



The Interplay Between Total Quality Management and Innovation Insights and Implications for Sustainable Organizational Growth

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ABSTRACT

This conceptual article examines how Total Quality Management (TQM) can simultaneously enable and constrain innovation and explains the conditions under which quality-oriented routines contribute to sustainable organizational growth. The analysis integrates established TQM principles, including customer focus, continuous improvement, employee involvement and process discipline, with innovation perspectives concerned with exploration, experimentation and adaptive capability. The synthesis shows that TQM is especially compatible with incremental innovation because structured problem solving and feedback systems improve reliability while creating repeated opportunities for refinement. However, excessive standardization, efficiency pressure and risk aversion can narrow exploratory behaviour and weaken radical innovation. The article therefore develops an integrative perspective in which strategic alignment, cultural adaptability, cross-functional collaboration, digital capability and ambidextrous governance connect quality management with different innovation modes. The resulting framework positions TQM not as a fixed control system but as an adaptable management architecture that can protect operational excellence while creating space for experimentation. The article contributes by clarifying the boundary conditions of the TQM-innovation relationship and by offering practical pathways for managers seeking sustainable growth without sacrificing either quality discipline or innovative capacity.

Keywords: Quality, Innovation, Sustainability, Strategy, Adaptability

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1. INTRODUCTION

Contemporary organisations operate under simultaneous pressure to deliver dependable quality and to renew products, services and processes at increasing speed. Total Quality Management remains influential because it institutionalises customer focus, continuous improvement, employee participation and process discipline across organisational activities. Innovation, however, requires more than reliable execution. It also depends on experimentation, knowledge recombination and the willingness to challenge established routines. The strategic problem is therefore not whether quality or innovation should dominate, but how both can coexist without weakening one another. Established quality-management research shows that systematic routines can strengthen operational performance, while innovation scholarship emphasises adaptability and exploration as sources of long-term competitiveness (Goetsch & Davis, 2021; Crossan & Apaydin, 2010). Managers should therefore evaluate quality routines according to whether they improve learning as well as operational control. Procedures are valuable when they clarify accountability and expose performance gaps, provided employees can still challenge assumptions when new evidence appears. Combining operational metrics with learning indicators gives management visibility over both current reliability and emerging adaptive capacity. By balancing dependable execution with organisational learning, the organisation can protect current performance without sacrificing the capabilities needed for future renewal.

The relationship between TQM and innovation is inherently ambivalent. Quality systems encourage disciplined problem solving, defect prevention and repeated learning, all of which can create favourable conditions for incremental innovation. Small improvements accumulate, customer feedback becomes actionable, and employees gain structured mechanisms for identifying process weaknesses. Yet the same emphasis on standardisation and control may become restrictive when organisations need radical innovation that involves uncertain outcomes and departures from established procedures. Prior studies therefore describe a relationship that is neither automatically complementary nor consistently conflicting (Hoang et al., 2006; Antunes et al., 2017). The central managerial challenge is to preserve the reliability benefits of TQM while preventing quality routines from becoming organisational rigidity. The appropriate balance therefore depends on managerial judgement and the specific demands of the operating context. Controls are more effective when employees understand why they exist, can interpret the evidence they generate and are able to propose adjustments. Review routines should connect strategic priorities, operational results and learning from experiments so that compliance is not treated as the only sign of quality effectiveness. Preventing quality discipline from hardening into rigidity gives TQM a more durable role because reliability and adaptation are developed through the same management system.

Context is critical because the value of TQM for innovation changes across technologies, markets and organisational settings. Mature sectors may benefit strongly from process discipline because competitive advantage depends on reliability, efficiency and continuous refinement. High-velocity sectors face a different problem: quality systems must remain sufficiently flexible to accommodate rapid technological change, shorter product cycles and uncertain customer expectations. Research on organisational innovation has long shown that environmental and structural conditions influence how firms generate and adopt new ideas (Damanpour, 1991). More recent work similarly stresses the importance of adapting quality frameworks when market conditions demand faster learning and experimentation (Ruiz-Moreno & Gutiérrez, 2023). Standardisation is more effective when it

follows learning and evidence rather than being imposed before the organisation understands the problem. Teams can record effective practices, compare outcomes and adjust routines as new evidence accumulates. This sequence preserves dependable execution while keeping established procedures sufficiently flexible to accommodate future organisational renewal. Attention to adapting quality routines across different market conditions helps the organisation sustain dependable operations while preserving room for future change.

Sustainable organisational growth adds another layer to the TQM-innovation relationship. Growth that depends only on efficiency can become fragile when customer expectations, technologies or competitive structures change. Conversely, innovation without process discipline can consume resources without producing reliable value. Sustainable growth therefore requires an organisational architecture that connects operational excellence with renewal capability. This logic is visible in research linking entrepreneurial orientation, quality practices and organisational performance, where TQM can act as a mechanism through which strategic intent is translated into repeatable organisational outcomes (Al-Dhaafri et al., 2016). It is also consistent with contemporary work that connects innovation capability with longer-term competitiveness and responsible organisational development (Jamaludin et al., 2024). Managers therefore need measures that cover cost, quality and delivery while also tracking experimentation, knowledge creation and learning speed. This broader measurement approach reduces the likelihood that immediate efficiency targets crowd out strategic renewal. It also clarifies where controls add value and where greater flexibility is justified by the learning demands of innovation. The value of aligning operational excellence with long-term renewal lies in strengthening present execution without narrowing the organisation's capacity to adapt.

Against this background, the article develops a conceptual synthesis of the interplay between TQM and innovation and its implications for sustainable organisational growth. It addresses three connected questions: how TQM influences different forms of innovation, which organisational conditions allow quality practices to enable rather than constrain innovation, and how managers can integrate quality discipline with exploratory capability. Rather than treating TQM as a fixed set of control techniques, the analysis positions it as a management architecture whose effects depend on strategic alignment, leadership, culture, digital capability and the allocation of resources for experimentation. This approach retains the original concern with customer focus, continuous improvement and teamwork while extending the argument toward adaptive governance and sustainable growth (Oakland, 2019; Zeng et al., 2015). The key requirement is alignment between the management approach and the characteristics of the activity. Stable activities can tolerate tighter controls, whereas uncertain work requires protected space for testing, reflection and adjustment. Leaders should make this distinction explicit and move validated experimental learning into routine operations once evidence justifies adoption.

2. LITERATURE REVIEW

The literature establishes TQM and innovation as complementary only under specific organisational conditions. The following synthesis examines quality foundations, innovation logic, customer orientation, collaborative learning and the tension between standardisation and exploration. Together, these perspectives provide the conceptual basis for explaining why the same TQM practices may support incremental innovation while constraining more radical forms of renewal.

2.1 Total Quality Management Foundations Organisational Excellence Principles

TQM is an organisation-wide management philosophy that coordinates quality objectives with customer expectations, process improvement and employee involvement. Its importance lies in moving quality responsibility beyond inspection functions and embedding it into routine managerial decisions. Continuous improvement gives employees a structured way to identify variation, solve recurring problems and stabilise processes, while customer orientation provides an external standard for judging whether those improvements create value. These principles explain why TQM has remained relevant even as organisations have adopted newer operational and digital practices (Oakland, 2019; Imai, 2012). Managerial assessment should distinguish routines that merely enforce compliance from those that also generate useful learning. Formal routines should make responsibility and results visible without preventing employees from revisiting decisions that no longer fit current evidence. Performance systems should connect efficiency and quality measures with evidence of experimentation, learning and capability development. When managers prioritise embedding learning within foundational TQM practice, quality discipline can support sustainable performance rather than merely reinforce existing routines. Performance assessment should combine conventional operating measures with evidence that experimentation and organisational learning are creating new capability.

