

Evaluating the Impact of ISO 9001 Quality Management Standards on Organizational Performance: A Case Study Approach

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Abstract — *This study evaluates the impact of ISO 9001 quality management standards on organizational performance within the construction industry, using a case study of a certified company in Cabanatuan City. Performance measurement is recognized as a crucial element of quality management, yet many construction companies struggle with the systematic application of performance indicators to meet ISO certification requirements. The research investigates how the selected company measures its performance, focusing on the development and application of key performance indicators (KPIs) within its quality management system (QMS). Through a comprehensive document review, the study identifies the processes, goals, and targets that support the company's activities, alongside the monitoring and utilization of these indicators by management. Findings reveal that while the company has established effective performance indicators that contribute to the improvement of its QMS, challenges remain in defining clear indicators and setting appropriate targets. This study highlights the importance of refining performance measurement systems to ensure alignment with ISO 9001 standards and enhance organizational performance in the construction sector.*

Indexed Terms — *Performance Measurement, Indicators, Quality Management System, Processes*

I. INTRODUCTION

In the Philippines, the construction industry plays a vital role in economic development, contributing significantly to infrastructure growth and job creation. As the sector continues to evolve, the adoption of effective Quality Management Systems (QMS) has become imperative for construction

companies to meet the rising expectations of clients and regulatory bodies. ISO 9001 certification serves as a hallmark of quality assurance, providing a structured approach for organizations to enhance their processes, increase efficiency, and achieve customer satisfaction.

Performance measurement is a fundamental component of quality management that enables organizations to track their effectiveness in achieving quality objectives. By utilizing performance indicators, construction companies can systematically evaluate their processes, identify areas for improvement, and ensure compliance with ISO 9001 requirements. However, many construction firms in the Philippines encounter difficulties in establishing and applying these indicators consistently, resulting in a lack of reliable data for decision-making and performance enhancement (Bautista & Rada, 2020; Villanueva, 2021) [1].

This study focuses on a certified construction company in Cabanatuan City, aiming to investigate how they measure performance within their QMS. By identifying the processes associated with their quality management practices, along with the goals, targets, and specific indicators utilized, the research seeks to provide a comprehensive overview of performance measurement in the context of Philippine construction firms. Additionally, this study will address the challenges faced in defining indicators and establishing appropriate targets, contributing to the discourse on enhancing quality management in the industry.

As the construction industry in the Philippines continues to face pressures from regulatory compliance and market demands, enhancing performance measurement practices through effective QMS will be crucial. This research not

only contributes to the understanding of quality management in construction but also offers insights into best practices that can be adopted by other companies striving for ISO 9001 certification.

II. LITERATURE REVIEW

The effective measurement of performance indicators in Quality Management Systems (QMS) has garnered attention in both foreign and local contexts. A range of studies has examined the practices, challenges, and benefits associated with the implementation of performance indicators, particularly in the construction industry.

A. *Related Studies – Foreign*

Hanna et al. (2015) explored the impact of performance measurement systems in construction projects in the United States. Their research demonstrated the significance of clear and measurable indicators in enhancing project performance and achieving strategic objectives. The study revealed that organizations employing systematic performance measurement practices reported improved project outcomes and increased client satisfaction, highlighting the necessity of effective performance indicators in construction management.

Kafetzopoulos and Psomas (2015) conducted a study on Greek manufacturing firms, investigating the relationship between performance measurement and QMS. Their findings indicated that companies with well-defined performance indicators could identify weaknesses in their processes and implement necessary improvements. The authors concluded that effective performance measurement is critical for maintaining compliance with quality standards and driving organizational performance.

Santos et al. (2019) examined barriers to implementing performance measurement in the Brazilian construction industry. Their study identified challenges such as lack of resources, inadequate training, and insufficient leadership support as significant hindrances to the effective use of performance indicators. The authors emphasized the need for organizations to establish a supportive culture for performance measurement to overcome these challenges and improve their QMS.

