Journal of Mechatronics, Automation and Identification Technology
Vol. 11, No. 2, pp. 1–6, 2026.

Synergistic and Conflict Perspectives on the Relationship Between TQM and Organizational Innovation Performance

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***Abstract*— The aim of this paper is to analyze theoretical perspectives on the relationship between TQM and organizational innovation performance based on a review of the relevant literature. The analysis indicates that the relationship between TQM and organizational innovation performance is neither universally synergistic nor inherently conflictual, but rather depends on the dimensions of TQM, the type of innovation, and the organizational context. Particular emphasis is placed on distinguishing between soft and hard TQM practices, as well as between incremental and radical innovation. It is concluded that TQM can provide an important organizational foundation for innovation, while the effects of individual TQM practices depend on how they are implemented and on the specific requirements of different types of innovation.**

***Keywords*— TQM, innovation, innovation performance, exploitation and exploration, continuous improvement**

I. INTRODUCTION

In a dynamic and highly competitive business environment, the long-term survival and sustainable growth of organizations largely depend on their ability to simultaneously manage the efficiency of existing processes while generating new value for the market. The concept of quality has continuously evolved and is increasingly recognized in the contemporary literature as a strategic organizational resource [1]. Innovation has a significant impact on organizational performance by creating greater value for organizations and enhancing their competitive advantage [2]. Against this background, quality management and innovation performance can be regarded as two strategically important organizational concepts that are increasingly viewed in the contemporary literature as key drivers of sustainable competitive advantage.

Certain aspects of quality management, such as standardization and process-oriented TQM practices, are aimed at stabilizing processes and reducing variation, whereas innovation, by its very nature, requires experimentation, risk-taking, and departure from established patterns. Viewed through the lens of the organizational learning theory that distinguishes between exploitation and exploration [3], [4], quality management practices focused on process improvement and standardization can be associated with exploitation, whereas the development of radical innovations is more closely associated with exploration.

The literature on the relationship between quality management (QM) and innovation performance does not suggest a simple distinction between positive and negative effects. Rather, it points to a complex relationship in which QM generally promotes innovation by providing a systematic framework that facilitates the successful implementation of new ideas [1], [5]–[7], while certain standardization and control practices may constrain innovativeness, particularly radical innovation [4], [8]. This theoretical heterogeneity becomes even more pronounced when innovation performance is examined across its different dimensions.

The aim of this paper is to analyze the dominant theoretical perspectives on the relationship between quality management and organizational innovation performance through a review of the relevant literature, to identify the key arguments supporting each perspective, and to examine contemporary theoretical approaches that seek to integrate the existing explanations. Since quality management encompasses a variety of approaches and concepts, Total Quality Management (TQM) was selected as the overarching framework for this study because it integrates both the technical and organizational dimensions of quality management. This approach enables an analysis of the relationship between quality management practices and innovation performance from the perspective of organizational capabilities, processes, and culture.

II. TOTAL QUALITY MANAGEMENT

Total Quality Management (TQM) is a systemic management approach that seeks to ensure that every stage of the process of designing, developing, and delivering a product or service is both efficient and effective in terms of overall system performance [9]. TQM is defined as a

comprehensive management philosophy and a strategic management approach that integrates principles, practices, and techniques aimed at the continuous improvement of organizational performance while permeating all organizational levels and functions [10], [11].

For the purposes of this study, the distinction between the two dimensions of quality management is of particular importance: (1) the social and (2) the technical dimension [12]. The social dimension comprises quality management practices of a behavioral nature, whereas the technical dimension refers to the mechanical methods and techniques used by employees within the organization. This approach to analyzing the TQM system distinguishes between elements that have different organizational implications and provides a better understanding of why TQM can simultaneously act as both an enabler of and a barrier to innovation. In this context, TQM practices can be broadly classified into: (1) soft TQM practices, which focus on the human factor and organizational culture (long-term commitment of top management, customer focus, continuous learning, teamwork, and employee empowerment); and (2) hard TQM practices, which comprise technical and analytical tools and methodologies (process control, data analysis, process management, and the application of standardized tools for error elimination) [13], [14].

