

SUSTAINABLE QUALITY MANAGEMENT: A CONCEPTUAL INTEGRATION OF THE EFQM MODEL AND SUSTAINABLE DEVELOPMENT

Piotr PIETRZAK^{1*}, Alicja FANDREJEWSKA-NOWAKOWSKA²,
Bartosz KWIATKOWSKI³

¹ Management Institute, Warsaw University of Life Sciences; piotr_pietrzak1@sggw.edu.pl,
ORCID: 0000-0002-1319-4815

² Management Institute, Warsaw University of Life Sciences; alicja_fandrejewska@sggw.edu.pl,
ORCID: 0000-0001-7946-1878

³ Management Institute, Warsaw University of Life Sciences; bartosz785@interia.eu,
ORCID: 0000-0001-7316-5445

* Correspondence author

Purpose: The purpose of this paper is to critically examine the conceptual foundations of sustainable quality management by integrating quality management principles - particularly those embodied in the EFQM Model - with the objectives of sustainable development. The study seeks to deepen theoretical understanding of how organizational excellence frameworks can evolve to address sustainability imperatives.

Design/methodology/approach: The paper adopts a conceptual and theoretical approach, grounded in a narrative literature review and model-based analysis. Using the EFQM Model as a primary analytical framework, the study examines the intersection of quality management and sustainable development.

Findings: The research reveals that sustainable quality management requires a systemic, stakeholder-oriented perspective that aligns quality objectives with environmental, social sustainability, and economic performance. The findings suggest that organizations can leverage the EFQM framework to embed sustainability into their quality practices, thereby enhancing long-term value creation and organizational resilience.

Research limitations/implications: This study is conceptual in nature and does not include empirical validation. While the theoretical model provides a foundation for understanding sustainable quality management, further empirical research is needed to test its applicability in different sectors and organizational contexts.

Practical implications: The integration of sustainability into quality management practices offers organizations a roadmap to align operational excellence with responsible governance. The proposed sustainable quality management model can serve as a strategic guide for managers seeking to balance performance, stakeholder satisfaction, and long-term environmental and social goals.

Social implications: By embedding sustainability into quality management systems, organizations can contribute more effectively to the United Nations SDGs. This integration fosters corporate social responsibility, strengthens organizational transparency, and enhances social trust.

Originality/value: This paper introduces the concept of sustainable quality management as a novel framework that unites the traditionally separate domains of quality management and sustainable development. By leveraging the EFQM Model, the paper provides a structured pathway for operationalizing sustainability through quality practices. The paper is valuable to academics, quality professionals, and sustainability practitioners seeking to understand or implement integrated management approaches in pursuit of long-term value and excellence.

Keywords: quality, sustainability, EFQM Model, sustainable quality management.

Category of the paper: construction of a research framework.

1. Introduction

The concepts of quality and sustainability, though originating from distinct managerial paradigms, share a foundational emphasis on long-term value creation, stakeholder engagement, and continuous improvement (Valentinov, 2023). Both frameworks advocate for systemic thinking, evidence-based decision-making, and the integration of strategic and operational objectives (Silva et al., 2021). As such, the intersection of quality management (QM) and sustainable development (SD) offers a promising yet underexplored avenue for organizational transformation in the face of global challenges.

Among the various QM frameworks, the EFQM Model (European Foundation for Quality Management) presents one of the most comprehensive and strategically aligned approaches to bridging quality and sustainability (Martusewicz et al., 2024). By promoting excellence across key enablers and results areas - including e.g. organizational culture and leadership, purpose, vision and strategy, and execution - the EFQM Model explicitly encourages organizations to balance short-term operational efficiency with long-term societal and environmental impact (Çağlar, Varoğlu, 2025). The model's evolution in recent years further reflects a growing recognition of sustainability as an integral component of organizational excellence, moving beyond compliance and reputation management toward genuine value co-creation with all stakeholders (Głuszek, Martusewicz, 2025).

Despite this conceptual alignment, the link between quality and sustainability remains insufficiently articulated in both academic literature and organizational practice. While many quality-oriented organizations adopt sustainability-oriented tools or pursue certifications such as ISO 14001 or ISO 50001, these initiatives are often implemented in parallel rather than as integrated elements of a unified strategic framework (Alotaib et al., 2025). This fragmentation can limit the transformative potential of sustainability in quality-driven environments, reducing it to a peripheral concern rather than embedding it into the organization's DNA.

This article seeks to address the conceptual gap by critically analyzing how quality-oriented organizations - particularly those guided by the EFQM Model - can contribute to advancing SD through the lens of sustainable quality management (SQM). It investigates the theoretical and practical synergies and tensions between quality and sustainability, evaluates the extent to

which excellence models such as EFQM integrate sustainability dimensions, and proposes a conceptual framework that outlines pathways for a more coherent and transformative alignment between QM and sustainability.

The originality of this paper lies in its integrative and interdisciplinary approach to conceptualizing SQM as a unifying framework that bridges the strategic logic of QM with the normative imperatives of SD. While prior studies have examined either quality or sustainability in isolation, or focused narrowly on specific tools or certifications, this article synthesizes diverse literatures and models to develop a holistic and theoretically grounded SQM model anchored in the EFQM framework. By articulating the conceptual underpinnings, enabler mechanisms, and potential organizational applications of SQM, the study offers a novel perspective that can inform both future research and managerial practice in pursuit of integrated excellence.

The insights presented are intended to support quality managers, sustainability officers, organizational leaders, and policymakers who seek to align performance excellence with long-term social and environmental goals. Additionally, the article contributes to the scholarly discourse by bridging two historically separate literatures - QM and sustainability - thereby fostering a more unified, interdisciplinary approach to organizational transformation in a rapidly changing global context.

2. Methods

This study adopts a structured narrative literature review approach aimed at synthesizing interdisciplinary knowledge at the intersection of QM and organizational SD. While it does not employ a formal systematic review protocol or rely exclusively on dedicated academic repositories such as Scopus or Web of Science, it draws on an extensive range of scholarly publications retrieved through academic search engines (e.g., Google Scholar), university library databases, and direct access to peer-reviewed journals. The literature reviewed includes publications in both English and Polish, reflecting the bilingual academic discourse surrounding the topic in European and global contexts.