B. *Related Studies – Local*

Bautista and Rada (2020) conducted a study on quality management practices among construction companies in the Philippines. They identified that many firms struggle with the systematic application of performance indicators, which hinders their ability to effectively monitor and improve their QMS. The research highlighted the importance of training and developing a culture of quality to enhance the effectiveness of performance measurement practices within the local context.

Villanueva (2021) examined the challenges faced by Philippine construction firms in implementing ISO 9001 standards. The study revealed that while many organizations recognized the significance of performance measurement, they often lacked the necessary frameworks and resources to define and implement effective indicators. Villanueva emphasized the need for targeted training and support to improve performance measurement practices in the local context, reinforcing the critical nature of effective performance indicators for compliance with quality standards.

C. *Hypothesis Development*

Figure 1 illustrates the research framework, which focuses on exploring the relationships between the systematic application of performance indicators within a Quality Management System (QMS) and the overall effectiveness of construction companies, particularly in the context of ISO 9001 certification. The primary aim is to investigate how the implementation of performance indicators can influence various aspects of organizational performance, including project outcomes, client satisfaction, and compliance with quality standards. There were four hypothesized relationships developed among the systematic application of performance indicators, project performance, client satisfaction, and compliance with ISO 9001 standards.

Hypothesis 1 (H1): There is a positive relationship between the systematic application of performance indicators and the overall performance of construction projects.

Rationale: Organizations that effectively implement performance indicators are likely to achieve better project outcomes, as these indicators provide

measurable benchmarks for assessing progress and facilitating decision-making.

Hypothesis 2 (H2): The use of performance indicators significantly enhances client satisfaction in construction projects.

Rationale: Clear performance indicators help ensure that projects are delivered on time, within budget, and to the required quality standards, which are key factors in determining client satisfaction.

Hypothesis 3 (H3): The establishment of well-defined performance indicators positively influences compliance with ISO 9001 standards among construction companies.

Rationale: Organizations that define and monitor performance indicators are better positioned to meet the criteria set by ISO 9001, leading to improved quality management practices and overall organizational effectiveness.

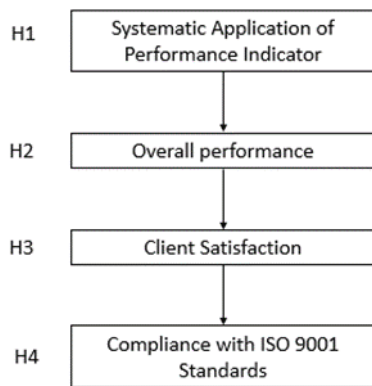


Fig. 1 Research Framework

The arrows in the figure represent the hypothesized positive relationships among the constructs, indicating that improvements in the systematic application of performance indicators lead to enhanced project performance, higher client satisfaction, and greater compliance with quality standards. This hypothesis development provides a foundation for empirical investigation within the research study.

III. RESEARCH METHOD

A. Research Instrument

An in-depth analysis and document review serve as the research instrument for the study on the performance indicators within the Quality Management System (QMS) of a certified construction company with ISO 9001 certification. It encompasses a comprehensive framework for conducting in-depth analysis and document review, specifically designed to assess the clarity, relevance, and effectiveness of performance indicators utilized by the organization.

Through systematic data collection and evaluation of key processes, project outcomes, and client feedback, this instrument aims to provide valuable insights into the company's quality management practices. The findings derived from this research instrument will contribute to a deeper understanding of how the systematic application of performance indicators influences overall project performance, client satisfaction, and compliance with ISO 9001 standards.

This research instrument will guide the researchers' investigation and analysis, ensuring a structured approach to evaluating the critical elements of performance measurement within the company's QMS.

The analysis of the collected data was sub-divided into two different stages: (1) In-Depth Analysis Framework: Performance Indicator Assessment, Process Analysis, Project Outcomes Evaluation (2) Document Review: Quality Management Manual, Standard Operating Procedures (SOPs), Performance Reports, Internal and External Audit Reports, Client Satisfaction, and Training Materials.

