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BUILDING SUSTAINABLE COMPETITIVE ADVANTAGE THROUGH TOTAL QUALITY MANAGEMENT AND ORGANIZATIONAL INNOVATION: A SYSTEMATIC LITERATURE REVIEW

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ABSTRACT

Purpose–This study systematically synthesizes how total quality management (TQM) and organizational innovation jointly create sustainable competitive advantage (SCA), and identifies the mechanisms and boundary conditions that explain inconsistent findings. **Design/methodology/approach**–A structured review was conducted following PRISMA 2020 reporting principles. Three reproducible English-language search strings were applied to OpenAlex for journal articles published from January 2000 to July 2026. The first 50 relevance-ranked records from each query produced 150 records and 131 unique records after DOI/title deduplication. **Title**–abstract screening and eligibility assessment produced a focused synthesis of 30 empirical and review studies directly addressing TQM, innovation, performance, competitiveness, or their mediating mechanisms. **Findings**–TQM contributes to SCA less as a stand-alone efficiency system than as an organizational architecture that develops learning, knowledge integration, employee involvement, customer sensing, process discipline, and innovation capability. Soft TQM generally provides the social conditions for exploratory and organizational innovation, whereas hard TQM provides data, standardization, and execution reliability. Their complementarity enables innovation to translate quality routines into differentiated value, adaptability, cost–quality consistency, and stakeholder legitimacy. Effects vary with culture, leadership, environmental dynamism, firm size, sector, digital maturity, and the balance between control and experimentation. **Originality/value**–The review advances a Quality–Innovation–Advantage (QIA) framework that separates capability formation, innovation conversion, and advantage renewal. It clarifies organizational innovation as both a mediator and a renewal mechanism, explaining why operational gains become sustainable only when quality capabilities are recombined as difficult-to-imitate routines and continuously adapted.

Keywords: organizational innovation; sustainable competitive advantage; systematic literature review; total quality management; quality–innovation complementarity

1. INTRODUCTION

Sustainable competitive advantage remains a central objective of strategic management because firms must create superior value while resisting imitation and adapting to environmental change. The resource-based view explains persistence in performance differences through valuable, rare, inimitable, and organizationally embedded resources (Barney, 1991). Dynamic-capability theory adds that advantage must be renewed through sensing, seizing, and reconfiguration rather than protected as a static position (Teece et al., 1997). Total quality management (TQM) appears relevant to both perspectives: it embeds customer focus, continuous improvement, fact-based decision making, employee involvement, and process discipline in recurring organizational routines. Yet the strategic effect of TQM is disputed because widely diffused quality tools can be copied and because excessive standardization may constrain experimentation.

Organizational innovation offers a plausible resolution to this tension. It includes the introduction of new managerial practices, structures, work arrangements, knowledge processes, and external



relationships that materially change how work is organized and value is created. Unlike product and process innovation alone, organizational innovation reconfigures the system that repeatedly produces innovation. TQM may foster this reconfiguration by developing learning routines, cross-functional coordination, employee problem solving, supplier integration, and customer knowledge. It may also inhibit radical change when compliance, defect prevention, and incrementalism become dominant logics (Prajogo & Sohal, 2001; Singh & Smith, 2004). Thus, the TQM–innovation relationship is contingent rather than automatically positive.

The empirical literature contains both convergence and fragmentation. Studies report positive relationships between TQM and innovation, direct and mediated paths through organizational learning or innovation capability, different roles for soft and hard practices, and variation across industries and national settings (Hung et al., 2011; Perdomo-Ortiz et al., 2006; Prajogo & Sohal, 2003; Yusr, 2016). However, many studies end at innovation or organizational performance and do not explain when performance differences constitute sustainable competitive advantage. Conversely, strategic-management accounts of advantage often under-specify the quality routines and organizational innovations that create reliability, responsiveness, and renewal.

Prior reviews have examined TQM and innovation, quality management–innovation–performance relationships, or the emerging Quality 4.0 domain (García-Fernández et al., 2022; Liu et al., 2023; Prajogo & Sohal, 2001). A remaining gap is an integrated explanation that connects TQM practice bundles to organizational innovation and then to the creation and renewal of advantage. The present review addresses three questions: (RQ1) Which TQM mechanisms enable or constrain organizational innovation? (RQ2) How does organizational innovation convert TQM capabilities into sustainable competitive advantage? (RQ3) Which boundary conditions determine whether the quality–innovation configuration produces durable rather than temporary performance gains?