The narrative review format was selected to ensure both conceptual depth and thematic flexibility, particularly given the evolving and cross-sectoral nature of the discourse on sustainability in quality-oriented organizations. A systematic review methodology was considered but ultimately deemed less suitable due to the wide disciplinary dispersion of relevant sources and the need to include literature from diverse publication types and languages.

To strengthen methodological transparency and replicability, explicit inclusion and exclusion criteria were applied. Publications were included if they (1) addressed the intersection of QM and sustainability; (2) discussed conceptual or applied aspects of the EFQM Model; or (3) contributed to the development of integrative frameworks involving sustainability, quality, or organizational excellence. Sources were excluded if they (1) were purely technical or industry-specific without theoretical relevance; (2) focused solely on environmental or quality issues without linkage to organizational performance or sustainability frameworks; or (3) lacked peer review or academic credibility.

The literature review is organized into four main subsections, each representing a critical dimension of the conceptual and practical landscape under study:

- The essence of quality and QM - this subsection synthesizes the historical and philosophical origins of the concept alongside its evolution into a multidimensional construct central to modern organizational strategy. It highlights how quality, once rooted in metaphysical inquiry, is now operationalized through frameworks such as TQM and ISO 9001 to drive efficiency, and stakeholder satisfaction.
- The essence of organizational SD - here, the review addresses the origins, principles, and strategic imperatives of SD. Emphasis is placed on the environmental, social, and economic pillars of sustainability, as well as the global policy frameworks that shape organizational engagement with sustainable practices (e.g., the United Nations Sustainable Development Goals - SDGs).
- The essence of the EFQM Model - this section explores the EFQM Model as a comprehensive QM framework that integrates strategic, operational, and stakeholder dimensions. Particular attention is given to the model's evolution in response to sustainability imperatives and its capacity to support value creation beyond traditional performance metrics.
- The essence of SQM - the final subsection identifies the four interrelated pillars that underpin a balanced and future-oriented approach: economic performance, stakeholder expectations, environmental sustainability, and social responsibility. These dimensions reflect how quality-oriented organizations operationalize sustainability principles across all levels - by embedding them into technologies, innovation, governance, environmental practices, and workforce development - to support continuous improvement and strategic alignment with evolving societal and environmental demands.

Overall, this methodological approach enables a comprehensive understanding of the theoretical foundations and practical implications of SD in quality-oriented organizations. It provides a coherent framework for integrating diverse perspectives while preserving academic rigor, thematic relevance, and contextual sensitivity.

3. Literature review

3.1. The essence of quality and quality management

The concept of “quality” has evolved from an ancient philosophical idea into a multidimensional construct central to contemporary management practices. Historically rooted in metaphysical inquiry, quality was originally framed by Plato as “*poiotes*”, representing an ideal form beyond mere quantification, while Aristotle defined it as a distinguishing set of characteristics determining the essence of a thing (Wawak, 1996; Opolski et al., 2023). Although 16th- and 17th-century natural sciences rejected its philosophical foundations, modern scholarship reintroduced quality as both an evaluative and operational category (Sadkowski, 2016; Lotko et al., 2018).

Today, quality is widely understood as the degree to which products, services, or processes meet customer expectations and predefined criteria (Urbaniak, 2004). Juran’s (1999) influential framework distinguishes between compliance quality, market quality, preference quality, and quality characteristics - thus linking quality directly with business objectives and stakeholder satisfaction (Popescu et al., 2017). This view is echoed by other quality pioneers such as Deming, Crosby, and Feigenbaum, who emphasize conformance, predictability, and integrated quality across organizational functions (Perenc, 2020).

Garvin (1984, after: Lone, Bhat, 2023) extended the understanding of quality by identifying multiple dimensions - performance, reliability, durability, serviceability, aesthetics, and perceived quality - all of which are vital for competitive positioning. Consequently, quality has become a fundamental pillar of strategic management, influencing process efficiency, customer satisfaction, innovation, and organizational resilience (Ingaldi, 2022).

The emergence of quality as a management science parallels the industrial revolution and the rise of mass production, eventually giving rise to Total Quality Management (TQM) in the mid-20th century (Rogala, 2020). TQM shifted the focus from defect correction to proactive prevention and continuous improvement, fostering organizational cultures that emphasize excellence and stakeholder value (Opolski et al., 2023). Modern quality practices are embedded not only in production but across sectors such as healthcare, IT, logistics, finance, and public services, contributing to strategic agility and long-term sustainability (Wiśniewska, Janasz, 2013).

In practice, QM is increasingly operationalized through internationally recognized standards, such as ISO 9001, which define principles like customer focus, leadership, process orientation, evidence-based decision-making, and relationship management (Bielecka, 2017). These frameworks not only ensure compliance but also facilitate the integration of quality into the broader organizational strategy.

3.2. The essence of organizational sustainable development

SD has emerged as a guiding principle across political, economic, and organizational domains, reflecting a global commitment to address systemic challenges that threaten social equity, economic stability, and environmental integrity. Rooted in the definition established in the 1987 Brundtland Report, SD is widely understood as the pursuit of development that meets the needs of the present without compromising the ability of future generations to meet their own needs. Conceptualized through models such as the three-pillar framework (society, economy, and environment), SD underscores the necessity of achieving balanced progress across interconnected dimensions (Purvis et al., 2019; Glass, Newig, 2019).

To operationalize this concept, the United Nations introduced the SDGs in 2015 under the 2030 Agenda. These 17 goals and 169 specific targets provide a comprehensive blueprint for transforming global development pathways. They serve as both a political commitment and a practical roadmap for countries, regions, and organizations aiming to align their actions with global sustainability benchmarks (Arora-Jonsson, 2023; Halkos, Gkampoura, 2021). The SDGs span critical areas such as eradicating poverty and hunger (SDGs 1 and 2), ensuring health, education, and gender equality (SDGs 3-5), and providing access to clean water and affordable energy (SDGs 6-7). Other goals focus on inclusive economic growth (SDG 8), sustainable industrialization and innovation (SDG 9), reducing inequalities (SDG 10), sustainable cities (SDG 11), responsible consumption (SDG 12), and climate action (SDG 13). They also address biodiversity (SDGs 14-15), institutional integrity (SDG 16), and emphasize the importance of global partnerships (SDG 17).

