INTEGRATING QLASSIC AND ISO 9001 FOR ENHANCED CONSTRUCTION QUALITY ASSESSMENT: A COMPARATIVE ANALYSIS

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Abstract
The construction industry in Malaysia continues to face challenges in ensuring consistent quality and workmanship across projects. Despite various efforts to improve quality control, problems such as poor workmanship, construction defects, and inconsistency remain prevalent. Malaysia currently uses two important systems, namely the Quality Assessment System in Construction (QLASSIC) and the ISO 9001 Quality Management System (QMS). However, the independent implementation of these two systems often results in gaps between process management and physical quality assessment. This study explores the benefits and challenges of integrating QLASSIC and ISO 9001 to enhance construction quality assessment in Malaysia. Using a qualitative research design, semi-structured interviews were conducted with five construction professionals who have experience in both systems. The findings reveal that integrating QLASSIC with ISO 9001 can provide a more comprehensive assessment framework, reduce defects and rework, and improve organisational competitiveness. Nonetheless, several challenges exist, such as a lack of understanding, insufficient training, high costs, and limited stakeholder support. The study concludes that integration offers significant potential for improving construction quality management and can serve as a reference for policymakers and industry stakeholders to strengthen Malaysia's construction quality framework.

Keywords: Construction Quality Assessment, ISO 9001, Integration, QLASSIC, Quality Management

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INTRODUCTION

The construction industry is a key contributor to Malaysia's economic growth and infrastructure development. However, quality issues continue to persist, including poor workmanship, building defects, and variations in quality performance (Fromsa et al., 2020). These issues have drawn significant attention from both the public and private sectors, particularly as Malaysia aims to enhance its global competitiveness in construction quality standards.

The Construction Industry Development Board (CIDB) has implemented several initiatives to improve quality assurance in the construction sector, one of which is the Quality Assessment System in Construction (QLASSIC) (Khalid et al., 2024). QLASSIC provides a standardised method for evaluating workmanship quality based on the Construction Industry Standard (CIS 7). Meanwhile, ISO 9001 serves as a globally recognised Quality Management System (QMS) that focuses on process control, documentation, and continuous improvement. In alignment with the CIDB guidelines and standards, the main contractors and subcontractors should be aware and implement it in monitoring their workers and supervisors to ensure the quality of construction projects achieved (Olanrewaju and Lee, 2022).

Although both systems are widely applied, they are often used independently. QLASSIC emphasises product-based evaluations, while ISO 9001 focuses on process-based management. This separation limits the overall assessment of project quality, as there is no single framework combining

management processes with physical quality evaluation. Integrating QLASSIC and ISO 9001 may create a more holistic and systematic approach to ensure quality consistency throughout the entire project lifecycle. This article attempts to identify the benefits of integration between QLASSIC and ISO 9001 in addressing existing weaknesses in the system for assessing construction quality and the challenges faced by the industry.

The Quality Management System in the Construction Industry

The Quality Management System (QMS) is a comprehensive set of policies, processes, and procedures for planning and execution (Mourougan and Sethuraman, 2017) to ensure consistently high-quality work in construction projects and organisations. In the context of the construction industry, QMS includes aspects of quality planning, quality control, quality assurance, and continuous improvement.

QLASSIC Overview

QLASSIC was introduced by CIDB Malaysia in 2006 to assess workmanship quality using a standardised scoring system. QLASSIC provides a standardised method for evaluating the quality of construction work based on the Construction Industry Standard (CIS 7:2006), allowing objective comparisons between projects through a percentage-based scoring system (CIDB, 2019). The assessment comprises four key components:

(i) Structural Works
Inspection and testing of concrete strength, reinforcement, and formwork integrity;

(ii) Architectural Works
Finishes including walls, floors, ceilings, doors, and roofs;

(iii) M&E Works
Evaluation of electrical, plumbing, and fire protection systems; and

(iv) External Works
Assessment of elements such as drainage, access roads, and landscaping.

Assessments are conducted by certified QLASSIC assessors appointed by CIDB. They perform physical inspections and score components based on compliance with CIS 7 criteria. Marks are awarded for satisfactory workmanship, while defects or non-compliance reduce the overall QLASSIC score. The final score, expressed as a percentage, reflects the project's quality performance.

Each component is assigned a specific weightage depending on the building category, with architectural works generally receiving the highest proportion due to their impact on visual quality and aesthetics (Ali, 2014). The purpose of QLASSIC is to enhance transparency and consistency in quality evaluation by providing a quantitative benchmark. Projects with higher QLASSIC scores demonstrate compliance with acceptable workmanship standards and are viewed as quality-driven developments.