The study contributes a Quality–Innovation–Advantage (QIA) framework. It distinguishes three linked stages: quality capability formation, innovation conversion, and advantage renewal. It further separates soft and hard TQM while emphasizing their complementarity, positions organizational innovation as a mediator and renewal mechanism, and specifies organizational and environmental contingencies. This process explanation helps reconcile the control–creativity paradox and provides managers with a diagnostic for designing TQM as an adaptive strategic system rather than a certification or cost-reduction program.

2. THEORETICAL FOUNDATIONS

2.1. *Total quality management as an organizational capability*

TQM is a holistic management philosophy that integrates customer orientation, leadership commitment, employee participation, continuous improvement, process management, supplier partnership, training, and information analysis. The literature commonly distinguishes soft TQM from hard TQM. Soft practices shape social and behavioral conditions through leadership, culture, empowerment, teamwork, and learning. Hard practices provide technical control through process measurement, statistical analysis, standardization, design methods, and supplier-quality systems. Treating TQM as a single undifferentiated variable obscures the different routes through which these practices influence innovation.

From a resource-based perspective, individual quality tools are unlikely to be rare. Advantage arises when tools become causally ambiguous, socially complex routines that connect customer knowledge, employee expertise, reliable processes, supplier relationships, and managerial judgment. This architecture can reduce waste and variability while accumulating experience-based knowledge. Its strategic value therefore rests on configuration and organizational embedding, not on the formal adoption label.



2.2. Organizational innovation and the control–creativity paradox

Organizational innovation changes structures, administrative processes, management systems, responsibilities, or relationships. It can support technological innovation by improving how ideas are selected, funded, coordinated, and scaled. Quality management can enable innovation by creating problem-solving discipline, feedback loops, psychological participation, and knowledge sharing. It can also constrain innovation if standards become rigid, failure is stigmatized, metrics favor short-term conformance, or continuous improvement crowds out discontinuous exploration.

The paradox is best addressed through ambidexterity. Exploitative quality routines improve existing operations, while exploratory routines question assumptions and test new arrangements. Soft TQM can create participation and learning; hard TQM can provide reliable data and scalable execution. When connected through leadership and organizational learning, the two practice sets allow disciplined experimentation: ideas are generated broadly, tested against evidence, and institutionalized without losing process reliability.

2.3. Sustainable competitive advantage as an outcome and renewal process

Competitive advantage refers to superior value creation relative to rivals; sustainability concerns the persistence or renewal of that superiority. In dynamic markets, sustainability does not require an unchanged advantage. It can arise from a repeatable capacity to renew products, services, processes, and business models faster or more effectively than competitors. TQM supports the exploitation of reliability, cost, and customer trust, while organizational innovation supports adaptation, differentiation, and recombination.

Accordingly, this review does not equate a cross-sectional performance coefficient with demonstrated SCA. Evidence is interpreted as supporting SCA when mechanisms plausibly create value, resist simple imitation through organizational embeddedness, and support renewal under change. This more demanding criterion prevents routine efficiency gains from being overstated as durable strategic advantage.

3. METHOD

3.1. Review design and reporting standard

The study used a systematic, theory-building literature review and followed PRISMA 2020 principles for transparent identification, screening, eligibility, and reporting (Page et al., 2021). Because the research questions concern heterogeneous management mechanisms rather than a common intervention effect, findings were synthesized narratively and configurationally rather than statistically pooled. The unit of analysis was a peer-reviewed journal article that directly examined at least two elements of the TQM–organizational innovation–performance/competitive advantage chain.

3.2. Search strategy and eligibility criteria

The search was executed on 8 August 2026 using OpenAlex, a reproducible scholarly metadata index, supplemented by DOI and publisher-page checks. Coverage was restricted to English-language journal articles published from 1 January 2000 through 31 July 2026. Three search strings were used: (1) "total quality management" AND innovation; (2) TQM AND innovation performance; and (3) quality management AND organizational innovation AND competitive advantage. To create a focused and auditable corpus, the first 50 relevance-ranked results from each string were exported. The 150 retrieved records were deduplicated by DOI and normalized title, leaving 131 unique records.

Articles were included when their title, abstract, or accessible full text addressed TQM or multidimensional quality-management practices together with organizational, management, product, process, green, service, or technological innovation; innovation capability or organizational learning as a mechanism; or performance, competitiveness, sustainability, or competitive advantage as a downstream outcome. Exclusion criteria were: quality control used only as an engineering



technique; clinical or laboratory quality without an organizational-management construct; non-journal formats; articles lacking an innovation or strategic-performance link; and duplicate or substantively redundant records. Seminal strategic-management sources were added only to frame RBV and dynamic capabilities, not counted as focal review studies.

