordance with the General Data Protection Regulation (European Union 2016).

Literature review design

This literature review was conducted using Avidnote, a digital AI tool for organizing and analyzing academic literature. The review focused on the top 12 ranked challenges identified through Delphi studies conducted in 2012, 2018, and 2024 (see Table 4). By incorporating findings from multiple Delphi cycles over a 12-year span, this study ensured a longitudinal perspective on the most critical challenges in the field.

To better understand potential relevance gaps between research and practice, this study deliberately focused on highly cited research under the assumption that well-cited work is more likely to have been disseminated and integrated into professional practice. The following selection criteria were applied:

- Relevance – Articles directly addressing each of the 12 challenges in the Delphi studies from 2012, 2018, and 2024 were prioritized.
- Citation impact – The most cited research related to each challenge was selected to reflect influential and widely recognized contributions.
- Publication quality – Studies published in peer-reviewed journals and well-cited books were included.

Table 4. The 12 high-ranked challenges from the Delphi studies 2012, 2018, and 2024.

Challenges year 2012, 2018, and 2024 (12 prioritized challenges)	Challenge score (based on weighting)
2012	
1. To transfer the ownership of quality from the quality profession to management	22,3
2. To make the organization agile and adaptable to rapid changes within the business environment	22,2
3. To make systematic quality work a strategic ownership issue***	22,1
4. To develop an improvement culture within the organization**	14,8
5. To persistently lead and implement change**	13,3
6. To design robust processes that are also adaptable to change**	11,2
7. To understand the needs and expectations of our customers and stakeholders***	10,4
8. To engage customers and stakeholders in our improvement efforts**	10,2
9. To improve the operational efficiency for increased competitiveness	10,2
10. To build long-term relationships with customers and stakeholders**	10,1
11. To find ways to use the full potential of employees**	9,9
12. To engage employees in improvement work	9,8
2018	
1. To make systematic quality work a management issue**	21,5
2. To understand the needs and expectations of our customers and stakeholders***	20,4
3. To leverage digital development to improve the organization	17,2
4. To build long-term relationships with customers and stakeholders**	12,6
5. To make systematic quality work a strategic ownership issue***	12,1
6. To recruit employees with relevant competence	10,8
7. To engage customers and stakeholders in our improvement efforts**	10,0
8. To transition the organization toward more economically, socially, and environmentally sustainable development	9,4
9. To develop business models that support new customer needs	7,8
10. To design robust processes that are also adaptable to change**	7,6
11. To ensure that short-term decisions support long-term goals	7,5
12. To adapt the organization to rapid changes in the external environment	7,4
2024	
1. To make systematic quality work a management issue**	12,7
2. To meet short-term and long-term skills supply*	12,6
3. To understand the needs and expectations of our customers and stakeholders***	10,2
4. To develop an organizational culture that supports learning and development*	9,11
5. To design effective management processes	8,7
6. To develop an improvement culture within the organization**	7,6
7. To reduce quality deficiency costs in the organization	6,2
8. To increase the degree of process orientation to become more efficient	6,0
9. To make systematic quality work a strategic ownership issue***	6,0
10. To persistently lead and implement change**	5,3
11. To integrate AI into the business*	5,2
12. To find ways to use the full potential of employees**	4,5

Note: *** indicates that the challenge is addressed in all years; ** indicates that the challenge is addressed in two of the years; * indicates that the challenge is new (introduced in 2024).
Source: Author's own work.

- Relevance and influence – While foundational studies were considered, preference was given to research from the last 35 years to capture developments in dissemination, ensuring historical influence and a better understanding of potential relevance gaps.

Search queries were tailored for each year of challenges to identify the most widely referenced studies. Citation metrics (Google Scholar citation counts) were used to determine the influence of individual articles and books. The data extraction and analysis process involved reviewing each selected study and categorizing it based on key findings related to the challenge and its implications for both research and practice. ChatGPT was used to annotate, compare, and synthesize insights across the selected studies, enabling a structured comparison of how research has evolved and its potential impact on practice.

This study assumes that highly cited research is more likely to be disseminated in practice due to its visibility and influence. The rationale for citation-based selection is that by comparing widely cited research with the persistent challenges identified in Delphi studies, this approach provides insight into whether well-cited academic work aligns with or diverges from the practical challenges faced in the field. For instance, if major challenges identified in 2012 remain unresolved despite extensive research, this may indicate a relevance gap between academia and practice.

This review resulted in a comprehensive list of well-cited research articles corresponding to each of the 36 challenges. The list was subsequently reviewed by the authors and summarized to examine: 1) how each study addressed the respective challenges, and 2) potential relevance gaps between the research findings and the prioritized organizational challenges.

Accordingly, the literature review was structured around the 36 challenges, which included the top 12 challenges identified in 2012, 2018, and 2024, to assess how existing research has addressed these issues over time.

Results

This section presents the findings from the three Delphi studies and the literature review. The Delphi studies provide expert perspectives on organizational challenges over the next 10 years and the trend over the last 12 years, while the literature review situates these insights within the broader research landscape. Together, they highlight the relevance gap between research and practice, offering a nuanced understanding of the status of QM as a research field and its implications for practice.

Results from the Delphi studies

Following RQ1: "What challenges related to quality management (QM) do practitioners currently face or anticipate in the future?" The following section presents the results from the Delphi studies. See Table 4 for an overview of the top 12 prioritized challenges from the years 2012, 2018, and 2024. The following summary highlights how challenges have evolved across the years, showing the increasing integration of technology, alignment with strategic goals, and deeper focus on sustainability and workforce development over time.

The 12 prioritized challenges identified across the Delphi studies from 2012, 2018, and 2024 highlight both enduring priorities and newly emerging concerns for organizations. Some challenges have remained central across all three studies, marked with ***, reflecting their persistent strategic significance. These include *making systematic quality work a strategic ownership issue* and *understanding the needs and expectations of customers and stakeholders*. Their continued presence underscores their foundational role in quality and organizational development.