Organizational SD encompasses the integration of three interdependent dimensions - environmental, social, and economic - into a company's core strategies, operational models, and value creation processes. From an environmental standpoint, organizations aim to minimize their ecological footprint by transitioning to low-carbon and renewable energy systems, enhancing energy efficiency, managing waste and water use through circular economy principles, and adopting environmentally responsible sourcing and biodiversity conservation practices (Woods, 2000; Buzatu et al., 2019; Ebrahimigharehbaghi et al., 2022). Socially, sustainable organizations invest in employee well-being, equitable labor standards, inclusive cultures, human rights protection, and lifelong learning opportunities, thereby fostering internal resilience and stakeholder trust (Murray, Ayoun, 2010; Caputo et al., 2022). Economically, they prioritize long-term value creation, inclusive market access, local economic engagement, and continuous innovation - especially in sustainability-driven areas - through ethical procurement and investment in R&D (Witjes, Lozano, 2016; Lewandowska, Cherniaiev, 2022). Together, these dimensions reflect a holistic approach that positions sustainability as a driver of organizational competitiveness, adaptability, and contribution to broader socio-economic and environmental goals.

In the context of organizational transformation, SD increasingly functions as a strategic imperative rather than a peripheral concern. To effectively embed sustainability into core organizational processes, many enterprises are turning to integrated management frameworks such as the EFQM Model.

3.3. The essence of the EFQM Model

One of the most widespread quality models in Europe is the EFQM Model, established in the early 1990s (Taraza et al., 2023). The EFQM Model has been the subject of numerous academic publications (e.g., Tari et al., 2023; Bris, Urbanek, 2024; Bocoya-Maline et al., 2024; Martinez-Costa et al., 2025). Its popularity and wide application stem from its flexibility and adaptability - it can be implemented in large corporations, SMEs, public and private sector institutions, governmental bodies, local communities, and various other organizations (Gorenak, 2015). The EFQM Model is a comprehensive organizational improvement framework. As Martusewicz (2024, p. 41) emphasizes, “rather than recommending specific improvement methods, it covers all key areas of organizational functioning and defines the requirements that should be met”. As a result, the EFQM Model can be combined with a wide range of methods, “serving as a unifying framework for all activities aimed at achieving sustainable excellence” (Martusewicz, 2024, p. 41).

The most recent version, EFQM Model 2025, focuses on “the needs of organizations to create a clear purpose, foster trust, and understand the benefits of long-term sustainability” (The EFQM Model 2025, p. 3). It serves as a framework for organizational improvement by emphasizing the integration of high performance with customer and employee satisfaction, a positive public image, and effective leadership in policy, strategy, and resource management (The EFQM Model 2025). Furthermore, the model assesses both the outcomes achieved and the methods employed to reach them. According to Martusewicz et al. (2024, p. 9106), “the model’s evolution is driven by the need to adapt to global trends, threats, and technological innovations such as digital transformation, employee engagement and well-being, remote work, agile performance management, diversity, equity and inclusion (DEI), sustainability, artificial intelligence (AI), and big data”. It is important to note that internal organizational dynamics are strongly shaped by the external environment. As Bugdol (2018, p. 9) notes, organizations must ask themselves, “what is the competition aiming for, how is technology evolving, and which values are our strengths or weaknesses?”

As previously mentioned, the EFQM Model 2025 introduces several key enhancements to better respond to contemporary and future challenges. It strengthens the Direction dimension by emphasizing purpose, vision, values, cultural role modeling, and support for innovation and change. The term “positive impact” now replaces “force for good”, thereby broadening the model’s focus on societal contribution. Within the Execution section, the model incorporates evolving work practices such as remote and hybrid models, and places greater emphasis on supply chain resilience, business continuity, and strategic foresight under components like

“Driving Performance & Transformation” and “Creating Sustainable Value”. Finally, in the Results dimension, outcomes are now differentiated into four distinct categories: stakeholder expectations and contribution, economics and financials, performance and transformation, and sustainability (The EFQM Model 2025). A simplified version of the model is presented in Figure 1.

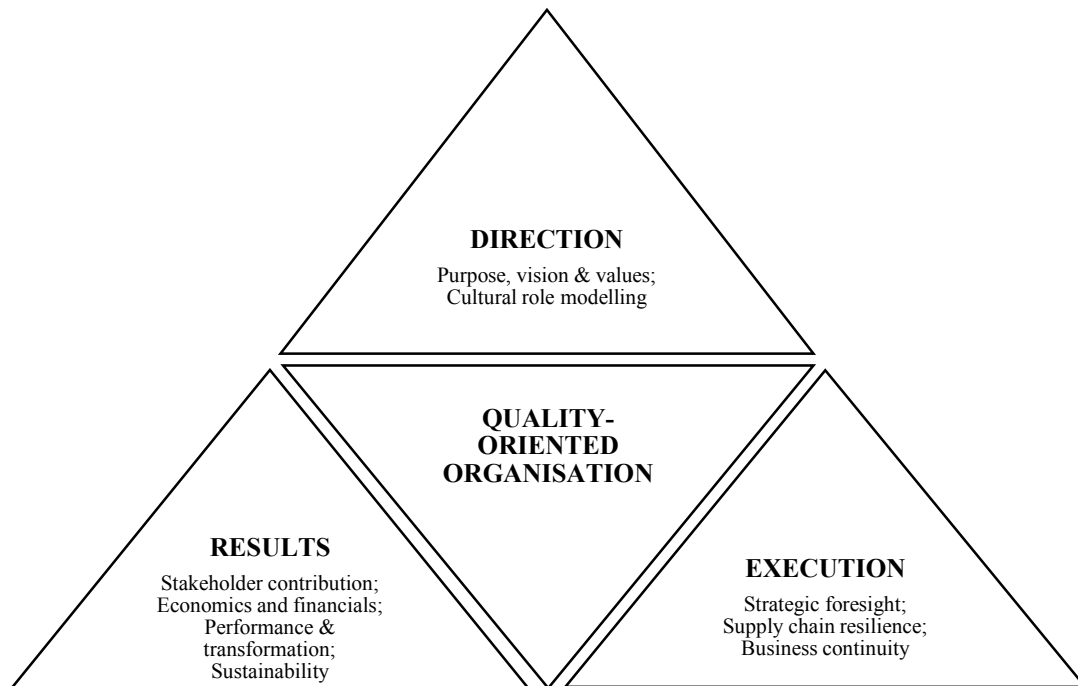


Figure 1. A simplified version of the EFQM Model.