3.3. Screening, coding, and synthesis

After deduplication, 131 titles and abstracts were screened. Ninety-one records were excluded as off-topic, purely technical, or lacking a TQM–innovation/strategic outcome relationship. Forty records proceeded to eligibility assessment using abstracts, DOI metadata, and accessible full text or publisher descriptions; 10 were excluded because the mechanism was insufficiently specified or the article duplicated evidence represented more directly elsewhere. The final qualitative synthesis contained 30 focal studies. Each study was coded for context, design, TQM dimensions, innovation type, mediators/moderators, downstream outcome, direction of association, and limitations. Codes were compared iteratively to derive first-order mechanisms and higher-order themes. No meta-analysis was performed because constructs, measures, samples, and outcomes were not sufficiently homogeneous.

Identification	150 records retrieved; 131 unique after DOI/title deduplication
Screening	131 titles/abstracts screened; 91 excluded
Eligibility	40 records assessed; 10 excluded for weak mechanism or redundancy
Included	30 focal studies included in qualitative synthesis

Figure 1. Study selection flow for the systematic literature review

3.4. Quality safeguards and limitations of the search

Methodological safeguards included an explicit search date, reproducible strings, DOI/title deduplication, predefined eligibility criteria, construct-level coding, and separation of focal studies from background theory. The review nevertheless has limitations. OpenAlex relevance ranking and English-language restriction may omit relevant evidence; the review was conducted by one author, so screening reliability was not independently estimated; and unequal access to full texts constrained formal risk-of-bias scoring. The counts should therefore be interpreted as a transparent focused review corpus, not as exhaustive coverage of all TQM research. These limitations are revisited in Section 6.

4. RESULTS

4.1. Characteristics of the evidence base

The corpus spans manufacturing, services, high-technology, higher education, public service, and SMEs across both developed and emerging economies. Quantitative cross-sectional surveys and structural-equation models dominate, while conceptual reviews and a smaller number of case-based studies provide mechanism detail. Innovation is measured variously as product, process, technological, administrative, service, green, or overall innovation performance. Downstream outcomes include operational and organizational performance, sustainability, competitiveness, and, less frequently, explicit competitive advantage. This heterogeneity supports theory-building but limits causal and meta-analytic conclusions.

Representative study	Context/focus	Mechanism examined	Key contribution to synthesis
Prajogo & Sohal (2001, 2003)	Cross-sector review and empirical evidence	TQM–quality–innovation tension	Established the control–innovation debate and multidimensional TQM effects.
Singh & Smith (2004)	Australian manufacturing	TQM and innovation	Showed that a simple universal positive relationship is not guaranteed.



Representative study	Context/focus	Mechanism examined	Key contribution to synthesis
Perdomo-Ortiz et al. (2006, 2008)	Business innovation capability	Capability mediation	Positioned innovation capability as the conversion mechanism from TQM.
Hung et al. (2011)	High-technology industry	Organizational learning	Demonstrated learning as a bridge between TQM and innovation performance.
Kim et al. (2012)	Quality practices and innovation	Practice configurations	Separated infrastructure and core practices and their different innovation effects.
Yusr (2016)	Malaysian manufacturing	Innovation capability mediation	Supported an indirect TQM–innovation performance pathway.
Zeng et al. (2017)	Knowledge management processes	TQM–knowledge interaction	Showed complementarity between quality routines and knowledge processes.
García-Fernández et al. (2022)	Systematic review	Quality–innovation–performance	Confirmed fragmentation and the need for integrated mechanism models.
Liu et al. (2023)	Quality 4.0 review	Digital quality transformation	Extended quality capability toward analytics, connectivity, and adaptive systems.

Table 1. Representative evidence and its role in the synthesis

4.2. Theme 1: Soft TQM builds the social infrastructure for innovation

The strongest recurring mechanism is social rather than purely technical. Leadership commitment legitimizes improvement and experimentation; employee involvement broadens the source of ideas; training creates problem-solving competence; customer focus directs attention toward unmet needs; teamwork and cross-functional coordination move knowledge across boundaries. Studies linking TQM with organizational learning, knowledge management, and employee performance indicate that these practices create absorptive and combinative capacity rather than innovation output by themselves (Hung et al., 2011; Ooi et al., 2012; Zeng et al., 2017).