Challenges marked with ** have appeared in two of the three study years, showing sustained but evolving relevance. These include *developing an improvement culture*, *persistently leading and implementing change*, *designing robust processes that are also adaptable to change, building long-term relationships with customers and stakeholders*, *engaging customers and stakeholders in improvement efforts*, and *making systematic quality work a management issue*. While not present in every round, these challenges point to ongoing themes in managing change, engaging key stakeholders, and embedding quality into everyday operations.

Finally, challenges marked with * are new to the 2024 study, signaling shifts in the organizational landscape and the need to respond to current and future demands. These newly introduced challenges are *meeting short-term and long-term skills supply*, *developing an organizational culture that supports learning and development*, and *integrating AI into the business*. Their emergence reflects the growing importance of talent management, adaptability through learning, and technological integration in achieving sustained organizational success. The evolving challenges identified over the 12-year period indicate several emerging thematic trends in the longitudinal study.

Seven thematic trends of organizational needs across 12 years

Following RQ2: "What are the key thematic longitudinal trends of organizational needs?" The following section presents the results from the analysis of thematic trends. See Table 5 for an overview of how the three Delphi studies reveal patterns of organizational needs that have evolved over the years.

In *1) Quality as a management and strategic issue*, the 2012 focus was on shifting ownership of quality from specialists to management. By 2018, this evolved into making systematic quality work both a management responsibility and a strategic ownership-level priority. The 2024 findings reinforced this trend, emphasizing the continued need to embed quality into core management and strategic decision-making processes. For *2) Customer and stakeholder focus*, organizations in 2012 struggled to understand stakeholder needs, build long-term customer relationships, and involve customers in improvement initiatives. By 2018, these efforts expanded to include active stakeholder engagement and business model adaptations to meet evolving demands. In 2024, the emphasis remained on aligning with stakeholder expectations and ensuring organizations could effectively address these needs. The need for *3) Organizational agility and adaptability* first emerged in 2012, as organizations sought ways to respond quickly to change. By 2018, adaptability had become more structured, balancing the need for flexibility with process robustness. In 2024, agility remained a key challenge, now with a stronger emphasis on sustained change leadership to navigate an increasingly dynamic environment. *4) Employee engagement and talent utilization* were already concerns in 2012, with a focus on engaging employees and fully leveraging their potential. By 2018, this focus shifted toward recruiting employees with relevant skills and involving them in sustainability-driven initiatives. By 2024, the challenge had evolved further, requiring organizations to address both short-term and long-term skills gaps while continuing to maximize employee potential. For *5) Process design and improvement*, organizations in 2012 aimed to develop processes that were both adaptable and robust, alongside improving operational efficiency. By 2018, challenges included ensuring that short-term decisions aligned with long-term goals and designing flexible processes. In 2024, the emphasis shifted to increasing efficiency, reducing costs related to quality deficiencies, and maintaining a strong process-oriented approach. *6) Technology and digital transformation* were not discussed in 2012, but had become a priority by 2018, as organizations sought to leverage digital tools for performance improvement. By 2024, this focus had advanced further, with artificial intelligence (AI) being integrated into business processes, reflecting a growing reliance on technology to drive quality improvements. Sustainability was not a priority in 2012, but by 2018, organizations recognized the need to incorporate *7) Sustainability* into their strategies, addressing economic, social, and environmental concerns. Although sustainability was not explicitly highlighted in 2024, it appeared to be embedded within other priorities, such as cost reduction and process efficiency improvements. These evolving themes demonstrate how organizational needs have shifted over time,

Table 5. Seven thematic trends of organizational needs across 12 years.

Thematic trends	2012	2018	2024
Quality as a management and strategic issue	Shifting ownership of quality from professionals to management	Making systematic quality work a management responsibility and strategic priority	Embedding quality into core management and strategic decision-making
Customer and stakeholder focus	Understanding stakeholder needs, involving customers in improvement, building long-term relationships	Engaging stakeholders in improvement, adapting business models to customer needs	Aligning with stakeholder expectations, addressing needs effectively
Organizational agility and adaptability	Call for organizations to be agile and adaptable	Adapting processes to external changes, ensuring robustness and flexibility	Persistent change leadership to navigate dynamic environments
Employee engagement and talent utilization	Engaging employees and leveraging their potential	Recruiting relevant skills, engaging in sustainability-driven initiatives	Addressing skills gaps, using employee potential, and developing an organizational culture that supports learning and development
Process design and improvement	Creating robust and adaptable processes, improving operational efficiency	Aligning short-term decisions with long-term goals, designing flexible processes	Increasing process efficiency, reducing quality deficiency costs, and maintaining process orientation
Technology and digital transformation	Not explicitly mentioned	Leveraging digital tools to improve performance	Integrating AI into business processes for quality improvement
Sustainability	Not explicitly mentioned	Steering toward economic, social, and environmental sustainability	Integrated into other priorities like reducing costs and improving efficiency

Source: Author's own work.

reflecting the increasing complexity and interconnectedness of quality, adaptability, technology, and sustainability in modern business environments.

Results from the literature review

Following RQ3: "How does QM research address these challenges?" The following section presents the literature that addresses each of the challenges. The purpose of the literature review is to understand how much research covers the prioritized challenges and to better understand potential relevance gaps. The literature review that used each of the 12 challenges from 2012, 2018, and 2024 is presented, respectively, regarding how each of the challenges is addressed in the literature. By exploring the academic discourse surrounding these challenges, this review seeks to illuminate the extent of existing research and identify potential gaps for future inquiry (see Table 6).

Table 6. Well-cited literature containing research that addresses the highly ranked and prioritized challenges from 2012, 2018, and 2024.