Challenges in Implementing QLASSIC

Although QLASSIC has contributed positively to improving construction quality in Malaysia, its implementation faces several challenges that limit its effectiveness. These challenges include insufficient knowledge, lack of technical skills, additional costs, project delays, administrative burdens, and resistance to change.

One of the issues is the lack of awareness and understanding among industry stakeholders. According to Kam and Hamid (2015), they found that many contractors are unfamiliar with QLASSIC procedures.

Limited exposure and weak client support reduce motivation among contractors to adopt the system, especially when QLASSIC is not a contractual requirement. Furthermore, a lack of competitive or mimetic pressure in the industry means fewer companies feel compelled to demonstrate commitment to quality through QLASSIC adoption.

Another challenge is the shortage of skilled and experienced personnel (Ali, 2014). A lack of the technical expertise to correctly interpret QLASSIC criteria or perform self-assessments before official inspections. The CIDB (2019) also highlighted insufficient assessor competency and weak internal cooperation, which can lead contractors to view QLASSIC as a burden rather than a benefit. Finally, QLASSIC implementation increases administrative workload.

Benefit of Implementing QLASSIC

QLASSIC has demonstrated significant benefits in improving the physical quality of construction work, enhancing project management performance, and strengthening client confidence in contractors. One of the key benefits of QLASSIC is its ability to enhance customer satisfaction through improved workmanship and defect-free outcomes. Din (2011) highlighted that when projects meet required standards, clients develop greater trust in contractors, resulting in stronger professional relationships and repeat business. Similarly, Kam and Hamid (2012) emphasised that QLASSIC acts as an effective tool for evaluating contractor performance, providing objective data through quality scores that reflect a contractor's ability to meet specifications and deliver projects efficiently.

QLASSIC also serves as a benchmarking mechanism for comparing the quality of different construction projects. Ali (2014) noted that these scores help identify areas for improvement and set measurable quality targets for future projects, fostering a more systematic and performance-driven industry. From a strategic perspective, consistent achievement of high QLASSIC scores improves a company's credibility and competitive advantage by strengthening its reputation for quality and reliability (Kam and Hamid, 2015).

Moreover, QLASSIC contributes to improved project productivity and cost efficiency. According to Ali (2014) reported that adherence to QLASSIC standards reduces rework and defect-related expenses, resulting in long-term cost savings and faster project completion. The system also promotes training, better work processes, and overall organisational competitiveness.

Subsequently, QLASSIC promotes superior craftsmanship quality and precision, resulting in more durable and visually uniform structures. It also supports the achievement of "zero defects" through systematic monitoring and feedback-driven improvements (Kam & Hamid, 2012). According to Hwang (2013), QLASSIC further strengthens quality control by establishing structured procedures for planning, monitoring, and evaluation, which fosters a quality-orientated culture within construction organisations. QLASSIC implementation enhances quality performance, reputation, cost efficiency, and customer satisfaction, serving not only as an assessment system but also as a catalyst for continuous quality improvement in the Malaysian construction industry.

ISO 9001 Overview

ISO 9001 is an international quality management system developed by the International Organisation for Standardisation (ISO). It emphasises process control, customer satisfaction, and continuous improvement. In construction, ISO 9001 ensures systematic documentation of processes, monitoring of non-conformities, and regular audits to ensure compliance with quality objectives. However, while it focuses on management systems and documentation, it does not directly measure the physical outcomes of construction activities.

ISO 9001:2015 serves as a systematic framework for ensuring quality management and control across all stages of construction projects, from planning to completion (Kam and Hamid, 2015). Although the standard comprises ten main clauses, only Clauses 4 to 10 are mandatory for full compliance. These clauses form the cornerstone of organisation's Quality Management System (QMS), each focusing on essential elements of quality assurance and ongoing enhancement.

Clause 4: Organisational Context

This clause requires organisations to identify internal and external factors that may affect quality objectives, along with relevant stakeholders, such as clients, suppliers, and regulators. In construction, this entails comprehending regulatory requirements, site constraints, and client expectations to define the QMS scope effectively (Samani et al., 2019).

Clause 5: Leadership

Leadership commitment is essential for QMS success. Top management must establish quality policies, align objectives with organisational goals, and ensure that roles and responsibilities are communicated. In construction, weak leadership often contributes to poor QMS implementation (Mahamid, 2016).