Source: own elaboration based on The EFQM Model 2025.

RADAR (Results, Approach, Deployment, Assessment, and Refinement), a core element of the model since its early versions, remains fundamental in the 2025 edition. It is a diagnostic tool that supports effective management, enabling the identification of strengths and areas for improvement. The new version simplifies the assessment process by reducing the number of scoring matrices from three to two: one covering Direction and Execution, and one focused on Results (*The EFQM Model 2025*).

Implementing the EFQM Model brings numerous benefits to organizations. These include enhanced employee engagement, more efficient processes, higher product and service quality, and greater customer and stakeholder satisfaction. Over the long term, it contributes to stronger financial performance, improved reputation, and a sustainable competitive advantage (Martusewicz et al., 2024).

3.4. The essence of sustainable quality management

The EFQM Model promotes the integration of sustainability into daily operations, enhancing employee engagement, improving processes and service quality, and strengthening customer satisfaction, financial performance, reputation, and competitive advantage. According to Morioka et al. (2018), performance measurement systems for sustainability should be

integrated at the operational, tactical, and strategic levels, since all employees - not just specific departments - are responsible for sustainability. This approach helps organizations to put sustainability strategies into practice, supports the alignment of business objectives with sustainability goals, and can become one of their key competitive advantages (Morioka et al., 2018).

A key challenge, however, lies in how to implement sustainable principles into the daily functioning of quality-oriented organizations. That is why it is important to blend the main principles (pillars) of SD and QM. To address this, the authors propose a conceptual model of SQM, structured around four interrelated pillars: economic performance, stakeholder expectations, environmental sustainability, and social responsibility – Figure 2. These four dimensions reflect the essential values of SD while aligning with the EFQM Model's results orientation and stakeholder focus.

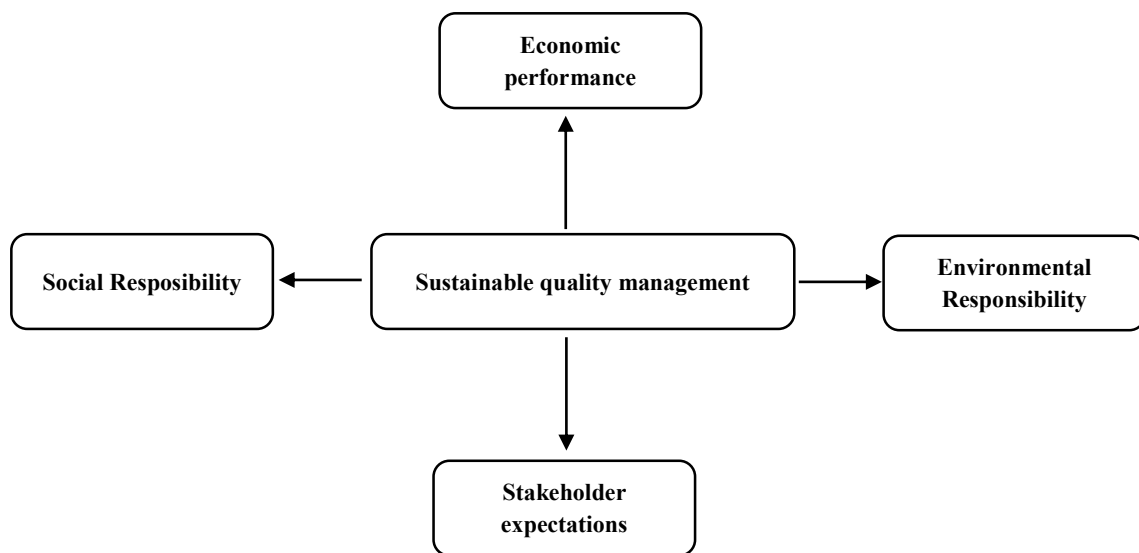


Figure 2. Balanced framework for sustainable quality management: integrating economic performance, stakeholder expectations, and environmental and social responsibility.

Source: own elaboration.

The first perspective is economic performance, which underscores the financial benefits of embedding sustainability into core organizational practices. One of the primary pathways to improving profitability lies in the adoption of sustainable technologies - such as renewable energy sources (solar, wind, hydropower, biomass), energy-efficient systems, and waste reduction solutions. These technologies help reduce utility and operational costs, mitigate regulatory risks, and often qualify organizations for financial incentives, contributing to both short- and long-term cost savings (Lozano, 2015). Simultaneously, integrating sustainability into product and service innovation allows firms to differentiate themselves in increasingly eco-conscious markets. By aligning offerings with consumer expectations for ethical and environmentally responsible choices, companies can command price premiums, increase customer loyalty, and access new market segments (Nidumolu et al., 2009). Together,

these strategies demonstrate how sustainability can serve as a driver of economic value, supporting growth while minimizing expenditures.

The second perspective is the stakeholder perspective, which emphasizes the importance of meeting the expectations and values of various groups that influence or are influenced by an organization. In the context of SQM, this perspective requires companies to foster transparent communication, inclusive governance, and active responsiveness to societal concerns.

Transparent communication forms the foundation of effective stakeholder relations. It involves openly disclosing not only financial performance but also social and environmental impacts through sustainability reporting, environmental declarations, and social audits. Transparency reduces information asymmetry, enhances stakeholder confidence, and supports informed decision-making by all parties (Morsing, Schultz, 2006).

Inclusive governance ensures that a broad range of stakeholder voices - particularly those historically marginalized - are represented in decision-making processes. Inclusive governance structures go beyond shareholder-centric models, integrating multi-stakeholder advisory boards, employee councils, and participatory forums. This approach strengthens social cohesion, improves organizational learning, and facilitates more holistic strategic planning (Maak, Pless, 2006).