Challenge	Year	Author(s) & Year	Title	No. of citations
To transfer the ownership of quality from the quality profession to management	2012	Baird, Hu, and Reeve (2011)	"The Relationships Between Organizational Culture, Total Quality Management Practices and Operational Performance"	641
		Deming (1986)	*Out of the Crisis*	31,846
		Juran (1999)	*Juran's Quality Handbook*	8361
		Oakland (2014)	*Total Quality Management and Operational Excellence: Text with Cases*	2097
To make the organization agile and adaptable to rapid changes within the business environment	2012	Eisenhardt and Martin (2000)	"Dynamic Capabilities: What Are They?"	26,413
		Sambamurthy, Bharadwaj, and Grover (2003)	"Shaping Agility Through Digital Options: Reconceptualizing the Role of Information Technology in Contemporary Firms"	4883
		Teece (2007)	"Explicating Dynamic Capabilities: The Nature and Microfoundations of (Sustainable) Enterprise Performance"	20,107
To improve the operational efficiency for increased competitiveness	2012	Kaplan and Norton (1992)	"The Balanced Scorecard: Measures That Drive Performance"	13,540
		Womack and Jones (1997)	*Lean Thinking—Banish Waste and Create Wealth in Your Corporation*	18,379
		Womack and Jones (2015)	*Lean Solutions: How Companies and Customers Can Create Value and Wealth Together*	914
To engage employees in improvement work	2012	Kirkpatrick and Kirkpatrick (2006)	*Evaluating Training Programs: The Four Levels*	16,805
		Saks (2006)	"Antecedents and Consequences of Employee Engagement"	11,042
		Schein (2010)	*Organizational Culture and Leadership*	79,831
To build long-term relationships with customers and stakeholders	2012, 2018	Berry (1995)	"Relationship Marketing of Services—Growing Interest, Emerging Perspectives"	6779
		Kujala et al. (2022)	"Stakeholder Engagement: Past, Present, and Future"	462
		Morgan and Hunt (1994)	"The Commitment-Trust Theory of Relationship Marketing"	39,225
		Reinartz and Kumar (2002)	"The Mismanagement of Customer Loyalty"	1788
To design robust processes that are also adaptable to change	2012, 2018	Badakhshan et al. (2020)	"Agile Business Process Management: A Systematic Literature Review and an Integrated Framework"	166
		Davenport (1993)	*Process Innovation: Reengineering Work Through Information Technology*	12,432
		Hammer and Champy (2009)	*Reengineering the Corporation: A Manifesto for Business Revolution*	24,293
		Hammer and Stanton (1999)	"How Process Enterprises Really Work"	1065
		Harrison, Bosse, and Phillips (2010)	*Managing for Stakeholders, Stakeholder Utility Functions, and the Competitive Advantage*	1873
		Womack and Jones (1997)	*Lean Thinking—Banish Waste and Create Wealth in Your Corporation*	18,379
To engage customers and stakeholders in our improvement efforts	2012, 2018	Grönroos (2007)	*Service Management and Marketing: Customer Management in Service Competition*	1883
		Bovens, Goodin, and Schillemans (2008)	*The Oxford Handbook of Public Accountability*	2452
		Edelman (2010)	*Branding in the Digital Age*	1107
		Prahalad and Ramaswamy (2004)	"Co-Creation Experiences: The Next Practice in Value Creation"	10,454
		Vargo and Lusch (2004)	"Evolving to a New Dominant Logic for Marketing"	24,226
To understand the needs and expectations of our customers and stakeholders	2012, 2018, 2024	Freeman (1984)	*Strategic Management: A Stakeholder Approach*	64,773
		Grönroos (1994)	"From Marketing Mix to Relationship Marketing: Toward a Paradigm Shift in Marketing"	1025
		Harrison, Bosse, and Phillips (2010)	"Managing for Stakeholders, Stakeholder Utility Functions, and the Competitive Advantage"	1873
		Kumar and Reinartz (2016)	"Creating Enduring Customer Value"	1296
		Lusch and Vargo (2014)	"Service-Dominant Logic: Premises, Perspectives, Possibilities"	2183
		Meyer and Schwager (2007)	"Understanding Customer Experience"	3868
		Parasuraman, Zeithaml, and Berry (1988)	"SERVQUAL: A Multiple-Item Scale for Measuring Consumer Perceptions of Service Quality"	50,684
		Rowley (1997)	"Moving Beyond Dyadic Ties: A Network Theory of Stakeholder Influences"	4340

(*Continued*)

Table 6. Continued.