The construction firm participating in the study operate in the construction and incorporation of buildings: 100% certified under the ISO 9001:2015 standard.

IV. DATA ANALYSIS AND INTERPRETATION

Table 1. Part A. In-Depth Analysis Framework

Assessment Area	Criteria	Findings/Comments	Rating/Status
Performance Indicator Assessment			
Indicator Identification	List all performance indicators defined within the QMS	<p>Top Level Objectives 1: Excellent construction management services for horizontal and vertical projects</p> <p>Top Level Objectives 2: To achieve an overall customer satisfaction rating of 3.4 out of 4 by the end of the year.</p>	Commendable.
	Clarity and specificity of each indicator	The indicator is tailored to each department—Construction Management, Business Development, and Support—where each department has specific targets to achieve. These individual indicators align with ISO certification requirements and contribute to the overall organizational goals.	Commendable.
	Measurement criteria for each indicator	<p>Cost – Meet 100% Target Sales</p> <p>To develop at least 5 new proponents by the end of year</p> <p>90% Timely Completion of the Total Units Committed</p> <p>Quality Issues – Zero Open quality issues within the commitment date (100% Close out of quality issues)</p> <p>To achieve an overall satisfaction rating of 3.4 out of 4 by the end of 2024</p>	N/A.

	Appropriateness of measurement criteria	The measurement criteria are generally high, ensuring effective performance tracking. However, some quality objectives may need re-calibration to overcome potential obstacles and avoid unmet targets. This adjustment will help maintain alignment with organizational goals and ensure continued progress.	Appropriate, but needs improvement.
	Alignment with quality objectives	These indicators align with the quality objectives set forth by the organization, ensuring that each department's performance supports both ISO certification standards and the company's broader organizational goals.	Aligns
Process Analysis			
Process Identification	Key processes associated with QMS	<p>Implementation of the Total Quality Management System</p> <p>Schedule & Resource Monitoring and Control</p> <p>Quality Control Procedure</p> <p>Risk and Opportunity, and Environmental Aspect and Hazard Management</p> <p>Which these processes outlines for developing project timelines and managing schedules, risk management, and quality control.</p>	
Effectiveness Evaluation	Effectiveness of each process	The process is generally effective; 90% of the projects are delivered on time. And some delays	Effective

		occur due to contractor's and clients' issues.	
	Gaps in process documentation		Area for Improvement
Project Outcomes			
Outcome Metrics	Documented metric related to outcomes	Cost Variance and Schedule Adherence metrics are tracked for each project. Reflected on their KPI such as lists of submittals such as Percentage of Completion (POC) report, Fishbone Monitoring, Change Order Management, Quality Findings, etc.	Effective.
	Correlation with performance indicators	There is a strong correlation between on-time project completion and high client satisfaction scores, but cost overruns sometimes affect overall performance.	N/A.
Client Feedback Analysis	Summary of client satisfaction surveys	Client satisfaction remains high, with an average score of 3.56 out of 4. The organization has successfully met its target rating of 3.4 out of 4 every end of the year, and continues to perform well, consistently achieving high levels of customer satisfaction for the fifth (5 th) consecutive year since implementing ISO standards.	Commendable.
	Areas for improvement identified	Improve cost management processes to avoid overruns and enhance client satisfaction further.	N/A.

Table 2. Document Review

Document Type	Review Criteria	Findings (Comments)
Quality Management Manual	Completeness of quality objectives	The organization establish a comprehensive quality management manual.