Active responsiveness to societal concerns marks a shift from reactive compliance to proactive engagement. It involves anticipating stakeholder needs, co-developing sustainable solutions, and embedding these into core strategies. Organizations addressing challenges like climate change, inequality, and resource scarcity through responsible practices not only meet stakeholder expectations but also help shape broader societal transformation (Porter, Kramer, 2011).

The third perspective is environmental sustainability, which highlights the responsibility of organizations to minimize their ecological footprint while contributing to planetary resilience. In SQM, this means going beyond mere regulatory compliance to proactively implementing environmental management systems (EMS) such as ISO 14001. These systems support continuous improvement through the identification, evaluation, and reduction of environmental impacts (Zeng et al., 2005).

Environmental sustainability in quality-oriented organizations is grounded in two main pillars: resource conservation and biodiversity preservation. Resource conservation promotes more sustainable use of natural resources by emphasizing efficiency and circularity throughout the value chain. This includes measures such as improving energy efficiency, reducing water consumption, and minimizing waste through circular economy practices (Geissdoerfer et al., 2017). Life-cycle thinking strengthens this approach by evaluating environmental impacts from raw material extraction to end-of-life disposal, helping organizations reduce ecological footprints (Frankowska et al., 2019). In tandem with resource conservation, biodiversity preservation ensures that organizational activities do not degrade ecosystems or threaten species

diversity. It involves adopting sustainable sourcing practices - such as using certified raw materials - protecting natural habitats across supply chains, and supporting ecological restoration initiatives. These efforts contribute to the maintenance of ecosystem services, enhance organizational legitimacy, and align business operations with global conservation goals (Keckel et al., 2025).

The last perspective in SQM is social responsibility, which encompasses an organization's dedication to promoting equity in the workplace, strengthening employee agency, and supporting human capital development. Central to this dimension is the creation of an inclusive organizational culture, where diversity in gender, ethnicity, and abilities is not only acknowledged but actively valued. This also involves cultivating an environment of mutual respect, psychological well-being, and participatory governance, where employees are encouraged to contribute meaningfully to organizational decisions (Freeman et al., 2021).

Equally vital is the provision of competency development, especially as digitalization and economic shifts reshape the nature of work. Quality-oriented organizations support professional advancement through structured education programs, reskilling initiatives, and mentorship schemes that equip employees for future challenges. In doing so, they foster upward social mobility and build a workforce that is agile, empowered, and aligned with long-term strategic objectives (Senge, 2006).

Table 1 presents the concept of SQM through four key areas: economic performance, stakeholder expectations, environmental sustainability, and social responsibility. Each area is supported by specific components that reflect the integration of sustainability into quality-oriented practices.

At the core of SQM lies the principle of continuous improvement, which drives organizations to enhance performance while aligning with long-term sustainability goals. This principle serves as a unifying thread across all four pillars of the SQM framework - economic performance, stakeholder expectations, environmental sustainability, and social responsibility - and is operationalized through structured processes involving both leadership and employee participation.

In practice, top management plays a critical role by setting strategic priorities, allocating resources, and embedding a culture of learning and innovation. Middle managers act as change agents, translating strategy into actionable initiatives and coordinating cross-functional teams. Meanwhile, frontline employees contribute through daily problem-solving, process optimization, and active engagement in quality and sustainability initiatives.

Table 1.

Key areas and components of sustainable quality management based on the principle of continuous improvement

Concept	Key areas	Key components	Main principle
Sustainable quality management	Economic performance	Adoption of sustainable technologies	Continuous improvement
		Integration of sustainability into product and service innovation	
	Stakeholder expectations	Transparent communication	
		Inclusive governance	
		Active responsiveness to societal concerns	
	Environmental sustainability	Resource conservation	
		Biodiversity preservation	
	Social responsibility	Inclusive organizational culture	
		Workforce development	

Source: own elaboration.

In the context of economic performance, continuous improvement is manifested through the application of lean management techniques, systematic performance evaluation (e.g., via key performance indicators - KPIs), and structured innovation processes that collectively aim to enhance cost-effectiveness and organizational value creation. When addressing stakeholder expectations, organizations may engage in iterative feedback processes, deploy satisfaction assessments, and initiate co-creation mechanisms involving customers and external partners to ensure alignment with evolving needs and preferences.

With regard to environmental sustainability, continuous improvement practices may encompass resource efficiency measures such as waste minimization initiatives, periodic energy audits, adherence to recognized standards like ISO 14001, and the integration of environmental criteria into product and service design. In the social dimension, departments such as human resources, in coordination with operational managers, play a pivotal role in advancing DEI efforts, upholding fair labor conditions, and fostering employee well-being through proactive and sustained engagement mechanisms.

These practices are typically embedded within structured organizational routines such as the Plan-Do-Check-Act (PDCA) cycle, internal quality audits, employee-driven quality circles, and sustainability-oriented performance reporting. By institutionalizing continuous improvement across all functional levels and organizational domains, firms can operationalize the principles of SQM, thereby enhancing their capacity for resilience, strategic alignment, and long-term value generation across economic, environmental, and social performance pillars.

4. Results

This study introduces a novel conceptual model of SQM, developed through a narrative synthesis of the literature on QM, SD, and the EFQM Model. The SQM model aligns the enablers and results dimensions of the EFQM framework with the economic, environmental, and social pillars of sustainability. It aims to bridge the long-standing conceptual divide between quality and sustainability by providing an integrated, actionable framework suitable for quality-oriented organizations.

The originality of the model lies in its capacity to systematically translate sustainability principles into the operational routines of QM systems. While previous studies have demonstrated that QM can support SD - by enhancing process efficiency, reducing waste, and promoting stakeholder satisfaction (e.g., Siva et al., 2016; Misztal, Ratajszczak, 2025) - this study advances the field by proposing an integrated conceptual framework in which sustainability is not merely supported by QM but becomes structurally embedded within the logic of quality excellence, as exemplified by the EFQM Model.

In comparison with Morioka et al. (2018), who propose aligning sustainability metrics across operational, tactical, and strategic levels, this model adds a structural layer by integrating those metrics into EFQM domains. While Morioka et al. highlight measurement tools, the SQM model emphasizes how governance, organizational culture, and improvement mechanisms (e.g., PDCA, internal audits) can be redesigned to support sustainable transitions.