Soft TQM also determines whether standardization becomes enabling or coercive. When employees participate in defining standards and using performance information, routines preserve accumulated knowledge and provide a baseline for experimentation. When standards are imposed mainly for compliance, they can narrow discretion and encourage defensive behavior. Organizational culture and leadership therefore condition whether TQM stimulates learning or reinforces rigidity.

4.3. Theme 2: Hard TQM supplies evidence and scalability, but requires complementarity

Process management, measurement, statistical analysis, design control, supplier integration, and documented routines reduce variation and make cause–effect relationships more visible. These practices support innovation by identifying failures, testing changes, transferring successful solutions, and scaling new arrangements reliably. Technical discipline is particularly important when innovation must meet safety, quality, regulatory, or interoperability requirements.

However, hard TQM shows more contingent effects than soft TQM. Excessive emphasis on conformance can privilege incremental improvement and suppress radical alternatives. Evidence separating social and technical quality practices suggests that technical practices often influence innovation indirectly through social practices, learning, or complementary context rather than through a uniform direct path (Schniederjans & Schniederjans, 2015). The strategic unit is therefore the practice bundle: data without participation becomes control, while participation without process evidence can become unscalable improvisation.

4.4. Theme 3: Organizational innovation converts quality capability into strategic value

Organizational innovation is the pivotal conversion mechanism. Quality routines generate information, discipline, and distributed problem-solving capacity; organizational innovation



recombines these resources into new structures, decision rights, coordination mechanisms, partnerships, and knowledge systems. This reconfiguration supports product, process, service, business-model, and green innovation. Mediation findings involving innovation capability, organizational learning, and service or green innovation reinforce the view that TQM frequently affects strategic outcomes through an intermediate renewal mechanism rather than only through direct efficiency gains (Perdomo-Ortiz et al., 2006; Yusr, 2016).

The conversion mechanism operates through five linked processes: sensing customer and process signals; integrating dispersed knowledge; selecting and experimenting with alternatives; institutionalizing successful practices; and reconfiguring routines as conditions change. Organizational innovation is thus both an outcome of TQM and a higher-order capability that prevents quality routines from becoming obsolete.

4.5. Theme 4: Advantage is sustained through dual value creation and continuous renewal

The reviewed evidence supports two broad value pathways. The first is operational: lower defects, stable delivery, reduced waste, faster recovery, and consistent customer value. The second is adaptive and differentiating: faster learning, new offerings, flexible structures, sustainability innovation, and responsiveness to environmental shifts. Competitors may copy individual tools, but it is harder to imitate the historically developed configuration of leadership behavior, employee knowledge, customer relationships, process data, and learning routines.

Sustainability of advantage nevertheless cannot be inferred solely from short-term performance. It depends on renewal frequency, path dependence, causal ambiguity, and stakeholder legitimacy. Green and service innovation studies indicate that TQM can connect efficiency with wider social and environmental value, strengthening reputation and license to operate. Digital Quality 4.0 capabilities add real-time sensing and analytics but also require governance, employee skills, and human judgment. The evidence therefore supports a dynamic view: SCA is the capacity to repeatedly regenerate quality and innovation advantages, not the indefinite preservation of one superior process.

4.6. Boundary conditions

Six contingencies explain divergent findings. (1) Organizational culture determines tolerance for voice, learning, and controlled failure. (2) Leadership determines whether quality metrics are used for inquiry or punishment. (3) Environmental dynamism raises the value of exploration and makes rigid standardization riskier. (4) Firm size and resource availability affect formalization and investment capacity. (5) Sectoral requirements alter the appropriate balance between reliability and novelty. (6) digital maturity determines whether data and connectivity strengthen learning or simply add technical complexity. These conditions imply equifinality: different TQM–innovation configurations may produce advantage in different settings.

5. QUALITY–INNOVATION–ADVANTAGE FRAMEWORK



Figure 2. Quality–Innovation–Advantage (QIA) framework

Stage 1, quality capability formation, combines soft and hard TQM. Social practices create participation, customer orientation, and learning; technical practices create reliable information, repeatability, and execution discipline. Stage 2, organizational innovation conversion, transforms these capabilities through knowledge integration, experimentation, structural redesign, and institutionalization. Stage 3, advantage creation and renewal, produces dual value through



operational reliability and differentiated adaptation. Feedback from customers, processes, and the environment returns to Stage 1, making the framework recursive rather than linear.

5.1. Propositions derived from the synthesis

Proposition 1. A complementary configuration of soft and hard TQM is more strongly associated with organizational innovation than either practice set implemented in isolation.