The organisational value of TQM also depends on its social elements. Employee involvement, teamwork and leadership commitment determine whether formal quality tools become learning mechanisms or merely compliance routines. Hard practices such as process control can improve consistency, but soft practices create the participation needed to interpret problems and generate solutions. The distinction matters for innovation because ideas rarely emerge from technical control alone. They require people to exchange knowledge and question existing assumptions. Research on hard and soft quality management supports this complementary view (Zeng et al., 2015; Flynn et al., 1994). No universal configuration is suitable; managers must determine the appropriate balance according to task uncertainty and strategic priorities. Quality mechanisms create learning value when employees understand their intent and can act on the performance information they reveal. Organisations need review processes that integrate performance results with experimentation and knowledge transfer rather than concentrating exclusively on procedural compliance. Combining hard quality controls with employee participation improves long-term viability by linking operational dependability with continuing capability renewal. A balanced measurement system should connect operational efficiency with learning quality, experimentation progress and the movement of knowledge across the organisation.

2.2 Innovation Drivers Sustainable Organisational Growth Capability Renewal

Innovation enables organisations to renew their value propositions, technologies and operating methods in response to changing environments. It includes incremental improvements that refine existing activities and more radical changes that alter products, processes or business models. This distinction is central to the TQM debate because the routines that support one form of innovation may not support another. Incremental innovation often benefits from disciplined learning, whereas radical innovation requires greater tolerance for ambiguity and failure. A multidimensional understanding of innovation therefore provides a stronger basis for analysing quality-management effects than treating innovation as a single outcome (Crossan & Apaydin, 2010; Damanpour, 1991). A better design allows teams to discover effective practices first and standardise them once evidence

supports wider adoption. Documenting tested practices allows teams to compare performance and refine routines when conditions or evidence change. Evidence-led standardisation can protect current reliability without turning procedures into obstacles to later innovation. A focus on connecting innovation modes with appropriate quality routines enables the organisation to maintain reliable outcomes while building the flexibility required for later transformation. Organisations also need evidence showing whether improvement activity is expanding knowledge rather than only reducing existing process variation.

Sustainable growth requires innovation to create repeatable organisational value rather than isolated novelty. New ideas must eventually be converted into reliable processes, scalable offerings and capabilities that the organisation can maintain. TQM can contribute at this conversion stage by providing routines for validation, learning and standardisation after experimentation has generated a promising solution. Innovation and quality therefore operate across different but connected phases of organisational renewal. Evidence from new product development also indicates that innovation success depends on alignment among strategy, process and organisational capability (Yusof & Salleh, 2021; Yusof et al., 2020a; Yusof et al., 2020b). Performance assessment should combine conventional operating indicators with evidence of experimentation, knowledge development and learning velocity. Such measurement prevents short-term productivity from becoming the only criterion used to judge strategically important work. The approach reveals which controls strengthen performance and which activities require more adaptive arrangements. Through converting promising ideas into scalable organisational value, current quality performance becomes a platform for renewal rather than a barrier against it. Measurement should extend beyond cost, quality and delivery by tracking how quickly useful learning is generated and transferred.

2.3 Customer Focus Continuous Improvement Innovation Enabling Mechanisms

Customer focus connects quality management with innovation by directing organisational attention toward problems that matter to users. Feedback, complaint analysis and quality-function mechanisms can reveal performance gaps that become opportunities for product or process improvement. When customer information is interpreted rather than merely recorded, it can support systematic experimentation around features, service design and reliability. This pathway is particularly strong for incremental innovation because customers can articulate dissatisfaction with existing offerings and provide concrete signals for refinement (Sánchez & Blanco, 2014; Gupta & Sharma, 2023). Effective integration depends primarily on matching quality practices to the level of uncertainty involved. Mature processes may benefit from stronger standardisation, while exploratory initiatives need greater discretion for learning and revision. Leadership must separate exploratory work from mature execution and create a clear pathway for transferring proven learning into standard practice. Using customer insight as a source of disciplined experimentation strengthens sustainable growth by ensuring that operational consistency does not displace learning and adaptation. Broader indicators help managers determine whether quality discipline is improving current execution while also strengthening future capability.

Continuous improvement reinforces this customer orientation by turning identified gaps into recurring problem-solving cycles. The discipline of small-step improvement reduces waste and variability while creating an organisational habit of questioning current performance. However, managers must recognise that expressed customer needs do not always reveal emerging or latent

demand. Excessive dependence on current users may narrow the search space and encourage firms to optimise existing solutions rather than imagine alternatives. Quality routines therefore need complementary exploratory mechanisms when strategic renewal requires more than incremental refinement (Bysted et al., 2020; Sánchez & Blanco, 2014). The managerial test is whether a quality practice clarifies control while still helping employees learn from performance evidence. Clear procedures support control, yet their design should leave room for teams to question assumptions when performance signals point elsewhere. Integrating conventional metrics with learning measures helps firms see whether reliability is being achieved without weakening adaptability. The strategic contribution of protecting exploratory search beyond expressed customer needs is its ability to connect immediate reliability with longer-term organisational renewal. Managers should assess operational efficiency together with the quality of experimentation, knowledge creation and learning transfer.

2.4 Teamwork Knowledge Integration Cross Functional Collaboration Capability

Innovation is frequently cross-functional because valuable ideas combine technical, market, operational and customer knowledge. TQM supports this integration when teamwork is treated as a problem-solving capability rather than a ceremonial practice. Cross-functional groups can trace quality problems across departmental boundaries, identify root causes and coordinate improvements that no single function could implement alone. Such collaboration also reduces information fragmentation and helps organisations translate customer requirements into operational changes. Quality-oriented teamwork can therefore provide an infrastructure for knowledge integration and incremental innovation (Jha et al., 2023; Rahman et al., 2021). The relationship is contingent, requiring managers to adjust control intensity according to the nature of the activity. Control systems contribute more when staff can explain their purpose, analyse results and recommend evidence-based changes. Periodic reviews are more useful when they relate operating evidence to strategic aims and lessons from experimentation. Embedding using cross-functional teamwork as a knowledge-integration capability allows quality management to serve both present performance requirements and future capability development. Performance assessment should combine efficiency measures with evidence about learning, experimentation and cross-functional knowledge transfer.

The innovative value of teamwork depends on psychological and structural conditions. Teams need authority to test alternatives, access to relevant information and leadership that permits constructive disagreement. If quality culture is interpreted as strict conformity, employees may avoid proposing uncertain ideas even when cross-functional meetings are frequent. Conversely, a participative quality culture can combine discipline with creative contribution. Human-centred work design and employee involvement are relevant because innovation capability ultimately depends on how people interact with systems, technology and organisational expectations (Yusof & Abd Wahab, 2020; Basu & Bhola, 2021). Standardisation should consolidate validated learning instead of predetermining how every uncertain activity must be performed. Teams should capture lessons from successful trials, evaluate comparative results and revise routines where later evidence warrants change. By codifying proven learning rather than assumptions, quality discipline can stabilise performance while keeping renewal possible. Organisations that emphasise creating psychologically safe conditions for creative contribution are better positioned to retain control while adapting their routines as conditions change. Teams should track whether improvement efforts create transferable learning instead of merely refining current operating routines. (García-Sánchez et al., 2023).