Furthermore, the SQM model addresses critiques noted by Valentinov (2023), who argues that the systems-thinking underpinning QM is compatible - but underutilized - in sustainability contexts. This research operationalizes that compatibility by aligning EFQM's systems-based orientation with the dynamic and interdependent nature of sustainability principles. This responds directly to previous concerns about the limited articulation of sustainability within mainstream QM frameworks (Dahlgaard-Park, 2011).

Sectoral comparisons also show that the SQM model advances current thinking. For example, while many sustainability-oriented frameworks in manufacturing focus heavily on environmental performance (e.g. Garza-Reyes, 2015), the SQM model gives equal weight to social responsibility and stakeholder expectations. Similarly, in the public sector, quality improvement is often framed around service performance and compliance (Osborne et al., 2013), the SQM framework invites these organizations to go further by embedding co-creation, long-term societal value, and inclusive governance into their quality strategies.

Overall, the SQM model offers a robust and interdisciplinary advancement in the integration of quality and sustainability. By structurally embedding sustainability within the EFQM framework, the model not only strengthens theoretical cohesion between the two domains but also delivers practical relevance for organizations seeking to align excellence with responsibility. This integrative perspective provides a more holistic approach than traditional

QM or sustainability models alone, offering a coherent pathway for embedding long-term economic, environmental, and social value creation into the fabric of quality-oriented management systems.

5. Discussion

5.1. Contributions

The contribution of this study lies in the conceptual development and theoretical integration of SQM as a novel framework that bridges the fields of QM and SD. By utilizing the EFQM Model as a primary analytical tool, the paper advances understanding of how QM principles can be systematically aligned with environmental, social, and economic sustainability goals. It identifies key elements and mechanisms within the EFQM framework that facilitate this integration, offering a comprehensive and stakeholder-oriented approach to embed sustainability into organizational excellence practices. This work provides a foundational conceptual model that guides both academic inquiry and managerial practice toward achieving operational excellence while supporting long-term organizational resilience and responsible governance. Importantly, the paper offers a synthesis of the meanings of quality and SD, revealing the conceptual and practical links that unify these traditionally separate domains.

5.2. Limitations

This study is conceptual and theoretical in nature, and as such, it does not include empirical data or case-based validation of the proposed SQM framework. The insights are derived primarily from a narrative literature review and model-based analysis, which, while comprehensive, may not fully reflect the complexity and variability of organizational practices across different sectors. In particular, the practical relevance of the SQM framework may vary depending on contextual factors such as industry-specific regulations, market structures, and stakeholder expectations. For instance, public sector organizations often operate under different accountability frameworks and performance criteria compared to private manufacturing firms, which may influence how quality and sustainability are prioritized and operationalized.

The reliance on the EFQM Model as the primary analytical tool, although justified by its holistic structure and alignment with principles of excellence and sustainability, may also limit the generalizability of findings to organizations that do not adopt or explicitly align with this framework. Organizations operating under alternative quality paradigms or in less formalized quality management environments may require tailored adaptations of the proposed SQM model.

Moreover, the study focuses on synthesizing and linking the concepts of QM and SD, both of which are evolving domains with diverse interpretations and applications across disciplines. As such, the proposed integration model may require further refinement to accommodate emerging sustainability challenges, technological disruptions, and sector-specific quality imperatives.

Additionally, many potentially relevant publications were excluded due to the scope and purpose of the study, which prioritized conceptual clarity and theoretical synthesis over exhaustive literature coverage. The selection of sources was guided by relevance to the research aim - namely, to articulate a theoretically grounded SQM framework - rather than by systematic inclusion criteria. As a result, empirical studies, sector-specific analyses, and regionally focused publications that could enrich the practical dimensions of the model were not included in the core analysis. Future research should address this gap by exploring how the SQM framework performs in diverse organizational contexts and geographic regions.

5.3. Research gaps and future research directions

The conceptual SQM framework developed in this study provides an integrative approach to aligning QM principles - particularly those derived from the EFQM Model - with SD principles. While this model offers a structured foundation for understanding the convergence of operational excellence and sustainability, several significant research gaps remain.

First, the theoretical model requires empirical validation. Its key assumptions, such as the alignment of EFQM enablers with sustainability outcomes, have not yet been tested across organizational contexts. There is a need for empirical studies that examine whether the conceptual relationships outlined in the SQM framework hold in practice, and under what conditions they are most effective.

Second, the causal pathways and mediating mechanisms within the SQM framework are not yet fully articulated. For instance, how does leadership for sustainability influence stakeholder trust? In what ways does process innovation or learning impact ESG (environmental, social, governance) outcomes when framed within quality principles? Addressing these questions can enrich the explanatory power of the SQM model.

Third, the model would benefit from adaptation to sector-specific and regional contexts. Industries vary in their quality and sustainability challenges, and future research should test how the SQM framework operates in sectors such as agri-food, manufacturing, healthcare, or services. Comparative studies can reveal contextual drivers, barriers, and customization needs for effective SQM implementation.

Finally, future research should develop performance indicators and assessment tools that reflect the dual focus on quality and sustainability embedded in the SQM framework. These metrics would enable organizations to evaluate their progress, benchmark against peers, and identify areas for continuous improvement in line with both excellence and sustainability.

6. Conclusions

This study provides a comprehensive conceptual exploration of the integration between QM and SD, positioning the EFQM Model as a foundational framework. Through the development of the SQM model, the research offers a structured and theoretically grounded approach to aligning quality management principles with the environmental, social, and economic dimensions of sustainability.

The central aim of the study - to examine the conceptual foundations of SQM by integrating QM principles (particularly those embodied in the EFQM Model) with the objectives of SD - has been achieved. The proposed SQM model bridges a significant theoretical gap and contributes a practical roadmap for organizations seeking to embed sustainability into their quality systems. By doing so, it advances the discourse on how operational excellence and responsible governance can be mutually reinforcing.

Nonetheless, the SQM framework remains conceptual and requires empirical validation to advance both theoretical understanding and managerial application. Future research should examine whether the model's assumptions - such as the alignment of EFQM enablers with sustainability outcomes - hold across diverse organizational contexts. Key questions include: (1) To what extent do EFQM enablers contribute to achieving integrated quality and sustainability performance?; (2) Under what organizational or sectoral conditions does the SQM framework yield optimal results?; and (3) How consistently can the proposed relationships be observed across different industries and regions? Addressing these questions will be critical to transforming sustainability from a strategic aspiration into an operational reality and ensuring that the SQM model contributes meaningfully to both academic knowledge and organizational practice.