Challenge	Year	Author(s) & Year	Title	No. of citations
To make systematic quality work a strategic ownership issue	2012, 2018, 2024	Baird, Hu, and Reeve (2011)	"The Relationships Between Organizational Culture, Total Quality Management Practices and Operational Performance"	685
		Dahlgaard et al. (2013)	"Business Excellence Models: Limitations, Reflections and Further Development"	297
		Deming (1986)	*Out of the Crisis*	31,624
		Garvin (1987)	"Competing on the Eight Dimensions of Quality"	4319
		Garvin (1988)	"Managing Quality: The Strategic and Competitive Edge"	5969
		Hendricks and Singhal (1997)	"Does Implementing an Effective TQM Program Actually Improve Operating Performance?"	1463
		Juran (1999)	*Juran's Quality Handbook*	8443
		Kaynak (2003)	"The relationship between total quality management practices and their effects on firm performance"	3270
		Prajogo and Sohal (2003)	"The Relationship Between TQM Practices, Quality Performance, and Innovation Performance: An Empirical Examination"	1119
		Sadikoglu and Zehir (2010)	"Investigating the effects of innovation and employee performance on the relationship between total quality management practices and firm performance: An empirical study of Turkish firms"	1071
		Samson and Terziovski (1999)	"The Relationship Between Total Quality Management Practices and Operational Performance"	2632
		Spencer (1994)	"Models of Organization and Total Quality Management: A Comparison and Critical Evaluation"	954
		Talib, Rahman, and Qureshi (2012)	"Total Quality Management in the Service Sector: A Literature Review"	160
To develop an improvement culture within the organization	2012, 2024	Bessant, Caffyn, and Gallagher (2001)	"An Evolutionary Model of Continuous Improvement Behavior"	991
		Imai (1986)	*Kaizen: The Key to Japan's Competitive Success*	7211
		Kotter (2007)	"Leading Change: Why Transformation Efforts Fail"	14,232
		Schein (2010)	"Organizational Culture and Leadership"	79,831
To persistently lead and implement change	2012, 2024	Armenakis and Bedeian (1999)	"Organizational Change: A Review of Theory and Research in the 1990s"	3296
		Armenakis, Harris, and Mossholder (1993)	"Creating Readiness for Organizational Change"	4080
		Bass and Avolio (1994)	"Improving Organizational Effectiveness Through Transformational Leadership"	12,758
		Kotter (2007)	"Leading Change: Why Transformation Efforts Fail"	14,232
To find ways to use the full potential of employees	2012, 2024	Bakker and Demerouti (2007)	"The Job Demands-Resources Model: State of the Art"	18,975
		Edmondson (1999)	"Psychological Safety and Learning Behavior in Work Teams"	15,575
		Harter, Schmidt, and Hayes (2002)	"Business-Unit-Level Relationship Between Employee Satisfaction, Employee Engagement, and Business Outcomes: A Meta-Analysis"	10,214
		Kahn (1990)	"Psychological Conditions of Personal Engagement and Disengagement at Work"	21,204
To leverage digital development to improve the organization	2018	Bharadwaj et al. (2013)	"Digital Business Strategy: Toward a Next Generation of Insights"	5794
		Kane et al. (2015)	"Is Your Business Ready for a Digital Future?"	394
		Westerman, Bonnet, and McAfee (2014)	"Leading Digital: Turning Technology into Business Transformation"	2637
To recruit employees with relevant competence	2018	Backhaus and Tikoo (2004)	"Conceptualizing and Researching Employer Branding"	3781
		Barney (1991)	"Firm Resources and Sustained Competitive Advantage"	108,575
		Collings and Mellahi (2009)	"Strategic Talent Management: A Review and Research Agenda"	3565
To transition the organization toward more economically, socially, and environmentally sustainable development	2018	Elkington and Rowlands (1999)	*Cannibals with Forks: The Triple Bottom Line of twenty first Century Business*	22,351
		Porter and Kramer (2006)	"The Link Between Competitive Advantage and Corporate Social Responsibility"	19,592
		Senge (1990)	*The Fifth Discipline: The Art and Practice of the Learning Organization*	84,199
To develop business models that support new customer needs	2018	Chesbrough (2010)	"Business Model Innovation: Opportunities and Barriers"	7127
		Teece (2010)	"Business Models, Business Strategy and Innovation"	14,547
To ensure that short-term decisions support long-term goals	2018	Kaplan and Norton (2000)	*The Strategy-Focused Organization: How Balanced Scorecard Companies Thrive in the New Business Environment*	10,201
		Niven (2005)	*Balanced Scorecard Diagnostics: Maintaining Maximum Performance*	446
To adapt the organization to rapid changes in the external environment	2018	Kotter (2007)	"Leading Change: Why Transformation Efforts Fail"	14,232
		Teece, Pisano, and Shuen (1997)	*Dynamic Capabilities and Strategic Management*	56,112
		Tushman and O'Reilly (1996)	"The Ambidextrous Organization: Managing Evolutionary and Revolutionary Change"	8022
To make systematic quality work a management issue	2018, 2024	Deming (1986)	*Out of the Crisis*	31,846
		Sadikoglu and Zehir (2010)	"Investigating the effects of innovation and employee performance on the relationship between total quality management practices and firm performance: An empirical study of Turkish firms"	1070

(*Continued*)

Table 6. Continued.

Challenge	Year	Author(s) & Year	Title	No. of citations
To meet short-term and long-term skills supply	2024	Allen and De Weert (2007)	"What do educational mismatches tell us about skill mismatches? A cross-country analysis"	303
		Noe (2008)	*Employee Training and Development*	5121
To develop an organizational culture that supports learning and development	2024	Edmondson (1999)	"Psychological Safety and Learning Behavior in Work Teams"	15,575
		Marsick and Watkins (2003)	"Demonstrating the Value of an Organization's Learning Culture: The Dimensions of the Learning Organization Questionnaire"	2454
		Schein (2010)	*Organizational Culture and Leadership*	79,831
To design effective management processes	2024	Bessant and Caffyn (1997)	"High Involvement Innovation Through Continuous Improvement"	1090
		Womack and Jones (1997)	*Lean thinking—banish waste and create wealth in your corporation*	18,379
To reduce quality deficiency costs in the organization	2024	Crosby (1979)	*Quality Is Free: The Art of Making Quality Certain*	14,242
		Juran (1999)	*Juran's Quality Handbook*	8361
		Kaynak (2003)	"The relationship between total quality management practices and their effects on firm performance"	3247
To increase the degree of process orientation to become more efficient	2024	Davenport (1993)	*Process innovation: Reengineering work through information technology*	12,432
		Hammer and Champy (2009)	*Reengineering the Corporation: A Manifesto for Business Revolution*	24,160
To integrate AI into the business	2024	Brynjolfsson and McAfee (2014)	*The Second Machine Age: Work, Progress, and Prosperity in a Time of Brilliant Technologies*	13,529
		Davenport and Ronanki (2018)	"AI for the Real World"	2481

Source: Author's own work.

The evolution of organizational challenges from 2012 to 2024 reflects a shift from traditional quality and efficiency concerns to broader systemic issues such as sustainability, digital transformation, and workforce adaptability. While foundational themes like QM, stakeholder focus, and process improvement have remained central, their interpretations and implementations have deepened in complexity. Leadership, culture, and strategic alignment have emerged as recurring enablers across all themes, suggesting that technical solutions must be complemented by human-centered and values-driven approaches. As organizations face an increasingly complex and dynamic environment, their ability to integrate these themes holistically seems to be key to sustainable success.