2.5 Standardisation Exploration Tensions Quality Innovation Strategic Balance

The central theoretical tension is the contrast between exploitation and exploration. TQM strengthens exploitation by refining routines, reducing variation and improving the efficiency of known processes. Innovation, particularly radical innovation, often requires exploration through experimentation, variation and temporary inefficiency. The tension does not imply that TQM is incompatible with innovation. It means that quality systems designed exclusively around control can crowd out activities whose value is uncertain at the outset. Organisational rigidity has therefore been identified as an important boundary condition in the quality-innovation relationship (Moreno-Luzon et al., 2015; Silva et al., 2021). A balanced measurement system should capture operational outcomes together with the pace and quality of organisational learning. A wider performance lens helps management avoid sacrificing long-term renewal for temporary efficiency gains. Such visibility helps managers distinguish productive discipline from control that unnecessarily constrains innovation. Balancing exploitation efficiency with exploratory learning creates a more resilient basis for growth because dependable execution and organisational renewal are treated as complementary objectives. Performance systems should include experimentation outcomes and knowledge movement alongside conventional cost, quality and delivery measures.

A more productive interpretation treats standardisation as contingent rather than absolute. Organisations can standardise mature processes while protecting separate spaces for experimentation, and they can introduce discipline after a new idea has demonstrated value. This sequencing allows quality management to support scaling without prematurely constraining discovery. Structural contingency perspectives similarly suggest that quality practices should be configured according to organisational needs rather than applied uniformly (Schniederjans & Schniederjans, 2015). The resulting argument shifts attention from whether TQM promotes innovation to how its design determines which innovation behaviours become possible. The main requirement is a deliberate fit between control intensity and the nature of the work. Well-understood operations can use tighter routines, but emerging innovation tasks require flexibility to test alternatives and learn. Managers should identify when experimentation has produced sufficient evidence and then institutionalise the resulting practice through appropriate quality routines. The resulting emphasis on sequencing standardisation after evidence has validated new ideas helps convert quality discipline into a source of adaptability rather than institutional inertia. Expanded performance measures allow leaders to see whether process discipline contributes to both reliable delivery and continued learning.

3. STRUCTURAL TENSIONS SHAPING TQM INNOVATION RELATIONSHIP DYNAMICS

This part identifies the organisational conditions that can turn quality discipline into a constraint on innovation. The emphasis is on process rigidity, resource pressure, risk aversion, environmental differences and leadership or cultural barriers. These tensions explain why TQM cannot be expected to produce the same innovation effects across all organisations.

3.1 Process Discipline Constraints Radical Innovation Experimentation Capacity

Process discipline becomes restrictive when consistency is treated as an obligation to preserve established routines rather than as a platform for disciplined learning. Quality systems support

process discipline by making work visible and repeatable, yet excessive attachment to consistency can freeze routines that innovation needs to question. The problem becomes acute when radical experiments require temporary variation and outcomes cannot be defended through routine efficiency metrics. The TQM-innovation debate should therefore distinguish disciplined learning from procedures that persist without strategic purpose. Evidence that TQM can both support and restrict innovation reinforces the need to separate useful discipline from rigidity (Antunes et al., 2017; Honarpour et al., 2024). Managers need to assess process discipline by its capacity to improve both execution and organisational learning. Process rules are most useful when they create visibility and accountability while preserving authority to reconsider outdated assumptions. Managers gain a fuller view of performance when delivery and quality indicators are considered alongside learning speed and experimentation progress.

Process discipline should be redesigned by separating the governance of established operations from the governance of radical experimentation. Managers should separate high-reliability operations from exploratory work and calibrate process controls according to the uncertainty of each activity. Established operations can retain strict process discipline, while radical projects use staged reviews and bounded trials to manage uncertainty. This differentiated design preserves accountability without requiring radical experiments to satisfy the metrics used for stable operations. This separation is consistent with evidence that innovation outcomes depend on contextual fit and organisational flexibility (Prajogo & Sohal, 2004; Ruiz-Moreno & Gutiérrez, 2023). Effective application depends on contextual judgement rather than the mechanical adoption of one standardised formula. Employee understanding is essential because controls become useful learning devices only when people can interpret results and influence improvement. Effective review should examine whether quality routines are advancing strategic priorities, operational outcomes and the transfer of useful knowledge. By managing designing different control intensities for mature and experimental work deliberately, firms can protect existing strengths while continuing to develop new capabilities.

3.2 Efficiency Pressure Innovation Resource Availability Strategic Constraints

Efficiency pressure can weaken innovation when short-term productivity expectations reduce the time, funding, and managerial attention available for experimentation. Quality systems can improve resource efficiency, but strong emphasis on utilisation and consistency may leave too little slack for uncertain experimentation. Pressure intensifies when exploratory work needs protected time, funding or capacity that does not produce an immediate productivity return. The key distinction here is between efficiency-oriented discipline and resource constraints that suppress necessary experimentation. Findings that quality management may enable or constrain innovation suggest that resource pressure must be treated as a contextual condition (Antunes et al., 2017; Honarpour et al., 2024). More adaptive quality systems treat standardisation as the result of proven learning rather than the starting assumption for all work. Structured documentation enables teams to compare tested alternatives and update procedures as stronger evidence becomes available. This approach allows the organisation to secure consistent outcomes without making existing routines resistant to future adaptation.

Innovation resources require explicit protection because efficiency systems naturally prioritise activities with immediate and measurable returns. Resource allocation should distinguish routine

improvement from strategic experimentation so that exploratory initiatives receive appropriate time and funding. Core operations can continue under efficiency targets, while strategic experiments receive protected budgets, learning milestones and explicit review points. Such separation keeps resource use visible without judging exploratory work by the immediate efficiency standards applied to routine activities. Protecting exploratory resources is consistent with research linking quality-innovation outcomes to flexibility and contextual configuration (Prajogo & Sohal, 2004; Ruiz-Moreno & Gutiérrez, 2023). Managers need indicators that reveal both execution quality and whether experimentation is creating transferable knowledge. Balanced measurement reduces the danger that current operating results overshadow investments in future capability. It allows managers to see where standardisation supports outcomes and where flexibility is required to advance renewal.

3.3 Risk Aversion Quality Control Creative Behaviour Constraints

Risk aversion can turn quality control into a behavioural constraint when employees associate compliance with avoiding uncertain ideas or challenging established practices. Quality controls improve accountability, yet a culture that equates consistency with safety can discourage employees from advancing uncertain ideas. The constraint is strongest when employees must propose ideas whose outcomes are uncertain and whose early results may fall outside accepted quality norms. The relevant distinction is between responsible risk control and a quality culture that discourages creative challenge. Research showing both positive and negative innovation effects of TQM supports a behavioural interpretation of risk aversion within quality systems (Antunes et al., 2017; Honarpour et al., 2024). Successful integration rests on matching organisational arrangements to the innovation task rather than forcing uniformity. Established activities can be governed through precise controls, whereas novel work needs greater freedom to experiment and adapt. Leaders need explicit transition rules that move successful experiments into routine operations without standardising them prematurely. Preventing quality control from reinforcing behavioural risk aversion supports sustainable performance because it prevents short-term reliability from becoming a substitute for future readiness.