TQM can be viewed as a dynamic management system that integrates the technical and organizational dimensions of business operations and provides a framework for developing an organizational culture oriented toward learning, collaboration, and continuous improvement. It is regarded as an integrated system of principles and practices built upon the following core pillars: leadership and top management commitment, customer focus, employee involvement and empowerment, and continuous improvement [6], [10], [11], [15]–[17]. Successful TQM implementation requires top management to establish a clear vision, promote shared organizational values, and provide the resources necessary for the effective functioning of the quality management system; organizations to continuously identify, anticipate, and meet customer needs and expectations; employees to actively participate through training, teamwork, and shared responsibility for process quality; and the adoption of a philosophy that recognizes continuous opportunities for incremental process improvement [18]. The simultaneous pursuit of flexibility and continuous learning, on the one hand, and process stability and standardization, on the other, highlights the complexity of the relationship between TQM and innovation performance. Distinguishing between the soft and hard dimensions of TQM, which operate through different organizational mechanisms, provides a more comprehensive understanding of this relationship.

III. INNOVATION

Innovation refers to the introduction of new or significantly improved products and processes that differ from an organization's existing solutions and are either introduced to the market or implemented in organizational practice [19]. Innovation is a complex and multidimensional phenomenon and, in the contemporary business environment, represents an important source of new opportunities and sustainable competitive advantage [2]. In the organizational context, innovation is not an isolated outcome but is closely associated with a variety of organizational practices and capabilities that influence the creation, adoption, and implementation of new solutions [12], [20], [21].

For the analysis of the relationship between TQM and innovation performance, two classifications of innovation are of particular importance: (1) according to the object of change (product and process innovation) and (2) according to the degree of novelty (incremental and radical innovation). These classifications are not mutually exclusive, as both product and process innovations may differ in their degree of novelty, ranging from incremental improvements to existing solutions to fundamental changes based on new knowledge and technologies. Regardless of the definition or classification adopted, innovation can be understood as change that varies in both its intensity and complexity.

From the perspective of the object of innovation, a clear distinction can be made between what an organization offers to the market and how it produces those offerings, that is, between: (1) product innovation and (2) process innovation [21]. Product innovation primarily focuses on creating new value for customers through the development of new or significantly improved products and services, whereas process innovation refers to the implementation of new or significantly improved production, delivery, or logistics methods and is often aimed at reducing costs, increasing operational efficiency, and improving quality [22].

For the analysis of innovation activities, distinguishing innovations according to their degree of novelty is of particular importance, as this classification reflects the depth of technological change and market impact. Depending on the extent to which an innovation departs from existing knowledge, technologies, products, and organizational practices, innovations can be classified as: (1) incremental innovation and (2) radical innovation [23], [24]. Incremental innovation encompasses relatively small and gradual improvements, modifications, and adaptations of existing products, services, or processes. It relies primarily on an organization's existing knowledge base and is aimed at the gradual improvement of the performance of existing solutions, while involving a relatively lower level of uncertainty than radical innovation. Radical innovation involves fundamental changes that introduce entirely new technologies, products, or business models and represents a significant departure from existing knowledge and technological practices. The distinction between incremental and radical innovation extends beyond the magnitude of change to the organizational processes and capabilities required for their development. This distinction can also be related to the previously discussed concepts of exploitation and exploration in organizational learning [3]. Incremental innovation can be associated with the exploitation of existing knowledge, whereas radical innovation is more closely associated with exploration, involving the search

for new knowledge, experimentation, and a higher degree of risk. This duality provides a broader foundation for examining the relationship between TQM and the two types of innovation [4], [13].

IV. INNOVATION PERFORMANCE

Innovation performance reflects an organization's success in developing and implementing new or significantly improved products and processes. Unlike innovation activities, which encompass the various processes involved in generating and applying new ideas, innovation performance refers to the outcomes of those activities and an organization's ability to successfully translate them into practice. It can be defined as an organization's overall success in generating, adopting, and implementing innovative ideas, products, and processes over time, as well as the economic benefits derived from these activities [25], [26].

In empirical research, innovation performance is most commonly conceptualized as a multidimensional construct and assessed using indicators such as the number and degree of novelty of new products and processes, the speed of their development and introduction, and an organization's performance relative to its competitors [6], [27]. Measuring innovation performance remains challenging due to its multidimensional nature, and researchers typically rely on a combination of objective and subjective indicators [27]. Objective indicators include measurable data such as investment in research and development, the number of patent applications, the number of new products introduced within a given period, and the proportion of revenue generated from the sale of entirely new products [25]. Subjective indicators most commonly rely on managers' assessments of organizational performance relative to competitors, including aspects such as the speed of new product introduction, the level of technological advancement, the number of innovations in business processes, and the overall innovativeness of the organizational culture [28]. Given that different types of innovation require different knowledge, capabilities, and organizational conditions, the impact of TQM may vary across the different dimensions of innovation performance.