Research on the seven thematic trends of organizational needs across 12 years

This section explores the evolving landscape of organizational challenges over the past decade, focusing on the comparative insights from 2012, 2018, and 2024. Drawing on the literature review, it examines how seven thematic trends—such as quality management, stakeholder engagement, agility, employee involvement, process improvement, technological advancement, and sustainability—have developed in response to changing external demands and internal capabilities. By analyzing these themes, the section highlights both the progress made and the persistent barriers that organizations face in aligning strategic intent with operational development. This comparative review provides a foundation for understanding how organizations can better navigate complexity and build resilience in an era of rapid transformation.

Quality as a management and strategic issue

In 2012, quality management was already recognized as a strategic priority, requiring a cultural transformation where quality was no longer confined to a department but integrated organization-wide (Deming 1986; Juran 1999; Oakland 2014). At the time, a strategic approach to quality was increasingly seen as a source of competitive advantage and a facilitator of resilience (Garvin 1988; Prajogo and Sohal 2003; Talib, Rahman, and Qureshi 2012).

By 2018, the role of leadership in embedding quality into organizational culture had become more prominent. Quality evolved from a technical focus to a central management concern, demanding alignment with strategic objectives (Baird, Hu, and Reeve 2011; Dahlgaard et al. 2013; Spencer 1994). The shift required leadership to actively champion quality, supporting Garvin's (1987) and Hendricks and Singhal's (1997) view of quality as a strategic asset.

In 2024, quality remained a priority, but challenges persisted in embedding it systematically within core operations. Despite long-standing frameworks (Deming 1986; Juran 1999), many organizations still struggled with implementation (Kaynak 2003). The financial impact of poor quality was also more visible, underscoring the need for better methodologies to assess and reduce quality deficiency costs (Crosby 1979; Sadikoglu and Zehir 2010). The need for a

process-oriented approach remained critical but required overcoming cultural resistance (Davenport 1993; Hammer and Champy 2009).

Customer and stakeholder focus

In 2012, customer and stakeholder engagement were seen as central to aligning strategies with market expectations. Freeman's (1984) stakeholder theory gained prominence, emphasizing inclusive decision-making. The shift toward co-creation (Prahalad and Ramaswamy 2004) and value co-production (Vargo and Lusch 2004) was recognized for enhancing customer loyalty and satisfaction, with feedback integration emerging as a key driver of agility (Grönroos 2007; Rowley 1997).

By 2018, customer insights had become embedded in quality management through concepts such as the voice of the customer (VoC), influencing service quality (Grönroos 1994; Parasuraman, Zeithaml, and Berry 1988). Stakeholder engagement broadened to include proactive relationship management and innovation (Edelman 2010; Kujala et al. 2022). Relationship marketing (Morgan and Hunt 1994) and trust-based communication were deemed essential for sustainable stakeholder relationships.

In 2024, the integration of AI into engagement strategies introduced both promise and complexity. Organizations leveraged analytics to derive deeper insights (Kumar and Reinartz 2016; Lusch and Vargo 2014), yet many still faced challenges in operationalizing these insights (Meyer and Schwager 2007). Co-creation and structured engagement (Prahalad and Ramaswamy 2004) remained relevant, particularly in aligning diverse stakeholder expectations. AI's ethical and data-related challenges required additional exploration (Brynjolfsson and McAfee 2014; Davenport and Ronanki 2018).

Organizational agility and adaptability

In 2012, agility was increasingly framed as a dynamic capability that enabled both responsiveness and anticipation of change (Eisenhardt and Martin 2000). Flexible processes, decentralized decision-making, and real-time data use were identified as mechanisms for agility (Sambamurthy, Bharadwaj, and Grover 2003; Teece 2007). Kotter's (1996) change management framework and transformational leadership (Bass and Avolio 1994) underlined the human factors critical for agile transformation.

By 2018, the concept of dynamic capabilities (Teece, Pisano, and Shuen 1997) had matured, reinforcing agility as a strategic necessity in volatile environments. Process design played a foundational role, with lean and agile methodologies (Hammer and Champy 2009; Womack and Jones 1997) emphasizing flexibility. Research highlighted the challenge of balancing short-term pressures with long-term strategic goals (Kaplan and Norton 2000), and the need for adaptable processes (Harrison et al. 2010).

By 2024, agility was viewed through the lens of workforce development and skills supply. The skills mismatch between education and job requirements (Allen and De Weert 2007) posed a major challenge, prompting investment in continuous learning (Noe 2008). Organizational culture was identified as both an enabler and a barrier to adaptability (Schein 2010). Learning cultures fostered innovation and responsiveness (Marsick and Watkins 2003), but hierarchical structures often inhibited these transformations (Edmondson 1999).

Employee engagement and talent utilization

In 2012, employee engagement was framed as a strategic enabler of innovation and productivity. Research highlighted autonomy, development opportunities, and recognition as key engagement drivers (Bakker and Demerouti 2007; Kahn 1990; Saks 2006). Engagement in decision-making and continuous improvement was shown to enhance commitment (Kirkpatrick and Kirkpatrick 2006), reinforcing leadership's role in fostering a supportive environment.

By 2018, the conversation expanded to include talent management and employer branding as strategies for attracting and retaining high-potential employees (Backhaus and Tikoo 2004; Barney 1991). The emphasis on value alignment and strategic recruitment gained ground (Collings and Mellahi 2009). Engagement became linked to learning and adaptability, with change-readiness deemed essential for innovation (Kotter 2007; Tushman and O'Reilly, 1996).

In 2024, employee engagement was closely tied to continuous improvement cultures, such as kaizen (Bessant, Caffyn, and Gallagher 2001; Imai 1986). Empowerment and psychological safety (Kahn 1990) remained foundational, but implementation was challenged by structural rigidity (Edmondson 1999). Research continued to call for supportive leadership and inclusive cultures to unlock employee potential and sustain improvement efforts (Schein 2010).