Proposition 2. Organizational learning and knowledge integration mediate the relationship between TQM practice bundles and organizational innovation.

Proposition 3. Organizational innovation mediates the relationship between TQM capabilities and competitive advantage by converting quality routines into differentiated and adaptive value.

Proposition 4. The positive effect of TQM on organizational innovation is stronger when leadership supports employee voice, evidence-based experimentation, and learning from controlled failure.

Proposition 5. Environmental dynamism strengthens the value of exploratory organizational innovation but weakens configurations dominated by rigid conformance control.

Proposition 6. Sustainable competitive advantage is strongest when operational quality advantages are coupled with a recurring capability to renew structures, processes, offerings, and stakeholder relationships.

5.2. Managerial implications

Managers should diagnose TQM as a portfolio of capabilities rather than as certification compliance. A quality system intended to support innovation should balance leadership and employee involvement, customer and supplier knowledge, process analytics, structured experimentation, and mechanisms for scaling successful changes. Improvement metrics should include idea conversion, learning speed, cross-functional adoption, and customer-value renewal alongside defects, cost, and cycle time.

The control–creativity tension should be designed, not ignored. Stable standards are appropriate for safety-critical and repeatable activities, while protected experimental spaces are needed for uncertain problems. Teams can use disciplined experiments, after-action reviews, and explicit criteria for when a provisional innovation becomes a standard. This creates a moving standard: today’s best-known method remains open to evidence-based revision.

Boards and senior leaders should distinguish temporary performance from SCA. A quarterly cost reduction is valuable but easily copied if it rests on a generic tool. A stronger strategic indicator is the organization’s demonstrated ability to sense emerging needs, mobilize cross-functional knowledge, introduce reliable innovations, and repeat the cycle. Investments in digital quality should therefore combine technology with data governance, workforce capability, and decision rights.

6. DISCUSSION

The synthesis resolves three conceptual problems. First, it explains why TQM can support both exploitation and exploration: soft practices provide learning and voice, while hard practices provide evidence and scalable execution. Second, it explains inconsistent direct effects by positioning organizational learning, knowledge integration, and innovation capability as conversion mechanisms. Third, it raises the outcome standard from generic performance to dynamic SCA. TQM creates strategic value when its routines become socially embedded and difficult to imitate, while organizational innovation prevents those routines from becoming rigid.

The QIA framework extends RBV by identifying the micro-foundations of a quality-based resource configuration and extends dynamic-capability theory by specifying how customer and process information enters reconfiguration. It also refines the TQM–innovation debate: the relevant question is not whether standardization is inherently compatible with creativity, but which activities should be stabilized, which should remain open to experimentation, and how learning moves between the two.

6.1. Research agenda



Future studies should use longitudinal, multi-source designs to observe the sequence from TQM implementation through organizational innovation to competitive outcomes. Configurational methods can test equifinal combinations of soft and hard practices. Multi-level designs should connect leadership and culture to team experimentation and firm outcomes. Researchers should distinguish incremental, radical, management, service, green, and digital innovation; compare stable and turbulent environments; and use objective indicators of advantage persistence, renewal frequency, customer retention, and relative performance. Studies in emerging-economy SMEs are especially needed because resource constraints, owner centrality, and institutional conditions may alter the optimal configuration.

6.2. Limitations

This review has four limitations. First, the focused OpenAlex protocol and relevance-ranked export do not guarantee exhaustive retrieval. Second, English-language and journal-article restrictions may create publication and language bias. Third, single-author screening prevents calculation of inter-rater reliability. Fourth, heterogeneity and the dominance of cross-sectional studies prevent causal or meta-analytic claims. The proposed framework and propositions are therefore theory-building outputs that require empirical testing, not estimates of universal effect size.

7. CONCLUSION

TQM can build sustainable competitive advantage when it operates as an adaptive organizational capability rather than a static control system. Soft TQM creates the social infrastructure for learning and participation; hard TQM creates reliable information and execution discipline; organizational innovation converts both into new ways of organizing and delivering value. Advantage becomes sustainable when quality and innovation jointly produce efficiency, differentiation, adaptability, and stakeholder legitimacy—and when the organization can renew this configuration as conditions change. The central strategic lesson is complementarity: quality without innovation risks rigidity, while innovation without quality risks inconsistency. Their disciplined integration creates the strongest foundation for durable and renewable advantage.

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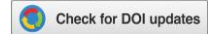
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