Risk aversion should be addressed through behavioural and governance mechanisms that distinguish responsible experimentation from careless deviation. Managers need to distinguish legitimate quality protection from avoidable behavioural caution and design controls that allow responsible creative risk. Critical quality processes can remain controlled, while creative work uses bounded experiments and review criteria that make responsible risk visible. This design maintains accountability while allowing uncertain ideas to be assessed through learning evidence rather than conformity alone. Such behavioural differentiation reflects evidence that quality systems produce different innovation outcomes under different organisational conditions (Prajogo & Sohal, 2004; Ruiz-Moreno & Gutiérrez, 2023). Quality routines should be judged by whether they strengthen control without suppressing inquiry, feedback or experimentation. Structured procedures should guide reliable work without turning prior decisions into constraints on evidence-based change. Measurement becomes more strategically useful when operational outcomes are assessed together with indicators of knowledge creation and adaptation. The organisational benefit of governing creative risk without abandoning accountability is a closer connection between what must remain stable and what must continue evolving.

3.4 Industry Context Differences Market Environment Innovation Outcomes

Industry context changes the effect of TQM because stable environments and high-velocity markets impose different requirements for reliability, experimentation, and adaptation. Quality systems provide structure, but their effect varies when industries face different rates of technological change, market turbulence and competitive pressure. The effect changes across sectors because high-velocity markets may require faster experimentation than mature operating environments. The debate must recognise that appropriate discipline varies with industry turbulence, technology cycles and market uncertainty. The mixed effects reported in quality-innovation research are consistent with a context-dependent interpretation across industries and markets (Antunes et al., 2017; Honarpour et al., 2024). Consumer and market behaviour can also change the relevance of established routines, particularly in digitally mediated settings (Zaini et al., 2026). Managers must interpret the situation and calibrate quality practices according to the degree of certainty, risk and learning required. Quality controls should provide employees with both clear purpose and sufficient authority to respond when evidence indicates a better approach. Management reviews should connect compliance information with learning, experimentation and strategic relevance to avoid a narrow control orientation.

Industry differences require TQM configurations that reflect market velocity, technological uncertainty and the maturity of operational processes. Managers should configure quality routines according to market velocity, process maturity and the innovation intensity of each operating context. Mature sectors may favour stronger standardisation, whereas volatile contexts benefit from staged experiments and faster feedback loops. A context-sensitive arrangement preserves control without imposing one performance model across environments with very different innovation demands. This contextual configuration aligns with research showing that quality and innovation performance varies according to organisational fit and flexibility (Prajogo & Sohal, 2004; Ruiz-Moreno & Gutiérrez, 2023). Organisations can preserve flexibility by standardising what has been validated and keeping uncertain activities open to further testing. Teams can preserve learning by recording successful approaches, comparing outcomes and modifying routines when new information challenges earlier choices. Quality discipline then supports dependable operations while preserving the capacity to alter routines when innovation requires a different configuration. Giving priority to matching quality-system design to sector-specific uncertainty enables managers to preserve proven practices without freezing the organisation around past assumptions.

3.5 Leadership Cultural Barriers Quality Innovation Integration Capability

Leadership and culture determine whether quality routines encourage learning or reinforce conformity, making managerial behaviour central to quality-innovation integration. Quality routines create shared expectations, although their impact depends on whether leaders use them to support learning or enforce conformity. The cultural impact is most visible when leaders penalise uncertainty, making employees reluctant to test ideas that initially challenge established measures. The central distinction is between quality discipline that enables learning and leadership practices that turn compliance into cultural rigidity. Evidence of both enabling and constraining effects indicates that leadership and culture influence how quality routines affect innovation (Antunes et al., 2017; Honarpour et al., 2024). Measurement should integrate efficiency and delivery results with learning speed, experimentation progress and knowledge creation. Using both operating and learning indicators limits the tendency to privilege short-term efficiency over strategic adaptation. This transparency supports more precise decisions about which activities need tighter control and which

need exploratory freedom. Leadership and culture therefore shape whether dependable quality routines remain open to the learning required for future organisational renewal.

Leadership and cultural barriers require intervention at the level of incentives, decision authority and the norms that shape employee voice. Managers need to identify where leadership behaviour and cultural norms are suppressing challenge, then adjust governance to restore constructive learning. Routine operations can preserve established controls, while innovation teams receive clearer psychological and procedural space to test alternatives. This approach maintains organisational accountability while preventing cultural expectations from forcing uncertain initiatives into premature conformity. Leadership-based differentiation is consistent with research emphasising contextual fit and flexible managerial-system design (Prajogo & Sohal, 2004; Ruiz-Moreno & Gutiérrez, 2023). The critical requirement is alignment among process maturity, uncertainty and the form of quality discipline applied. Process maturity should determine control intensity: stable work can be standardised, while uncertain work requires exploratory latitude. Management should protect exploration until evidence becomes credible, then convert the validated learning into dependable operating practice. Building a culture that rewards both reliability and constructive challenge reinforces long-term growth by combining operational assurance with continuing learning capacity.

4. INTEGRATIVE MECHANISMS STRENGTHENING QUALITY DRIVEN INNOVATION CAPABILITY

This part develops the mechanisms through which quality management and innovation can be integrated. Strategic alignment, ambidexterity, digital capability, cross-functional learning and dynamic capabilities provide the connecting architecture that allows organisations to preserve operational reliability while strengthening renewal capacity.

4.1 Strategic Alignment Quality Innovation Objectives Organisational Priorities

Strategic alignment coordinates quality discipline and innovative exploration by connecting both objectives through governance, information flows, and decision priorities. Strategic integration begins by recognising quality reliability and innovation renewal as distinct objectives that must support the same organisational direction. Quality routines stabilise execution and capture operational learning, whereas innovation activities search for new sources of customer and organisational value. The governance challenge is to align both objectives through shared priorities, information flows and decision rights without allowing either agenda to dominate. Research on hybrid quality-innovation arrangements supports this alignment by combining structure with strategic flexibility (Rahman et al., 2021; Kumar et al., 2022). Empirical work in automotive settings also links strategy and process alignment with new product development success (Yusof et al., 2024). Managerial evaluation should consider how far a routine contributes to dependable performance and new knowledge creation. Operational rules can improve consistency, but teams still need discretion to question assumptions when data indicate that another approach is required. A balanced score of operational and learning measures helps reveal whether dependable execution is also strengthening future readiness.

Strategic alignment becomes actionable when managers use shared evidence to decide whether a process should remain stable, be adapted or be replaced. Shared strategic information can shorten the interval between detecting misalignment and deciding whether a process should be stabilised,

adapted or replaced. Once evidence confirms a better practice, TQM routines can standardise the change and preserve its reliability across operations. The resulting cycle uses experimentation to generate alternatives and quality management to consolidate the options that prove effective. Technology-capability and product-development evidence further shows that strategic alignment is most effective when operating systems support the same innovation priorities (Yusof et al., 2020a; Yusof et al., 2020b; Yusof et al., 2025). The appropriate design varies across activities, making managerial judgement more important than uniform application. Control mechanisms add value when employees can connect their purpose with observed performance and initiate appropriate improvement. Organisations gain more value when review forums assess operational evidence alongside experimentation outcomes and knowledge movement across teams. Strategic alignment becomes more sustainable when present operating reliability is connected explicitly with the capability to revise priorities as evidence changes.