Process design and improvement

In 2012, the challenge lay in balancing standardization with flexibility. Business process reengineering (Hammer and Stanton 1999) and lean principles (Womack and

Jones, 1997) were widely adopted to eliminate inefficiencies while maintaining agility. Performance measurement systems were used to drive improvement (Kaplan and Norton 1992), and rigid systems were criticized for stifling innovation (Davenport 1993).

By 2018, process orientation had become central to operational excellence. Processes needed to be both adaptable and efficient (Hammer and Champy 2009). Continuous improvement frameworks like Six Sigma and lean were key tools for waste reduction and customer satisfaction (Womack and Jones 1997). Participatory approaches such as co-creation (Bovens, Goodin, and Schillemans 2008; Prahalad and Ramaswamy 2004) were increasingly used to incorporate diverse inputs into process improvement.

In 2024, process orientation continued to dominate, with kaizen reinforcing a culture of continuous improvement (Bessant, Caffyn, and Gallagher 2001). However, transitioning to a process-oriented structure required overcoming internal resistance (Davenport 1993). The integration of advanced technologies and analytics into processes brought both opportunities and the need for new change management strategies (Hammer and Champy 2009).

Technology and digital transformation

In 2012, technology was not yet a dominant theme in organizational challenges. While digital tools supported agility (Teece 2007), there was little focus on full-scale digital transformation or systemic innovation.

By 2018, digital transformation had gained strategic prominence. The adoption of digital tools was linked to efficiency and customer experience improvements (Bharadwaj et al. 2013; Westerman, Bonnet, and McAfee 2014). Successful digital transformation required cultural change, not just technological implementation (Kane et al. 2015). Business model innovation emerged as a strategy for aligning with shifting market dynamics (Chesbrough 2010; Teece 2010).

In 2024, the role of AI in transforming organizations was front and center. AI enhances decision-making and innovation (Brynjolfsson and McAfee 2014), but challenges such as data quality, skill gaps, and ethical concerns persisted (Davenport and Ronanki 2018). The literature calls for frameworks that integrate AI into operations while aligning with human-centered values and organizational culture.

Sustainability

In 2012, sustainability had not yet emerged as a central organizational concern. While social responsibility existed in discourse, environmental and systemic sustainability were not widely adopted as strategic imperatives.

By 2018, sustainability had gained significant traction, influenced by the triple bottom line framework (Elkington and Rowlands 1999). Strategic corporate social responsibility (CSR) practices were viewed as vehicles for creating shared value (Porter and Kramer 2006). Learning and systems thinking were recognized as enablers of sustainability efforts (Senge 1990), and organizations were encouraged to integrate social, economic, and environmental goals.

In 2024, sustainability was framed as an essential component of long-term competitiveness. Research highlighted the need to balance profitability with societal and environmental responsibilities (Porter and Kramer 2006). Innovative approaches were required to align short-term operations with long-term sustainability goals, particularly in reducing environmental impact. The integration of sustainability into strategy was now seen as a potential source of differentiation and stakeholder loyalty.

Discussion

Following the final research question, "What type of QM research can respond to the identified challenges?" the following section presents a discussion on the current status and future pathways. Building on the previously addressed research questions, this discussion examines how QM should evolve to support organizations facing challenges, such as strategic integration, technological advancements, and shifting stakeholder expectations. It explores how *QM research addresses these challenges* and identifies *key thematic longitudinal trends of organizational needs*, highlighting how priorities such as agility, digital transformation, and sustainability have shaped QM practices over time. Furthermore, this section investigates *what type of QM research can respond to the identified challenges*, ensuring that future studies provide actionable insights for organizations striving for continuous improvement.

Evolving trends in QM: A 12-year longitudinal perspective

Over the past 12 years, organizations have undergone a significant transformation, driven by seven key thematic trends that have reshaped management priorities and operational strategies. *Quality as a management*

and strategic issue has evolved from being a professional concern to a core management responsibility, becoming deeply embedded in strategic decision-making. Businesses have recognized that quality must be a leadership priority rather than solely the domain of professionals, ensuring it is integrated into every aspect of operations. At the same time, *customer and stakeholder focus* has shifted from simply understanding needs and fostering relationships to actively aligning business models with stakeholder expectations. Organizations have moved from a reactive approach to a proactive stance, ensuring that their services and strategies remain relevant and competitive. This evolution has been supported by a growing emphasis on *organizational agility and adaptability*. Where flexibility was once an emerging requirement, it is now an essential leadership capability, enabling businesses to navigate rapid changes and uncertainty with resilience. *Employee engagement and talent utilization* have also undergone significant change. Organizations initially focused on engaging employees and leveraging their potential, but have since recognized the importance of addressing skills gaps and fostering sustainable talent development. The ability to harness employee expertise has become a crucial factor in maintaining a competitive and future-ready workforce. In parallel, *process design and improvement* have progressed from building robust and adaptable systems to ensuring that operational efficiency aligns with both short-term objectives and long-term strategic goals. Businesses today prioritize efficiency, cost reduction, and a structured approach to quality improvement.

Technology and digital transformation, which were once peripheral concerns, have become central to business success. The integration of digital tools and artificial intelligence now plays a crucial role in enhancing performance, optimizing processes, and maintaining high-quality standards. Alongside technological advancements, *sustainability* has transitioned from an overlooked concept to a key strategic priority. Once seen as an optional initiative, sustainability is now embedded in business models, influencing cost efficiency, environmental responsibility, and long-term growth. These evolving trends highlight the continuous need for organizations to adapt, innovate, and integrate strategic priorities that drive long-term success in an increasingly complex and dynamic business and organizational landscape. The transformation over the past 12 years underscores the importance of leadership in fostering resilience, engagement, and sustainable progress.