Clause 6: Planning

This clause emphasises proactive risk and opportunity management. Construction firms must identify project-related risks, such as labour shortages or material delays, and plan corresponding mitigation actions (Mohamed et al., 2020).

Clause 7: Support

Support relates to the provision of adequate resources—human, infrastructural, and informational—to ensure effective QMS operation. Employee training and competency development are crucial for maintaining high workmanship standards and reducing defects (Rahman et al., 2018).

Clause 8: Operations

Operational control is central to ISO 9001 implementation. This involves clear procedures for service delivery, supplier management, and handling of non-conformities to ensure outputs meet contractual and customer specifications.

Clause 9: Performance Evaluation

Organisations are required to assess their QMS's performance through monitoring, audits, and management reviews. Organisations use performance indicators like defect rates, client satisfaction, and audit outcomes to measure effectiveness.

Clause 10: Improvement

The final clause focuses on continuous improvement through corrective actions. Construction firms must analyse non-conformities, retrain workers if necessary, and review processes to enhance their overall quality performance.

Challenge in Implementing ISO 9001 Quality Management System (QMS)

Although the ISO 9001 Quality Management System (QMS) is widely adopted to enhance quality performance in the construction industry, its implementation remains complex and challenging. Numerous studies have identified various barriers to effective adoption and certification, reflecting both organisational and human limitations within the Malaysian construction context.

One of the challenges is resistance to change, where employees perceive ISO implementation as burdensome and disruptive to their existing routines (Kam and Hamid, 2012). This resistance stems from increased documentation, training demands, and fear of uncertainty when adapting to new systems. The absence of commitment from upper management intensifies the problem because numerous executives neglect to prioritise quality over cost and time (Keng, 2010).

Another significant issue involves the difficulty in interpreting quality standards and requirements, as the ISO framework is often viewed as abstract and complex (Gilbert and Sia, 2001). Misunderstanding the clauses and their intent makes it difficult to translate the standards into practical procedures. Relatedly, many practitioners hold the perception of increased documentation workload, where compliance is associated with excessive paperwork and bureaucracy (Gilbert and Sia, 2001).

The lack of training for managers and employees also poses a barrier, as organisations often underestimate the need for capacity building (Tan, 2011; Gilbert and Sia, 2001). Often overlooked due to cost or time constraints, training plays a crucial role in enhancing understanding and skills related to ISO 9001 principles. Compounding this problem is the high composition of foreign workers and shortage of skilled labour, which leads to inconsistent workmanship and weak adherence to quality procedures (Low, 1994).

Furthermore, a lack of control or cooperation from appointed subcontractors limits the ability of main contractors to enforce corrective measures when non-conformities arise (Low, 1994). The issue of high implementation and maintenance costs also discourages participation, as organisations perceive the system as financially burdensome. Many contractors fail to recognise long-term savings from reduced rework, which can offset these costs. Insufficient time allocation is another challenge linked to poor planning and lack of manpower.

The lack of participation from consultants and limited client involvement further weaken QMS implementation. Consultants who fail to uphold quality assurance principles contribute to discrepancies and delays (Low, 1994), while clients often demand ISO certification without understanding its function, leading to superficial compliance (Tang, 1999).

Benefit of ISO 9001

ISO 9001 implementation offers significant internal and external benefits for construction organisations. Internally, ISO 9001 enhances management effectiveness, streamlines daily operations, and improves overall organisational performance. Keng and Kamil (2016) discovered that ISO 9001 fosters systematic work management by establishing better delineation of duties and strengthening interdepartmental cooperation. Therefore, it diminishes confusion and improves project delivery efficiency.

The system also improves documentation control by enabling structured record management and traceability. This structure contributes to greater operational transparency and accountability. Additionally, ISO 9001 has a positive influence on employee morale and discipline. Defined work procedures reduce workplace conflicts, encourage teamwork, and increase productivity. Adherence

to established protocols and quality standards on buildings sites reduces material waste and rework (Keng and Kamil, 2016).

From an external perspective, ISO 9001 certification strengthens a company's reputation, by signalling its commitment to quality, efficiency, and transparency. Certified organisations tend to gain higher customer confidence and a competitive advantage, particularly in public sector tenders that require ISO 9001 certification as an eligibility criterion (Keng and Kamil, 2016). Furthermore, such certification also increases opportunities to penetrate international markets and expand business networks, leading to higher sales and market share.