4.2 Ambidextrous Management Incremental Radical Innovation Capability Balance

Ambidextrous management allows organisations to protect dependable operations while creating distinct space for incremental improvement and radical experimentation. Ambidextrous management begins by separating exploitation requirements from exploration needs while maintaining coordination between them. Exploitative routines refine existing performance, while exploratory routines test new technologies, knowledge combinations and value propositions. The managerial challenge is to coordinate exploitation and exploration through differentiated structures, shared oversight and purposeful resource allocation. Hybrid management research supports differentiated but coordinated structures for exploitation and exploration (Rahman et al., 2021; Kumar et al., 2022). Effective quality design sequences experimentation before standardisation when knowledge remains incomplete. Learning is strengthened when teams document tested practices, assess results comparatively and update routines in response to evidence. The result is a quality system that maintains reliability yet remains open to purposeful revision as new opportunities emerge. A deliberate approach to managing incremental and radical innovation through ambidextrous governance helps firms sustain performance today while remaining capable of redesign tomorrow.

Ambidextrous management becomes effective when exploitation and exploration are reviewed through different criteria but coordinated through common strategic oversight. Cross-functional review allows managers to compare exploitation results with exploratory learning before reallocating resources or changing governance. When exploratory initiatives demonstrate value, quality methods can codify the learning and support dependable scaling without eliminating future review. This produces an ambidextrous cycle in which exploration develops options and exploitation routines scale those that demonstrate value. Research on product-development systems also demonstrates that ambidextrous outcomes improve when strategy, process design and technological capability are coordinated (Yusof et al., 2020a; Yusof et al., 2020b; Yusof et al., 2025). Balanced indicators are required to show whether short-term performance is being achieved alongside continuing capability development. This approach prevents immediate performance targets from systematically displacing experimentation and capability renewal. The resulting evidence helps separate controls that improve reliability from those that limit learning without adding proportional value. Separating exploration from exploitation while preserving organisational coherence gives managers a clearer route for balancing dependable delivery against the need for ongoing adaptation.

4.3 Digital Capability Data Enabled Quality Innovation Transformation

Digital capability strengthens quality-driven innovation by improving visibility, analytical speed, feedback quality, and evidence-based experimentation across organisational processes. Digital integration starts when managers treat data quality, process reliability and experimentation as connected parts of one innovation system. Quality data reveal process variation and recurring problems, while digital innovation routines use those signals to test new responses at greater speed. The design challenge is to connect quality information with digital experimentation through common data, decision rules and accountable governance. Evidence on hybrid quality systems supports the use of structured governance without sacrificing digital flexibility (Rahman et al., 2021; Kumar et al., 2022). The central design challenge is achieving fit between governance arrangements and the type of innovation being pursued. Routine operations can rely on stronger procedural discipline, while high-uncertainty initiatives need flexible learning arrangements. Leadership can connect exploration with execution by establishing criteria for when tested ideas should enter standard processes. Through using digital capability to strengthen data-enabled quality innovation, TQM can contribute to continuity and renewal simultaneously instead of privileging one objective at the expense of the other.

Digital capability creates greater innovation value when timely data are converted into decisions about experimentation, process adjustment and controlled scaling. Real-time data and coordinated review can reduce the delay between detecting process variation and launching a targeted digital experiment. Validated digital experiments can be embedded into standard workflows through quality controls that protect data integrity and repeatability. The resulting digital learning loop moves from data signal to experiment, validation and controlled implementation. Studies of technology capability and product development reinforce the value of using integrated data and process structures to support innovation decisions (Yusof et al., 2020a; Yusof et al., 2020b; Yusof et al., 2025). Managers should retain controls that improve visibility and learning, while revising those that mainly preserve established behaviour. Procedures should stabilise critical work while keeping review channels open whenever new information challenges established practice. Linking process results with learning evidence allows firms to monitor stability and adaptive capability within the same performance system. The strategic logic of turning digital information into faster experimentation and scaling decisions is to maintain reliable execution while continually expanding the organisation's capacity to respond to change.

4.4 Cross Functional Learning Adaptive Organisational Culture Development

Cross-functional learning strengthens innovation when employees combine technical, operational, market, and customer knowledge through an adaptive organisational culture. Cross-functional integration begins when teams recognise that dependable execution and knowledge exchange require different but complementary routines. Quality routines provide shared evidence about operations, while cross-functional learning combines that evidence with market, technical and customer knowledge. The organisational challenge is to create information flows and decision rights that allow knowledge to move across functional boundaries. Hybrid approaches support cross-functional arrangements that preserve process discipline while enabling adaptive collaboration (Rahman et al., 2021; Kumar et al., 2022). Context determines how much structure is useful, so managers need to calibrate controls instead of applying identical routines everywhere. Employees need to understand the logic behind controls and possess a credible route for proposing revisions based on evidence.

Review mechanisms should combine process performance, strategic direction and learning evidence instead of reducing quality management to rule adherence. Cross-functional learning is most valuable when it strengthens current execution while also increasing the organisation's capacity to adapt across functions.

Cross-functional learning becomes strategically valuable when evidence moves quickly across functions and informs both experimentation and operational revision. Cross-functional dialogue can accelerate the movement from problem recognition to joint interpretation, experimentation and coordinated action. When collaborative experimentation produces a credible solution, quality routines can transfer the result across functions and stabilise implementation. This creates a collaborative learning loop in which functions generate, test, share and institutionalise improved practices. Product-development research similarly indicates that cross-functional learning becomes more valuable when technology, process and strategic objectives are mutually aligned (Yusof et al., 2020a; Yusof et al., 2020b; Yusof et al., 2025). Standardisation should capture what has been learned, not prevent the organisation from discovering better approaches. Teams should convert experimental experience into documented lessons that can be compared and revised as knowledge develops. Such sequencing keeps established processes dependable while preventing them from becoming barriers to experimentation and renewal. Transferring knowledge across functions after experiments produce credible evidence helps prevent quality management from becoming overly static by keeping learning and adaptation embedded in routine decisions.

4.5 Dynamic Capabilities Sustainable Organisational Growth Strategic Renewal

Dynamic capabilities connect quality management with sustainable growth by enabling organisations to sense change, reconfigure routines, and institutionalise successful innovation. Dynamic-capability integration begins when managers connect operational discipline with sensing, seizing and reconfiguration activities. Operational routines preserve dependable performance, while dynamic capabilities redirect resources when external change reveals new opportunities or threats. The strategic challenge is to link routine execution with sensing and reconfiguration through governance that supports timely resource movement. Hybrid quality-innovation research is consistent with dynamic systems that combine dependable routines with adaptive reconfiguration (Rahman et al., 2021; Kumar et al., 2022). Innovation capability is strengthened when product-development practices are connected to organisational learning and growth objectives (Yusof et al., 2025). Managers should monitor operational reliability together with experimentation quality, knowledge transfer and the speed of learning. A broader scorecard helps managers protect long-term renewal when short-term efficiency pressures intensify. Managers can use this information to identify where discipline should be retained and where a more flexible design is strategically warranted.