Relevance-gap revisited: Research addressing top-ranked organizational challenges

Quality as a management and strategic issue necessitates a shift from being solely the responsibility of quality professionals to becoming a core managerial function. Research underscores the importance of integrating QM across all levels of an organization (Deming 1986; Juran 1999). Management's commitment fosters a culture of collective ownership (Oakland 2014), positioning quality as a strategic asset aligned with overarching business goals (Garvin 1988). This integration enhances competitiveness and adaptability (Prajogo and Sohal 2003), reinforcing the role of quality in long-term success (Talib, Rahman, and Qureshi 2012).

Customer and stakeholder focus is crucial in aligning organizational strategies with market expectations. Freeman's (1984) stakeholder theory highlights the necessity of addressing diverse stakeholder interests. Effective engagement builds trust, enhances collaboration (Rowley 1997), and fosters co-creation in quality improvement (Prahalad and Ramaswamy 2004). Incorporating customer feedback into decision-making enhances satisfaction and organizational responsiveness (Grönroos 2007). Models such as SERVQUAL (Parasuraman, Zeithaml, and Berry 1988) emphasize aligning service quality with customer expectations to sustain competitive advantage.

Organizational agility and adaptability enable companies to navigate volatile business environments effectively. Agile organizations anticipate and respond to change by adopting flexible processes and decentralized decision-making (Eisenhardt and Martin 2000; Sambamurthy, Bharadwaj, and Grover 2003). Technology supports agility by facilitating real-time analytics and decision-making (Teece 2007). Change management frameworks, such as Kotter's (1996) eight-step model, highlight the importance of leadership and communication in driving transformation. Developing a culture of learning and adaptability enhances resilience (Schein 2010), positioning organizations to balance short-term performance with long-term strategic objectives (Kaplan and Norton 2000).

Employee engagement and talent utilization are vital for fostering innovation and productivity. Employees thrive in environments that promote autonomy, skill development, and recognition (Bakker and Demerouti 2007; Kahn 1990). Engaging employees in decision-making enhances commitment to continuous improvement (Kirkpatrick and Kirkpatrick 2006). Talent management strategies, including employer branding and

skill development, attract and retain top talent (Backhaus and Tikoo 2004; Collings and Mellahi 2009). Organizational culture plays a pivotal role in nurturing engagement, as employees who feel valued contribute more effectively to improvement initiatives (Kotter 2007).

Process design and improvement are key to balancing standardization with flexibility. Lean management principles advocate for eliminating waste and optimizing workflows (Womack and Jones, 1997). Process reengineering enhances efficiency while maintaining adaptability (Hammer and Stanton 1999). Performance measurement frameworks, such as the balanced scorecard (Kaplan and Norton 1992), drive continuous improvement. Participatory approaches to process improvement, including co-creation (Prahalad and Ramaswamy 2004), result in more effective and innovative solutions (Davenport 1993).

Technology and digital transformation play a central role in driving efficiency and innovation. Digital adoption enhances operational processes, customer experiences, and strategic agility (Bharadwaj et al. 2013; Westerman, Bonnet, and McAfee 2014). However, successful transformation requires cultural shifts alongside technological upgrades (Kane et al. 2015). Business model innovation enables firms to align with evolving market conditions (Teece 2010), ensuring sustained competitiveness (Chesbrough 2010).

Sustainability has become an imperative for long-term organizational success. The triple bottom line framework integrates economic, social, and environmental considerations (Elkington and Rowlands 1999). Aligning sustainability initiatives with competitive strategy fosters shared value (Porter and Kramer 2006), enhancing corporate reputation and resilience. Organizational learning fosters sustainability by embedding systemic thinking and cross-stakeholder collaboration (Senge 1990), ensuring sustainable growth and innovation.

Bridging the gap: The role of timeliness in a rapidly evolving landscape

Organizations today are constantly evolving, often driven by technological advances, regulatory changes, shifting consumer preferences, or unforeseen global events. As a result, practitioners are under immense pressure to make decisions based on the most current and relevant data. However, traditional research methodologies often do not align with this urgency. It seems that management research still faces a gap between academic studies and practical application, as explained by Birkinshaw, Lecuona, and Barwise (2016). Although rigorous research advances theoretical knowledge, it often has a limited impact on organizational decision-making (Kieser and Leiner 2009). As stated by Hodgkinson and Rousseau (2009), there is a need for research that is both methodologically rigorous and practically relevant to address modern management complexities.

The lifespan of research: A growing disparity

Research, by its nature, follows a lengthy and methodical process that includes stages like hypothesis formulation, data collection, analysis, peer review, and eventual publication. This timeline can stretch over months or even years, especially for comprehensive studies or longitudinal analyses. By the time such research reaches practitioners, the findings may already be outdated or may not fully align with the fast-evolving landscape they are navigating.

For example, in sectors where technology is advancing rapidly, such as the integration of AI into business processes, the delay in research dissemination can result in missed opportunities for implementing new technologies or adapting business strategies. Similarly, in industries where stakeholder engagement has become more complex and dynamic, the slow pace of research delivery may result in findings that are no longer aligned with evolving stakeholder expectations. The strategic alignment of decisions has gained increasing importance, but traditional research timelines may hinder the ability of practitioners to make decisions that link short-term actions to long-term goals. If research findings are delayed, organizations may struggle to act on insights that could improve efficiency, adaptability, and sustainability, all of which have become integral to organizational success.

Bridging the gap: Timely research delivery

To address this issue, the research process needs to be adapted to accommodate the demands of today's fast-moving industries. Organizations increasingly require a culture and systems that foster continuous improvement, adaptability, and a strategic approach to workforce development. This calls for research methodologies that are just as agile and responsive as the business processes they aim to inform. One key solution is to focus on real-time data collection and continuous studies, which can provide immediate insights to practitioners. For instance, as organizations focus on balancing short-term talent needs with long-term workforce development, real-time research can ensure that data regarding skills gaps and talent strategies is

Table 7. Concluding answers to the four research questions.