V. THE SYNERGISTIC PERSPECTIVE

A substantial body of theoretical and empirical research supports the existence of a complementary, or synergistic, relationship between TQM and innovation performance. From this perspective, the central argument is that there is no fundamental contradiction between TQM and innovation performance; rather, the two exhibit a high degree of complementarity. When successfully implemented, TQM may contribute to the development of organizational conditions and a culture of continuous improvement that support the development and implementation of innovation [6], [29]. The rationale underlying this perspective becomes most apparent when examining how the core principles of TQM support different aspects of innovativeness.

One of the principal arguments supporting a positive relationship between TQM and innovation stems from the principle of continuous improvement. The systematic evaluation of existing products and processes, the identification of problems, and the search for better solutions foster knowledge accumulation and strengthen an organization's capability to continuously modify and improve its existing solutions. This logic is particularly compatible with incremental innovation.

Customer focus represents another important mechanism linking TQM and innovation performance. Feedback from the market enables organizations to identify changes in customer needs at an early stage and direct innovation activities toward creating greater value for the market [5], [6]. TQM practices focused on employees may contribute to the development of organizational capabilities, such as learning, knowledge integration, and strategic flexibility, which are relevant to the new product development process [30].

As noted earlier, soft TQM practices focus primarily on the human dimension of the organization. Empirical studies highlight the importance of leadership, human resource management, and employee involvement for organizational performance and the development of capabilities relevant to innovation [16], [30]. Leadership committed to quality may promote a long-term development vision and create organizational conditions that support continuous improvement and experimentation. Employees directly involved in operational processes possess specific knowledge about existing problems, constraints, and opportunities for improvement. Organizational practices that encourage their participation in problem-solving, knowledge sharing, and the generation of new ideas may enhance an organization's ability to generate and implement innovations.

The synergistic effects of TQM are particularly evident in the domain of process innovation. Process orientation, systematic performance measurement, and continuous problem-solving facilitate the identification of process deviations and opportunities for improving the way business activities are performed. From this perspective, hard TQM practices, such as standardization and process control, can also play a positive role within the synergistic model. Although standardization and process control may create tensions with exploratory activities [4], process discipline and innovation are not necessarily incompatible. Empirical evidence suggests that quality management practices, operating through process management, can positively contribute to different forms of innovation [20], while broader literature reviews indicate a predominantly positive relationship between quality management and process innovation [31].

In summary, the synergistic perspective suggests that TQM can be viewed as an important organizational foundation for the development of sustainable innovation performance. Stable processes, systematic problem-solving, continuous improvement, and a strong focus on customer requirements can reduce operational uncertainty and facilitate the development and implementation of new solutions. TQM may provide a systematic framework and organizational conditions within which new ideas are developed and implemented in a manner that simultaneously supports innovativeness and quality

requirements. The synergy between TQM and innovation stems from an organization's ability to transform the stability and discipline of its existing processes into a foundation for continuous learning, improvement, and the development of new solutions.

VI. THE CONFLICT PERSPECTIVE

The potential conceptual conflict between TQM and innovation is theoretically grounded in the assumption that certain control-oriented quality management practices, particularly standardization, process control, and variation reduction, may favor the exploitation of existing knowledge while constraining the exploratory activities required for radical innovation [32]. The conflict perspective does not argue that TQM as a whole has a negative effect on innovation. Rather, it assumes that specific TQM practices may produce different effects depending on the type of innovation under consideration. To better understand the potential constraining effects of these practices, they should be examined in relation to specific types of innovation.

When the conflict perspective is examined through the distinction between product and process innovation, the literature suggests that individual TQM practices may affect these two types of innovation to different extents. By emphasizing strict process management and variation reduction, process-oriented TQM practices may exhibit a more direct relationship with process improvement and process innovation [14], [20], [33]. However, when the same logic of control is applied to new product development, differences in its effects become more apparent. Product innovation requires a high degree of flexibility, less rigid organizational structures, and greater tolerance for failure. Some empirical studies indicate that hard TQM practices can make a positive contribution to innovation performance, although the nature of their impact varies depending on the type of innovation [14]. Insistence on rigid control during the creative phases of product development may create procedural barriers that reduce the flexibility required for the development of entirely new products, leaving room for debate as to where the positive role of operational discipline ends and where its constraining effect on creativity begins [4], [8], [32]. In such an organizational context, new ideas that depart substantially from existing process standards may be perceived as a risk to system stability [4].