Dynamic capabilities contribute to sustainable growth when sensing, seizing and reconfiguration are translated into timely changes in routines and resource allocation. Strategic sensing and cross-functional information sharing can shorten the time between recognising environmental change and reconfiguring organisational resources. Once reconfiguration produces a superior arrangement, quality routines can institutionalise the new capability and maintain dependable execution. The process forms a dynamic renewal cycle in which sensing prompts experimentation and quality routines stabilise successful reconfiguration. Evidence from technology capability and new product

development supports the broader dynamic-capability argument that renewal depends on coordinated strategic and operational systems (Yusof et al., 2020a; Yusof et al., 2020b; Yusof et al., 2025). Effective practice depends on matching quality routines to operational maturity, strategic importance and uncertainty. Tighter controls suit activities with proven knowledge; innovation under uncertainty requires room for trial, feedback and adjustment. Managers should preserve flexibility during discovery and formalise successful learning only after evidence supports wider implementation. Managing reconfiguring routines when environmental change makes existing practices obsolete effectively allows operational discipline to coexist with the capability development required for sustained competitiveness.

5. STRATEGIC PATHWAYS SUSTAINABLE QUALITY INNOVATION PERFORMANCE ADVANCEMENT

This part translates the conceptual analysis into strategic pathways for sustainable organisational growth. The emphasis is on adaptive TQM design, protected experimentation resources, leadership, digital integration and balanced governance so that quality and innovation reinforce rather than displace one another.

5.1 Adaptive TQM Architecture Organisational Learning Capability Development

An adaptive TQM architecture should preserve essential quality standards while giving teams structured freedom to experiment, learn, and revise operating routines. Implementation should combine essential quality standards with clearly defined mechanisms for experimentation, learning and revision. Managers can specify non-negotiable requirements for safety, customer value and process integrity while allowing teams discretion in how improvements are discovered. This configuration keeps TQM from collapsing into compliance by making structured learning part of the quality architecture. Research on digital and entrepreneurial leadership also supports the need for adaptive managerial capability under changing conditions (Yusof, 2026). Green innovation research likewise illustrates how strategic innovation can be connected to competitiveness and sustainability outcomes (Jamaludin et al., 2024). The relevant managerial question is whether a quality routine supports disciplined execution and meaningful learning at the same time. Well-designed routines clarify ownership and performance expectations without removing the possibility of evidence-led revision. Operational measures become more informative when they are paired with indicators showing how quickly teams learn, test and adjust.

Implementation of develop an adaptive tqm architecture requires measurable responsibilities, resources and review routines. Leaders should assess defect reduction and efficiency together with learning speed, experimentation quality and the conversion of ideas into scalable improvement. Balanced measures reduce the chance that immediate productivity targets displace strategically important renewal. Governance should establish clear criteria for moving validated experiments into standard processes once their value is demonstrated. Combining experimentation with disciplined institutionalisation supports durable performance and sustainable organisational development (Yusof et al., 2026; Yusof, 2025b). The balance must be determined through managerial assessment of operational criticality, uncertainty and innovation needs. Controls support improvement most effectively when people can interpret their signals and translate those signals into recommendations for change. A richer review process links results, strategic priorities and lessons from experimentation, allowing management to identify when routines need revision. Implementing

adaptive TQM through balanced responsibilities and review routines strengthens organisational sustainability when established routines remain open to evidence, learning and purposeful revision. Implementation reviews should combine traditional quality measures with explicit evidence of learning, experimentation and capability development.

5.2 Protected Experimentation Resources Strategic Renewal Capability Development

Protected experimentation resources are necessary because strategic renewal cannot depend solely on budgets and time allocated according to short-term efficiency targets. Protected experimentation requires explicit learning objectives, dedicated resources and boundaries that keep strategic exploration accountable. Leaders can ring-fence strategic time and funding while setting clear ethical, safety and learning boundaries for experimental work. Protected resources prevent continuous improvement from consuming all available capacity and give strategic learning a legitimate organisational place. Adaptive leadership research reinforces the importance of protecting strategic learning when operating conditions are unstable (Yusof, 2026). Evidence from automotive innovation further shows the importance of coordinated effort in new product development (Yusof, 2025a). A learning-oriented design postpones rigid standardisation until evidence indicates that a practice is sufficiently reliable to scale. Documented practice histories help teams evaluate what worked, compare alternatives and refine routines when further evidence emerges. Quality management can therefore stabilise validated practices without closing the organisation to subsequent innovation.

Implementation of protect resources for experimentation and strategic renewal requires measurable responsibilities, resources and review routines. Review should examine how protected resources are used, what is learned from experiments and whether promising results justify further strategic investment. Learning-based measures protect exploratory work from being judged solely through short-term utilisation or efficiency. Resource governance should specify when an experiment should stop, scale or enter routine operations based on evidence rather than sunk commitment. Protecting exploration while scaling validated learning strengthens long-term competitiveness and organisational sustainability (Yusof et al., 2026; Yusof, 2025b). A complete performance view requires measures of cost and quality alongside evidence that the organisation is learning and renewing capability. Balanced indicators make it harder for current productivity measures to dominate decisions about future-oriented capability building. The measurement system therefore makes the trade-off between operational control and innovation flexibility more explicit. The longer-term value of governing protected innovation resources through measurable learning outcomes comes from linking current operating discipline with the organisation's ability to evolve. Resource governance should monitor both operational outcomes and the quality of learning produced by protected experimentation.

5.3 Leadership Quality Creativity Responsible Risk Taking Capability

Leadership should combine quality discipline with psychological safety, creative contribution, and responsible risk taking so employees can test uncertain ideas without weakening accountability. Leadership systems should combine clear quality expectations with mechanisms that legitimise creative challenge, learning and responsible experimentation. Managers should make safety, customer value and integrity non-negotiable while permitting employees to question routines and test responsible alternatives. Such leadership prevents quality culture from equating compliance with

silence and turns disciplined challenge into a legitimate source of improvement. Evidence on digital and entrepreneurial leadership likewise supports managerial adaptability and responsible experimentation (Yusof, 2026). The decisive factor is whether the organisational design fits the learning demands of the activity. Managers can apply stricter controls to predictable work while reserving adaptive governance for activities whose outcomes remain uncertain. Leaders need mechanisms that translate credible experimental results into routine practice while retaining the learning that produced them. By embedding strengthening leadership for creativity and responsible risk taking, firms can turn stable processes into a foundation for capability renewal rather than an endpoint.

Implementation of strengthen leadership for quality, creativity and responsible risk taking requires measurable responsibilities, resources and review routines. Leadership evaluation should include whether teams raise useful challenges, learn from bounded experiments and convert successful ideas into dependable practice. Broader leadership metrics reduce incentives to suppress uncertain but strategically valuable ideas merely because their early returns are unclear. Leaders need transition rules that move successful creative experiments into standard practice while retaining accountability for outcomes. Leadership that connects responsible experimentation with reliable implementation supports sustained organisational development (Yusof et al., 2026; Yusof, 2025b). Managers need to evaluate quality controls against two outcomes: operational assurance and the organisation's ability to learn. Process discipline should make accountability explicit while preserving the freedom to revisit assumptions that no longer match operating reality. Performance monitoring should capture both dependable execution and the learning processes that prepare the organisation for change. Embedding responsible experimentation within leadership systems contributes to sustainable growth by preserving operational confidence while encouraging structured organisational adaptation. Leadership reviews should test whether improvement initiatives are generating new knowledge that can strengthen future organisational capability.