		<p>These are the Integrated Manual which is the implementation of Integrated Management System conforming to the requirements of ISO 9001:2015, ISO 14001:2015, ISO 45001:2018 Standards.</p> <p>The Quality Manual is called Process Manual which established to implement and assist their construction management team in management projects, and to guide employees through various procedures, and to serve as a keystone for continuous improvement.</p>
	Clarity of performance indicators	The performance indicator is based on the objectives set by the organization which has a clarity in terms of implementing their Quality Management System.
	Alignment with ISO 9001 requirements	<p>The organization's quality manual is aligned with ISO 9001 requirements with this following statement.</p> <p>The organization establish a Cross Reference of their Integrated Manual with the Requirement of ISO 9001:2015, ISO 14001:2015, ISO 45001:2018; which indicated the requirements, maintained documented information (policies/procedures/references), and retained documented information (records/documents).</p> <p>The organization identified each requirement such as Clause 4 Content of the Organization, Clause 5 Leadership, Clause 6 Planning, Clause 7 Support, Clause 8 Operations, Clause 9 Performance Evaluation, and Clause 10 Improvement.</p>
Standard Operating Procedures	Clarity of process descriptions	<p>The organization's process clarity is well written with the following content:</p> <ul style="list-style-type: none"> Purpose Scope Definition of Terms Records ISO References, and Procedure/Flow Chart

	Adequacy of quality control measures	The organization's identified the adequate control measures through the corresponding action plan in every procedure. There are documents such as forms, monitoring, and registers to be comply in order for them to establish their control measures.
Performance Reports	Tracking of performance indicators	<p>The organization has identified adequate control measures and developed corresponding action plans for each procedure. Additionally, the company has established Key Performance Indicators (KPIs) to audit and track the performance of various departments, including the Construction Management Department, Business Development Department, and Support Departments, ensuring alignment with the objectives of the Integrated Management System (IMS).</p> <p>However, there is a need for improvement in tracking these KPIs. Currently, performance reports are monitored manually, which can lead to inefficiencies and redundancy. Implementing a dedicated "system" for monitoring performance reports would enhance efficiency by minimizing duplication and improving data analysis, ultimately supporting better decision-making and process optimization.</p>
	Evidence of continuous improvement initiatives	<p>The organization's KPIs reflect evidence of alignment with its top-level IMS objectives. One notable initiative is the goal for each department to "contribute at least two improvements per year in systems and procedures (processes)."</p> <p>To further support operational enhancements, the organization has established a "Continuous Quality Improvement Team" dedicated to driving process improvements across all departments.</p>

		<p>Additionally, continuous improvement is evident in the company's training and development programs. By partnering with the Construction Manpower Development Foundation (CMDF), the organization provides employees, including engineers, architects, and project managers, with training and seminars that offer Continuing Professional Development (CPD) units or points. These programs not only support individual career advancement and professionalism but also benefit the company, as employees acquire valuable skills and knowledge that can be applied to improve daily operations.</p>
<p>Audit Reports</p>	<p>Identification of non-conformity</p>	<p>The organization conducts Internal Audits every six months, ensuring that opportunities for improvement (OFI) and non-conformity (NC) are adequately identified through detailed audit reports. The audit plan and checklist are aligned with the organization's processes and procedures, verifying whether each department is adhering to the standards and procedures established in compliance with ISO Standards. This structured approach ensures that departments consistently meet the requirements of the Integrated Management System and drive continuous improvement.</p>
	<p>Recommendations for corrective action</p>	<p>The auditors provide comprehensive recommendations for corrective actions through issued OFI (Opportunities for Improvement) and NC (Non-Conformity) forms. To ensure effective resolution, verification of actions is conducted through several follow-up meetings with the auditees, allowing for the assessment of any further improvements needed. These recommendations are also included in the auditors' reports, offering valuable insights for the auditees to enhance their actions and processes. The feedback from these</p>