The distinction between incremental and radical innovation provides another important basis for explaining the heterogeneous effects of TQM and its potential inhibitory influence on innovation performance. Incremental innovation is largely compatible with the fundamental principles of TQM. Because incremental innovation relies primarily on an organization's existing knowledge base and competencies, TQM may provide an organizational framework that facilitates its continuous generation and implementation. From the perspective of organizational learning, this logic is closely aligned with the exploitation of existing knowledge, which emphasizes refinement, efficiency, and the improvement of existing solutions [3], [4].

The relationship between TQM and radical innovation is considerably more complex and constitutes the central foundation of the conflict perspective on the relationship between TQM and innovation performance. A dominant emphasis on the continuous improvement of existing processes and solutions may direct organizational efforts toward gradual, evolutionary change. Although such an orientation may facilitate the development of incremental innovation, it may also gradually lock organizations into existing technological trajectories. The excessive application of control-oriented TQM practices during the process of generating new ideas may reduce tolerance for variation and experimentation, thereby creating potential tensions with the risk-taking required for the development of radical innovation [4], [8], [32]. Radical innovation requires departure from an organization's existing knowledge base, exploration of new technological and market opportunities, and acceptance of a higher degree of uncertainty [24].

These arguments should not be interpreted as suggesting that TQM has a negative effect on radical innovation. Rather, they primarily concern specific characteristics of process management and control-oriented practices, rather than all dimensions of TQM. The conflict between TQM and innovation performance does not arise from an inherent opposition between quality and innovation. Instead, it is more appropriately understood as reflecting the different organizational demands imposed by different types of innovation.

In summary, the conflict perspective suggests that a rigid and predominantly control-oriented implementation of TQM may shift the balance of an organization's innovation activities toward operational efficiency, the exploitation of existing knowledge, and the improvement of existing activities. Organizations that excessively institutionalize practices of standardization, process control, and process improvement may become highly successful at improving existing activities, that is, at developing incremental innovation, while simultaneously weakening their ability to explore new technological and market opportunities required for radical innovation [4]. From a long-term perspective, such an imbalance may increase an organization's vulnerability to technological and market changes, as high operational performance alone does not ensure strategic flexibility or the capability to develop radically new solutions.

VII. CONCLUSIONS

The literature reviewed in this paper indicates that the relationship between TQM and innovation performance cannot be adequately explained by a simple assumption of either complementarity or conflict. The synergistic perspective suggests that TQM may provide an important organizational foundation for the development of innovation. Stable and transparent processes can facilitate the identification of problems and opportunities for improvement, while the soft dimensions of TQM may contribute to the development of organizational capabilities relevant to innovation. The conflict perspective demonstrates that the positive effects of TQM are not unconditional. A predominantly control-oriented

implementation of certain TQM practices may favor the exploitation of existing knowledge and incremental improvement while simultaneously constraining activities that require greater experimentation, departure from established technological trajectories, and the exploration of new opportunities. These findings, however, do not constitute evidence of an inherent incompatibility between TQM and radical innovation. Rather, the diversity of findings reported in the literature can be explained by the multidimensional nature of TQM, differences among innovation types, and the way individual quality management practices are implemented. Accordingly, the relationship between TQM and innovation performance is better understood as conditional and context-dependent rather than universally synergistic or conflictual. The key challenge for organizations, therefore, is not to choose between quality and innovation, but to develop the capability to combine the stability and efficiency of existing processes with learning, experimentation, and the development of new solutions.

These conclusions open avenues for further research on the relationship between TQM and innovation from the perspective of organizational ambidexterity, that is, the organization's ability to simultaneously exploit existing knowledge and processes while exploring new opportunities. The findings also suggest that the impact of TQM on innovation performance may not be exclusively direct. Future empirical research should therefore examine in greater detail the mediating relationships between individual dimensions of TQM and different types of innovation performance.

The limitations of this study primarily stem from its theoretical review-based nature and the absence of empirical validation of the relationships discussed. In addition, not all contextual factors that may influence the relationship between TQM and innovation performance were examined in detail, including organizational size, industry characteristics, technological dynamics, and the intensity of competition. At the same time, these limitations point to promising directions for future research.

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