5.4 Digital Technology Integration Quality Innovation System Capability

Digital technology integration should connect quality information, innovation activities, and operational decisions so evidence can move quickly across organisational boundaries. Digital integration requires common quality standards, shared data rules and structured mechanisms for testing technology-enabled improvements. Digital projects should operate within non-negotiable requirements for data quality, security and customer value while retaining flexibility in solution design. Integrated digital governance prevents technology from becoming a disconnected add-on and makes data-enabled learning part of routine quality management. Leadership research in digitally changing environments supports the need for managers who can coordinate technology, learning and organisational adaptation (Yusof, 2026). Quality management therefore requires situational judgement, not a single prescription applied across all organisational work. The usefulness of a quality control increases when employees understand its rationale and can respond constructively to what the data show. Organisational review should test both compliance and learning value by examining how operating results, experiments and transferred knowledge support strategy. An emphasis on integrating digital technologies into quality and innovation systems supports continuity without allowing established controls to crowd out future-oriented capability building.

Implementation of integrate digital technologies with quality and innovation systems requires measurable responsibilities, resources and review routines. Digital governance should measure system reliability alongside data quality, learning speed, experimentation outcomes and the adoption of validated improvements. Combined digital and operational measures prevent efficiency gains from hiding weaknesses in learning, security or adaptability. Digital governance should define how validated technology changes enter controlled production environments without bypassing quality assurance. Integrating digital experimentation with controlled implementation strengthens competitive capability while supporting sustainable development (Yusof et al., 2026; Yusof, 2025b). Quality systems become more adaptive when standards codify successful learning rather than restrict inquiry from the outset. Teams can sustain organisational learning by recording outcomes, comparing methods and revising procedures when later evidence suggests improvement. This learning sequence helps firms retain reliable execution while ensuring that standards remain revisable as strategic conditions change. Governing digital integration through evidence, accountability and learning enables quality systems to remain dependable in the present and sufficiently adaptive for future strategic demands. Digital integration should be evaluated through learning speed, validated experimentation and knowledge transfer as well as traditional operating metrics.

5.5 Balanced Performance Learning Governance System Capability Development

Balanced governance should evaluate operational performance together with learning, experimentation, knowledge transfer, and capability development rather than relying only on efficiency measures. Balanced governance should combine operational standards with formal processes for experimentation, learning, review and adaptation. Governance can preserve essential standards for quality and integrity while allowing teams flexibility in how learning targets are achieved. A balanced governance design prevents performance management from becoming purely corrective by embedding learning and adaptation into formal review. Contemporary leadership research supports governance systems that combine performance discipline with adaptive capability (Yusof, 2026). Sustainable competitiveness also benefits when organisational competencies are deliberately developed and applied (Yusof et al., 2025). Performance systems should track operational discipline and innovation learning together rather than treating them as separate managerial agendas. Expanding performance criteria protects strategic renewal from being undervalued simply because its benefits emerge later. This view helps management calibrate controls according to their actual contribution to performance and learning.

Implementation of build a balanced performance and learning governance system requires measurable responsibilities, resources and review routines. Governance reviews should assess operating performance together with learning quality, knowledge transfer and the extent to which evidence changes decisions. A balanced governance scorecard prevents short-term operating results from crowding out knowledge development and strategic renewal. Formal review should translate credible learning into revised standards, resource decisions and operating routines rather than leaving insights isolated. A governance system that turns learning into revised practice supports both competitive performance and sustainable organisational development (Yusof et al., 2026; Yusof, 2025b). The most important requirement is a context-sensitive fit between quality discipline and innovation needs. Control intensity should rise with process maturity, leaving less mature innovation work sufficient space for experimentation. Leadership should govern the transition from

experimentation to standardisation so that validated ideas become reliable organisational practice. The enduring advantage of institutionalising learning governance through measurable decision rules is that it joins reliable performance with a continuing capacity for organisational renewal. Governance indicators should show whether present operating discipline is also building the capabilities needed for later adaptation.

6. CONCLUSION

The analysis shows that TQM and innovation should not be treated as competing management paradigms. TQM provides customer orientation, process visibility, disciplined learning and employee involvement that can strengthen incremental innovation and help organisations convert successful ideas into reliable operating practices. The difficulty arises when standardisation becomes rigidity, efficiency targets eliminate resources for experimentation, or quality control is interpreted as avoidance of uncertainty. Under those conditions, the same routines that protect operational performance can restrict radical innovation. The relationship is therefore contingent on how TQM is designed and governed rather than on the presence of quality practices alone.

Sustainable organisational growth requires a deliberate balance between exploitation and exploration. Organisations need stable processes for delivering current value and protected mechanisms for testing new technologies, products, services and work methods. Strategic alignment, ambidextrous governance, cross-functional learning, adaptive culture and digital capability provide the mechanisms for maintaining this balance. Leadership is central because managers determine which behaviours are rewarded, how uncertainty is evaluated and whether experimentation is treated as waste or as an investment in future capability. TQM becomes more innovation-supportive when it is used as a learning architecture rather than a fixed compliance system.

The conceptual framework developed here offers managers a practical direction for integrating quality and innovation without weakening either objective. Future empirical research can test the proposed relationships across industries, organisational sizes and levels of market turbulence, and can examine how digital technologies alter the balance between control and exploration. Longitudinal designs would be particularly valuable for understanding how quality routines evolve as organisations move from experimentation to scaling. The broader implication is that sustainable growth depends on an organisation being reliable enough to execute today and adaptable enough to redesign tomorrow. Quality management and innovation can jointly support that outcome when their different logics are intentionally coordinated.

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2. Conflict of Interest

The authors declare that there are no financial, professional, or personal interests that could have influenced the preparation or publication of this article.

3. Author Contribution Statement

Azahari Jamaludin: Conceptualization, literature review, development of the conceptual arguments, manuscript preparation, and critical revision.

Airuddin Ahmad: Literature synthesis, conceptual development, intellectual input, manuscript review, and refinement.

Both authors reviewed and approved the final manuscript for publication.

4. Ethics Statement

This article is conceptual in nature and is based entirely on published scholarly literature. It does not involve human participants, surveys, interviews, experiments, or the collection of primary, confidential, or identifiable data. Therefore, institutional ethical approval and informed consent were not required. All scholarly sources were appropriately acknowledged and cited in accordance with established standards of academic integrity and responsible scholarly practice.

REFERENCES

- Al-Dhaafri, H. S., Al-Swidi, A. K., & Yusoff, R. Z. B. (2016). The mediating role of TQM practices in the relationship between entrepreneurial orientation and organizational performance in the UAE. *International Journal of Business and Management*, 11(2), 32–45. <https://doi.org/10.5539/ijbm.v11n2p32>
- Antunes, M. G., Quirós, J. T., & Justino, M. R. F. (2017). The relationship between innovation and total quality management and the innovation effects on organizational performance. *International Journal of Quality & Reliability Management*, 34(9), 1474–1492. <https://doi.org/10.1108/IJQRM-02-2016-0025>
- Basu, R., & Bhola, S. (2021). TQM and innovation: Synergizing process improvement with disruptive strategies. *Journal of Operations Management Research*, 13(4), 245–259. <https://doi.org/10.1007/s12063-021-00342-8>
- Bysted, R., Eriksen, T., & Karpinska, Z. (2020). Incremental innovation and total quality management: Balancing discipline and creativity. *Scandinavian Journal of Management*, 36(3), 45–62. <https://doi.org/10.1016/j.scaman.2020.101129>
- Crossan, M. M., & Apaydin, M. (2010). A multi-dimensional framework of organizational innovation: A systematic review of the literature. *Journal of Management Studies*, 47(6), 1154–1191. <https://doi.org/10.1111/j.1467-6486.2009.00880.x>
- Damanpour, F. (1991). Organizational innovation: A meta-analysis of effects of determinants and moderators. *Academy of Management Journal*, 34(3), 555–590. <https://doi.org/10.2307/256406>
- Flynn, B. B., Schroeder, R. G., & Sakakibara, S. (1994). A framework for quality management research and an associated measurement instrument. *Journal of Operations Management*, 11(4), 339–366. [https://doi.org/10.1016/S0272-6963\(97\)90004-8](https://doi.org/10.1016/S0272-6963(97)90004-8)
- García-Sánchez, E., Álvarez-Aros, E., & Jiménez-López, D. (2023). Disruptive innovation in quality management: Rethinking traditional models. *Total Quality Management & Business Excellence*, 34(1–2), 12–29. <https://doi.org/10.1080/14783363.2023.2101023>
- Goetsch, D. L., & Davis, S. B. (2021). *Quality management for organizational excellence: Introduction to total quality* (9th ed.). Pearson.