Operationally, ISO 9001 contributes to lower defect rates, improved workmanship quality, and more efficient project delivery. According to Kumaraswamy et al. (2000), the integration of structured documentation and process control enables continuous monitoring and performance evaluation. The standard's audit mechanisms promote continuous improvement and adaptability, allowing organisations to respond more effectively to market changes.

Integration Potential

Integrating QLASSIC and ISO 9001 would create a balanced system covering both management and technical aspects of quality. QLASSIC complements ISO 9001 by offering physical verification of quality outcomes, while ISO 9001 supports QLASSIC through process control and documentation. Table 1 shows the combination provides a more comprehensive quality assurance cycle, ensuring quality from project planning to physical completion. This integration is expected to enhance consistency, accountability, and efficiency in construction project delivery.

ISO 9001	QLASSIC	Integration
Focuses on processes and documentation	Focuses on physical workmanship assessment	A comprehensive quality system (process + physical output)
Does not assess on-site construction results	Does not manage internal quality procedures	Ensures quality from planning to physical completion
Suitable for quality planning and management	Suitable for technical, on-site quality checks	Balanced system covering both management and technical aspects
Emphasizes continuous improvement	Emphasizes meeting construction workmanship standards	Improves consistency, accountability, and work quality

Table 1: Comparative Analysis of ISO 9001, QLASSIC, and Their Integration in Construction Quality Assessment

Research Methodology

For this study, the qualitative research method was chosen due to its capacity to gather richer information from respondents. This study uses qualitative methods through semi-structured interviews conducted with five respondents, consisting of professionals in the construction industry, including contractors, technical officers, site engineers, and developers. These interviews were conducted to obtain data and a deeper understanding (Oranga and Matere, 2023) of their views on the benefits and challenges of integrating the Quality Assessment System in Construction (QLASSIC)

and ISO 9001 Quality Management System (QMS). Thematic analysis was employed to analyse interview data. Responses were coded and grouped into key themes representing the main challenges and benefits of integration.

Findings and Discussion

Challenges of Integration

The findings identified five major challenges hindering the integration of QLASSIC and ISO 9001: lack of understanding and readiness, training and experience limitations, cost and budget constraints, documentation and time burden, and lack of stakeholder support. These challenges indicate that integration efforts require structured training, clearer implementation guidelines, and stakeholder collaboration.

Benefits of Integration

Despite these challenges, the integration presents multiple benefits: comprehensive quality assessment, reduction of defects and rework, improvement in work processes, and enhanced competitiveness. The integration bridges the gap between process and product quality evaluation, aligning systematic documentation with workmanship inspection.

Category	Themes	Summary
Challenges	Lack of understanding and readiness, Constraints in Training and Experience, Cost and Budget Factors, Documentation and Time Burden, and Lack of Stakeholder Support and Incentives	Organizations face barriers in knowledge, resources, and incentives.
Benefits	Comprehensive assessment; Reduced defects and rework, Improvement in Internal and On-Site Processes, and Enhanced Company Competitiveness and Image	Integration enhances quality control, efficiency, and corporate reputation.

Table 2: Summary of Key Themes (Challenges and Benefits)

The study findings show that the implementation of the integration of the QLASSIC and ISO 9001 quality assessment systems presents various challenges and benefits. Among the main challenges identified are a lack of understanding and readiness, training and experience constraints, high implementation costs, and burdens in terms of documentation and time management. In addition, lack of support from stakeholders and limited incentives from authoritative agencies also serve as barriers to the implementation of this integration. However, this study also found that the integration between QLASSIC and ISO 9001 can provide various benefits, such as more comprehensive quality assessment, early detection of construction defects, and improvements to internal processes and on-site work. Respondents also stated that this integration improves the company's professional image, customer confidence, and competitive advantage in the tender process. Overall, although this integration is seen as having the potential to improve project quality and company’s reputation, its implementation requires stronger institutional support, the provision of a comprehensive training program, and clearer communication at all levels of the construction chain.

CONCLUSION

The study concludes that integrating QLASSIC and ISO 9001 provides a balanced and holistic approach to assessing construction quality in Malaysia. Integration enhances both managerial and technical quality assurance by combining process control with physical verification. While challenges such as cost, limited expertise, and lack of support exist, the potential benefits outweigh the barriers. The integration can contribute to better quality consistency, reduced defects, and improved company image. These findings serve as a reference for policymakers, especially CIDB, to develop comprehensive guidelines and training modules to support future integration initiatives.

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