Research Question (RQ)	Concluding answers
RQ1: What challenges related to quality management (QM) do practitioners currently face or anticipate in the future?	Practitioners face persistent and emerging challenges that span strategic integration of quality, stakeholder engagement, agility, workforce development, and process improvement. Newer challenges in 2024 include integrating AI, addressing skills shortages, and fostering learning cultures. Long-standing issues—like making quality a strategic concern and understanding stakeholder expectations—remain central. These reflect a complex, shifting organizational landscape requiring both stability and adaptability.
RQ2: What are the key thematic longitudinal trends of organizational needs?	Seven longitudinal trends define evolving needs: 1) Quality as a management and strategic issue; 2) Customer and stakeholder focus; 3) Organizational agility and adaptability; 4) Employee engagement and talent utilization; 5) Process design and improvement; 6) Technology and digital transformation; 7) Sustainability. These themes show increasing complexity and interconnectedness, driven by internal capabilities and external pressures such as technological change and environmental concerns.
RQ3: How does QM research address these challenges?	QM research provides a solid foundation in areas like process improvement, strategic quality, and stakeholder engagement. However, it often lags behind emerging trends such as AI integration, agile adaptation, and real-time stakeholder engagement. While the literature emphasizes leadership, learning cultures, and systemic thinking, implementation gaps persist. Research is strong in diagnosing problems but less effective in offering timely, actionable, and integrated solutions for today's fast-paced business environment.
RQ4: What type of QM research can respond to the identified challenges?	Future QM research must become more agile, practice-oriented, and timely. It should focus on real-time data, continuous inquiry, and co-creation with practitioners. Key priorities include integrating digital and AI strategies into QM, addressing talent and skill gaps through applied research, and embedding sustainability into quality systems. Collaborative, iterative methodologies (e.g., agile research) and open-access dissemination are vital for bridging the relevance gap between research and practice.

Source: Author's own work.

up-to-date, supporting the workforce decisions necessary for organizational growth and adaptation. Additionally, embracing agile research methodologies, derived from the software development context, could help academics deliver research in shorter cycles. These iterative processes could be particularly beneficial in industries where systemic improvements and organizational resilience are critical. Research that provides quick feedback loops and incremental testing would support ongoing improvements in organizational processes, enhancing overall efficiency.

Collaboration between researchers and practitioners

Another aspect of timely research delivery is active collaboration between researchers and practitioners. This collaborative research approach is particularly relevant as organizations increasingly need to align their strategic priorities with stakeholder expectations and evolving challenges. Researchers working closely with practitioners can ensure that findings are continually aligned with the challenges they are facing in real time. In contrast to traditional models, where researchers work independently and share findings only after peer review, continuous collaboration would allow for research that is more adaptable to the shifting needs of organizations. For example, as sustainability becomes embedded within core business strategies, ongoing collaboration ensures that research keeps pace with the evolving needs for socially, economically, and environmentally sustainable practices. Moreover, in today's interconnected world, open access platforms, preprints, and rapid prototyping can help speed up the dissemination of research. As sustainability practices and technological advancements (like AI) become core to business strategies, rapid access to research can enable practitioners to act on new findings almost immediately, instead of waiting for traditional publication cycles.

Conclusion

The current longitudinal research study examines the academic discourse surrounding 36 critical challenges faced by organizations, as identified in Delphi studies conducted in 2012, 2018, and 2024. The synthesis of existing research reveals a substantial body of well-cited literature addressing these challenges while also highlighting areas that require further investigation to bridge the relevance gap between research and practice. The study also analyzes seven thematic trends based on the top 12 challenges in the years 2012, 2018, and 2024. In an increasingly complex and dynamic environment, a deeper understanding of these challenges and trends could guide the development of effective strategies and foster sustainable organizational growth. See Table 7 for an overview of the concluding answers corresponding to each research question.

The review indicates that while research has made significant strides in addressing the most pressing challenges faced by practitioners, gaps in timeliness seem to continue to hinder the full integration of findings into practice. In a rapidly evolving landscape, research must become more agile, incorporating real-time data and fostering closer collaboration between academia and practice. As organizations navigate challenges related to technology, stakeholder

engagement, workforce development, and sustainability, research must adapt to deliver timely, practical implications. By embracing these strategies, researchers can bridge the relevance gap, ensuring their work aligns with the immediate and evolving needs of organizations. In turn, research can become more impactful, engaging, and responsive to organizational challenges and current needs. Bridging this gap requires not only a shift in how research is conducted and disseminated but also a fundamental change in how researchers and practitioners interact. A more accessible, timely, and collaborative research environment can create an interactive research approach where both research and practice evolve in tandem, ultimately leading to more effective and sustainable solutions.

In terms of limitations, while this literature review relies on citation-based selection, this approach may introduce a bias toward older studies, potentially overlooking emerging but less-cited research. To address this, future studies could complement this method by incorporating expert interviews or surveys to assess the practical impact of academic findings. Future research should explore the integration of agile research frameworks—such as iterative, real-time data collection, and rapid prototyping—into traditional academic methodologies. Empirical studies could assess the impact of these approaches on the speed, accuracy, and practical applicability of research findings, particularly in fast-evolving sectors like technology and healthcare. Additionally, further studies could examine innovative collaboration models that facilitate direct and continuous engagement between researchers and industry professionals. Case studies or experimental research could evaluate the effectiveness of embedded researchers within industry settings or co-creation strategies, where practitioners actively contribute to the research process. As stakeholder expectations become increasingly complex, future research should also investigate how engagement strategies evolve and how research findings can be more effectively translated into practice. Studies could assess the role of dynamic feedback mechanisms, stakeholder co-design, and participatory research methods in enhancing the timeliness and applicability of insights.

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Disclosure statement

No potential conflict of interest was reported by the author(s).

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