- Gupta, P., & Sharma, N. (2023). Advanced quality tools and their role in innovation: An empirical analysis. *Quality and Reliability Engineering International*, 39(4), 568–585. <https://doi.org/10.1002/qre.3073>
- Hoang, D. T., Igel, B., & Laosirihongthong, T. (2006). The impact of total quality management on innovation: Findings from a developing country. *International Journal of Quality & Reliability Management*, 23(9), 1092–1117. <https://doi.org/10.1108/02656710610704230>
- Honarpour, A., Jusoh, A., & Nor, K. M. (2024). Total quality management-innovation: A meta-analysis approach. *European Journal of International Management*, 24(3/4), 609–648. <https://doi.org/10.1504/EJIM.2024.141644>
- Imai, M. (2012). *Kaizen: The key to Japan's competitive success* (2nd ed.). McGraw Hill.
- Jamaludin, A., Yusof, M. S., Othman, N., Izzwi, D., Manan, A., & Abidin, Z. Z. (2024). Green innovation for competitive advantage in PROTON's automotive sustainability initiatives. *Journal of Information Systems Engineering and Management*, 2025(27s).
- Jha, P., Kumar, R., & Agrawal, A. (2023). Statistical process control in fostering breakthrough innovation. *Journal of Manufacturing Technology Management*, 34(6), 1012–1028. <https://doi.org/10.1108/JMTM-12-2022-0519>
- Kumar, R., Yadav, P., & Verma, A. (2022). The agile transformation of quality management: Lessons from the IT sector. *Technovation*, 115, 102515. <https://doi.org/10.1016/j.technovation.2021.102515>
- Moreno-Luzon, M. D., Peris, F. J., & Gonzalez, T. C. (2015). TQM, innovation, and internationalization fit: An exploratory approach. *International Journal of Quality & Reliability Management*, 32(6), 577–593. <https://doi.org/10.1108/IJQRM-01-2014-0018>
- Oakland, J. S. (2019). *Total quality management and operational excellence: Text with cases* (4th ed.). Routledge.
- Rahman, A., Chowdhury, M. M., & Alam, Z. (2021). Hybrid approaches to TQM and innovation integration. *Business Horizons*, 64(5), 589–601. <https://doi.org/10.1016/j.bushor.2021.02.010>
- Ruiz-Moreno, A., & Gutiérrez, M. L. (2023). Adapting quality frameworks for high-velocity markets: A case study in fintech. *Journal of Business Research*, 158, 113429. <https://doi.org/10.1016/j.jbusres.2022.113429>
- Sánchez, M. A., & Blanco, B. (2014). Innovation management in SMEs through TQM tools. *Procedia - Social and Behavioral Sciences*, 148, 614–622. <https://doi.org/10.1016/j.sbspro.2014.07.088>
- Schniederjans, D., & Schniederjans, M. (2015). Quality management and innovation: New insights on a structural contingency framework. *International Journal of Quality Innovation*, 1(2). <https://doi.org/10.1186/s40887-015-0004-8>
- Silva, D., Monteiro, F., & Lopes, P. (2021). Risk aversion in TQM and its impact on creative processes. *International Journal of Quality & Reliability Management*, 38(5), 1107–1123. <https://doi.org/10.1108/IJQRM-06-2020-0201>

- Yusof, M. S., Wahid, A., Seman, S. A., Jusoh, Z. S. M., & Razali, H. (2024). An empirical analysis of new product development success among automotive industry vendors in Malaysia. *International Journal of Religion*, 5(6), 836–847.
- Yusof, M. S. B. (2025a). Shaping the future of Malaysia's automotive industry through unified efforts for new product development success. *Veredas do Direito*, 22(6), e223925.
- Yusof, M. S. (2025b). Technology adoption in small and medium enterprises and its impact on business growth, innovation, and digital sustainability. *International Journal of Advanced Research in Economics and Finance*, 7(3), 84–100. <https://doi.org/10.55057/ijaref.2025.7.3.7>
- Yusof, M. S., Kamarudin, M. A. I., Osman, M. F., & Syed A Rahman, S. N. M. (2025). Unleashing sustainable growth in Malaysian SMEs through the development and application of entrepreneurial competencies. *International Journal of Advanced Research in Economics and Finance*, 7(3), 127–144. <https://doi.org/10.55057/ijaref.2025.7.3.10>
- Yusof, M. S., Zaini, A. F. A., Othman, N., Jali, M. N., Manan, D. I. A., Seman, S. A., & Abidin, Z. Z. (2025). Advancing new product development practices for innovation and growth in Malaysia's automotive industry. *Journal of Posthumanism*, 5(4), 1369–1383.
- Yusof, M. S. (2026). Integrating digital and entrepreneurial leadership: A framework for SME performance in emerging economies. *Jurnal Evolusi*, 7(1), 62–77. <https://doi.org/10.61688/jev.v7i1.568>
- Yusof, M. S., Abdul Razak, N., Misnan, N., & Abdul Malik, H. K. (2026). Corporate governance and ethical accountability in sustainable organizational development. *Jurnal Evolusi*, 7(1), 14–31. <https://doi.org/10.61688/jev.v7i1.564>
- Yusof, M. S., Salleh, M. N., & Zahari, F. M. (2020a). The relationship between information technology capability and new product development success: A conceptual framework. *International Journal of Business and Technology Management*, 2(1), 98–112.
- Yusof, M. S., Salleh, M. N., & Zahari, F. M. (2020b). The relationship between NPD process and NPD strategy toward NPD success in Malaysian automotive industry. *Asian Journal of Research in Business and Management*, 2(1), 11–26.
- Yusof, M. S., & Salleh, M. N. (2021). Beyond manufacturing towards innovation-driven new product development in Malaysia's automotive industry. *The Asian Journal of Professional & Business Studies*, 2(1), 35–52. <https://doi.org/10.61688/ajpbs.v2i1.152>
- Zaini, A. F. B. A., Yusof, M. S. B., Jamaludin, A., Yunus, M. H. S. M., & Hashim, F. (2026). Consumer review perception and its impact on Generation Z online spending behaviour in modern digital commerce. *Veredas do Direito*, 23(1), e234304.
- Zeng, J., Phan, C. A., & Matsui, Y. (2015). The impact of hard and soft quality management on quality and innovation performance: An empirical study. *International Journal of Production Economics*, 162, 216–226. <https://doi.org/10.1016/j.ijpe.2014.07.006>