		audit reports helps drive continuous improvement throughout the organization.
Client Satisfaction Surveys	Overall satisfaction ratings	<p>Client satisfaction remains high, with an average score of 3.56 out of 4. The organization has successfully met its target rating of 3.4 out of 4 every end of the year, and continues to perform well, consistently achieving high levels of customer satisfaction for the fifth (5th) consecutive year since implementing ISO standards.</p> <p>Client satisfaction remains high for 4 consecutive years, which resulted to trusted by the biggest company (developer) in the Philippines.</p>
	Common feedback themes	<p>Common feedback received by the organization is the need for timely submission of reports. To address this, the organization has implemented a process aimed at improving client feedback and ensuring continuity in operations.</p> <p>One such initiative is the introduction of a “Buddy-Buddy System,” where a designated team member steps in during the absence of the responsible person to ensure that work, submittals, and deliverable are completed on time. This system helps maintain efficiency and ensures that client expectations are consistently met, even during periods of absence.</p>
Training Materials	Relevance to performance indicator	<p>The organization's training materials are comprehensive, supporting the effective delivery of key programs. One such program is the "40-Hour Integrated Management System Awareness and Orientation," which is provided to all employees. This training equips employees with a thorough understanding of the organization's context, as well as the ISO standards and their implementation.</p> <p>Additionally, the organization's training and development programs are well-supported by adequate materials, further enhanced through</p>

		<p>partnerships with external training providers. These partnerships ensure that employees receive high-quality training that contributes to their professional growth and the organization's continuous improvement efforts.</p>
	<p>Effectiveness of training programs</p>	<p>The effectiveness of the training programs is evident in the positive performance evaluations of employees and in the successful implementation of their projects. However, there is a need to enhance the evaluation process by incorporating more robust methods for verifying the effectiveness of training.</p> <p>To address this, the organization could implement competency examinations three (3) to six (6) months after each training session. This would provide a clearer assessment of how well employees have absorbed and applied the training in their roles, ensuring continuous improvement in both employee performance and project execution.</p>

CONCLUSION

The analysis reveals that the organization has made significant strides in aligning its quality management system (QMS) with ISO standards, resulting in excellent construction management services and consistently high customer satisfaction. The organization excels in defining and tracking performance indicators across departments, ensuring alignment with broader organizational goals. However, the analysis also highlights several areas for improvement, particularly in re-calibrating quality objectives, enhancing cost management, and improving the efficiency of tracking performance reports.

Processes such as Total Quality Management, Risk Management, and Quality Control are generally effective, with 90% of projects delivered on time. Yet, certain delays, often caused by external factors like contractor or client issues, still affect performance. There is room for enhancing cost

control measures to prevent overruns, which, although rare, can negatively impact overall performance.

The company's internal audits and client feedback mechanisms provide valuable insights into areas needing improvement. Client satisfaction is commendable, averaging 3.56 out of 4, but feedback on report submissions suggests the need for timely communication. Initiatives such as the “Buddy-Buddy System” have been implemented to address these concerns.

Continuous improvement is well-supported by training programs and partnerships with external providers. The introduction of competency assessments post-training could enhance the evaluation of training effectiveness, ensuring employees are not only trained but also able to apply their new skills in practice.

Moreover, while the organization is well-aligned with its QMS and ISO standards, improvements in cost control, report tracking, and training evaluations will further optimize operations and maintain high client satisfaction. These refinements will support the company's growth and its commitment to delivering quality construction management services.

The organization has demonstrated strong performance, largely supported by its adherence to ISO 9001 standards. The implementation of ISO 9001 has established a robust framework for continuous improvement, quality management, and process optimization. By focusing on key performance indicators (KPIs), regular internal audits, and effective training programs, the organization has not only improved operational efficiency but also enhanced client satisfaction. The structured approach provided by ISO 9001 has enabled the organization to meet its objectives, ensure compliance, and maintain a competitive edge in the industry.

Lastly, it is worth noting that the research successfully gathered, processed, and organized key data related to the performance indicators used by ISO certified construction firm in Cabanatuan City, Nueva Ecija. Once analyzed and appropriately applied, this data will lead to a modification—whether quantitative or qualitative—in the companies' understanding and utilization of their information systems. This enhancement will contribute to improved decision-making and operational efficiency within these firms.

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