From a practical perspective, several managerial and policy-oriented actions can be derived from the study. Organizations are encouraged to integrate sustainability KPIs into existing quality management systems, conduct cross-functional sustainability audits aligned with EFQM enablers, and establish leadership roles responsible for embedding SD principles into operational and strategic decision-making. Policymakers and regulatory bodies could promote the adoption of integrated frameworks like SQM by aligning funding mechanisms, public procurement policies, and ESG reporting requirements with holistic performance standards that value both quality and sustainability outcomes. In this way, the SQM model not only serves as a theoretical contribution but also as a foundation for actionable strategies that can guide organizational transformation toward sustainable excellence.

References

1. Alotaibi, S., Alogaili, H., Alawwad, K., Aljarallah, S. (2025). The Environmental and Business Benefits of Implementing the ISO 50001 Energy Management System in Government Buildings: A Case Study of the Saudi Standards, Metrology and Quality Organization (SASO). *Sustainability*, 17, 11, p. 5131.
2. Arora-Jonsson, S. (2023). The sustainable development goals: A universalist promise for the future. *Futures*, 146, p. 103087.
3. Bielecka, K. (2017). TQM gwarantem sukcesu jednostki gospodarczej. In: M. Salerno-Kochana (Ed.), *Wybrane aspekty zarządzania jakością* (pp. 14-19). Kraków: Polskie Towarzystwo Towaroznawcze.
4. Bocoya-Maline, J., Rey-Moreno, M., Calvo-Mora, A. (2024). The EFQM excellence model, the knowledge management process and the corresponding results: an explanatory and predictive study. *Review of Managerial Science*, 18, 5, pp. 1281-1315.
5. Bris, P., Urbanek, T. (2024). Monitoring the Connection Between the Application of EFQM Model Principles and the Results of Organisations. *Quality Innovation Prosperity*, 28, 1, pp. 107-126.
6. Bugdol, M. (2018). *System zarządzania jakością według normy ISO: 2015*. Gliwice: Helion.
7. Buzatu, A.-I., Costache, C., Iordache, A. (2019). Lean management for sustainable business development. *Quality - Access to Success*, 20, S2, pp. 139-145.
8. Çağlar, Y., Kadir Varoğlu, A. (2025). Optimizing Strategic Transformation with EFQM Model: A Contingency Theory Perspective. *Business Systems Research*, 16, 1, pp. 130-151.
9. Caputo, A., Schiocchet, E., Troise, C. (2022). Sustainable business models as successful drivers in equity crowdfunding. *Business Strategy and the Environment*, 31, 7, pp. 3509-3522.
10. Dahlgaard-Park, S.M. (2011). The quality movement: Where are you going? *Total Quality Management & Business Excellence*, 22, 5, pp. 493-516.
11. Ebrahimigharehbaghi, S., van der Heijden, H., Elsinga, M. (2022). Sustainable business model of affordable zero energy houses: Upscaling potentials. *Journal of Cleaner Production*, 344, p. 130956.
12. Frankowska, A., Jeswani, H.K., Azapagic, A. (2019). Life cycle environmental impacts of fruits consumption in the UK. *Journal of Environmental Management*, 248, p. 109111.
13. Freeman, R.E., Dmytriyev, S.D., Phillips, R.A. (2021). Stakeholder Theory and the Resource-Based View of the Firm. *Journal of Management*, 47, 7, pp. 1757-1770.
14. Garvin, D.A. (1984). Product Quality: An Important Strategic Weapon. *Business Horizons*, 27, 3, pp. 40-43.
15. Garza-Reyes, J.A. (2015). Green lean and the need for Six Sigma. *International Journal of Lean Six Sigma*, 6, 3, pp. 226-248.

16. Geissdoerfer, M., Savaget, P., Bocken, N.M.P., Hultink, E.J. (2017). The Circular Economy – A new sustainability paradigm? *Journal of Cleaner Production*, 143, pp. 757-768.
17. Glass, L.-M. Newig, J. (2019). Governance for achieving the Sustainable Development Goals: How important are participation, policy coherence, reflexivity, adaptation and democratic institutions? *Earth System Governance*, 2, p. 100031.
18. Głuszek, E., Martusewicz, J. (2025). Supporting sustainable development (ESG) through the EFQM 2020 business excellence model. *Journal of Management and Financial Sciences*, 54, pp. 25-43.
19. Gorenak, Š. (2015). European Foundation for Quality Management Excellence Model Can Encourage ISO 26000 Implementation. In: V. Bobek (Ed.), *Perspectives on Business and Management* (pp. 23-43). Rijeka: InTech.
20. Halkos, G., Gkampoura, E-Ch. (2021). Where do we stand on the 17 Sustainable Development Goals? An overview on progress. *Economic Analysis and Policy*, 70, pp. 94-122.
21. Ingaldi, M. (2022). *Rola satysfakcji klienta w kształtowaniu i poziomowaniu jakości usług*. Częstochowa: Wydawnictwo Politechniki Częstochowskiej.
22. Keckel, L., Lin Feuer, Y.-S., Sassen, R. (2025). Identifying motivations, measures and challenges to implement corporate biodiversity management and reporting: A systematic review across sectors and regions. *Journal of Environmental Management*, 389, p. 125987.
23. Lewandowska, A., Cherniaiev, H. (2022). R&D Cooperation and Investments concerning Sustainable Business Innovation: Empirical Evidence from Polish SMEs. *Sustainability*, 14, 16, p. 9851.
24. Lone, R.A., Bhat, M.A. (2023). Impact of Product Quality on Customer Satisfaction: Evidence from Selected Consumer Durables. *International Journal for Research Trends and Innovation*, 8, 4, pp. 1014-1024.
25. Lotko, M., Paździor, M., Żuchowska-Grzywacz, M., Paździor, P. (2018). *Pomiar jakości produktów i usług. Wybrane zastosowania analizy ważności-realizacji*. Radom: Instytut Naukowo-Wydawniczego „Spatium”.
26. Lozano, R. (2015). A holistic perspective on corporate sustainability drivers. *Corporate Social Responsibility and Environmental Management*, 22, 1, pp. 32-44.
27. Maak, T., Pless, N.M. (2006). Responsible leadership in a stakeholder society—a relational perspective. *Journal of Business Ethics*, 66, 1, pp. 99-115.
28. Martinez-Costa, M., Jimenez-Jimenez, D., Martinez-Lorente, A.R. (2025). EFQM model, green supply chain management and eco-innovation: an exploratory analysis. *Measuring Business Excellence*, 29, 3, pp. 656-674.
29. Martusewicz, J. (2024). Geneza Modelu EFQM. In: P. Rogala, J. Martusewicz, A. Wierzbic (Ed.), *Doskonałość biznesowa - istota i modele* (pp. 37-50). Wrocław: Wydawnictwo Uniwersytetu Ekonomicznego we Wrocławiu.

30. Martusewicz, J., Wierzbic, A., Łukaszewicz, M. (2024). Strategic Transformation and Sustainability: Unveiling the EFQM Model 2025. *Sustainability*, 16, 20, p. 9106.
31. Misztal, A., Ratajszczak, K. (2025). Possibilities of Using Contemporary Quality Management Methods and Tools for the Sustainable Development of the Organization. *Sustainability*, 17, 2, p. 617.
32. Morioka, S.N., Iritani, D.R., Ometto, A.R., de Carvalho, M.M. (2018). Systematic review of the literature on corporate sustainability performance measurement: a discussion of contributions and gaps. *Gestao E Producao*, 25, 2, pp. 284-303.
33. Morsing, M., Schultz, M. (2006). Corporate social responsibility communication: stakeholder information, response and involvement strategies. *Business Ethics: A European Review*, 15, 4, pp. 323-338.
34. Murray, D.W., Ayoun, B.M. (2010). Hospitality student perceptions on the use of sustainable business practices as a means of signaling attractiveness and attracting future employees. *Journal of Human Resources in Hospitality and Tourism*, 10, 1, pp. 60-79.
35. Nidumolu, R., Prahalad, C.K., Rangaswami, M.R. (2009). Why sustainability is now the key driver of innovation. *Harvard Business Review*, 87, 9, pp. 56-64.
36. Opolski, K., Dykowska, G., Możdżonek, M. (2023). *Zarządzanie przez jakość w usługach zdrowotnych*. Warszawa: CeDeWu.
37. Osborne, S.P., Radnor, Z., Nasi, G. (2013). A new theory for public service management? Toward a (public) service-dominant approach. *The American Review of Public Administration*, 43, 2, pp. 135-158.
38. Perenc, J. (2020). Factors determining the improvement of hotel service quality of Sheraton Hotel in Warsaw as seen by customers. *Studia Periegetica*, 2, 30, pp. 125-136.
39. Popescu, M., Mandru, L., Gogoncea, E. (2017). *Quality Management and ISO 9001 Requirements. Theory and Applications*. Aachen: Shaker Verlag.
40. Porter, M.E., Kramer, M.R. (2011). Creating shared value. *Harvard Business Review*, 89, 1/2, pp. 62-77.
41. Purvis, B., Mao, Y., Robinson, D. (2019). Three pillars of sustainability: in search of conceptual origins. *Sustainability Science*, 14, pp. 681-695.
42. Rogala, P. (2020). *Nurt normalizujący w zarządzaniu jakością*. Wrocław: Wydawnictwo Uniwersytetu Ekonomicznego we Wrocławiu.
43. Sadkowski, W. (2016). Przegląd definicji kosztów jakości - postrzeganie i rozumienie kosztów jakości. In: M. Salerno-Kochan (Ed.), *Wybrane aspekty zarządzania jakością* (pp. 247-252). Kraków: Polskie Towarzystwo Towaroznawcze.
44. Senge, P.M. (2006). *The Fifth Discipline: The Art & Practice of The Learning Organization* (Rev. ed.). New York: Doubleday.
45. Silva, C.S., Magano, J., Matos, A., Nogueira, T. (2021). Sustainable quality management systems in the current paradigm: The role of leadership. *Sustainability*, 13, 4, pp. 1-21.

46. Siva, V., Gremyr, I., Bergquist, B., Garvare, R., Zobel, T., Isaksson, R. (2016). The support of Quality Management to sustainable development: a literature review. *Journal of Cleaner Production*, 138, pp. 148-157.
47. Taraza, E., Anastasiadou, S., Anastasiadou, S., Masouras, A., Papademetriou, C. (2023). Sustainable Development and Implementation of Quality Management Excellence Models in Public Organizations: A Systematic Literature Review. *Sustainability*, 15, 10, p. 7971.
48. Tarí, J.J., Portela Maquieira, S., Molina-Azorín, J.F. (2023). *Business Process Management Journal*, 29, 2, pp. 447-464.
49. *The EFQM Model 2025*. Retrieved from: www.efqm.org, 28.07.2025.
50. Urbaniak, M. (2004). *Zarządzanie jakością. Teoria i praktyka*. Warszawa: Difin.
51. Valentinov, V. (2023). Sustainability and stakeholder theory: a processual perspective. *Kybernetes*, 52, 13, pp. 61-77.
52. Wawak, S. (1996). *Zarządzanie przez jakość*. Kraków: Wydawnictwo Informacji Ekonomicznej, Uniwersytet Jagielloński.
53. Wiśniewska, J., Janasz, K. (Eds.) (2013). *Innowacje i jakość w zarządzaniu organizacjami*. Warszawa: CeDeWu.
54. Witjes, S., Lozano, R. (2016). Towards a more Circular Economy: Proposing a framework linking sustainable public procurement and sustainable business models. *Resources, Conservation and Recycling*, 112, pp. 37-44.
55. Woods, A. (2000). Agriculture: Sustainable business - sustainable environment? *Water and Environment Journal*, 14, 2, pp. 94-98.
56. Zeng, S.X., Tam, C.M., Tam, V.W.Y., Deng, Z.M. (2005). Towards implementation of ISO 14001 environmental management systems in selected industries in China. *Journal of Cleaner Production*, 13, 7, pp. 645-656.