



## Localized Quality Management System Implementation and Operational Performance in a Philippine Maritime Manning Office: The Roles of Human Factors and Organizational Practices

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### Abstract

This study examined the effectiveness of localized Quality Management System (QMS) implementation in a Philippine maritime manning office and assessed its relationship with operational efficiency and compliance with service quality standards. Specifically, it evaluated (a) the perceived level of QMS implementation, (b) the extent of human factors and organizational practices that enable QMS enactment, and (c) the predictive influence of these factors on operational efficiency and compliance/service quality outcomes. A quantitative descriptive–correlational design was employed using a structured survey instrument administered to 150 respondents composed of seafarers (n = 130) and office staff (n = 20). Data were analyzed using descriptive statistics, Pearson correlations, and linear regression modeling. Descriptive results indicated that QMS implementation was moderately implemented (M = 3.10, SD = 1.10), human factors were moderately exhibited (M = 3.39, SD = 0.91), and organizational practices were moderately practiced (M = 3.28, SD = 0.91). Operational efficiency was rated moderately efficient (M = 3.34, SD = 0.92), while compliance and service quality were rated compliant overall (M = 3.68, SD = 0.88). Regression analysis showed that QMS implementation significantly predicted operational efficiency ( $\beta = 0.741$ ,  $R^2 = 0.549$ ,  $p < .001$ ) and compliance/service quality ( $\beta = 0.402$ ,  $R^2 = 0.162$ ,  $p < .001$ ). A second regression model indicated that human factors ( $\beta = 0.371$ ,  $p < .001$ ) and organizational practices ( $\beta = 0.445$ ,  $p < .001$ ) significantly predicted QMS implementation ( $R^2 = 0.583$ ), while compliance/service quality was more strongly predicted by human factors ( $\beta = 0.645$ ,  $p < .001$ ) than organizational practices ( $\beta = 0.195$ ,  $p < .001$ ) ( $R^2 = 0.503$ ). Overall, findings suggest that localized QMS effectiveness in this setting depends on both institutional reinforcement (organizational practices) and disciplined enactment conditions (human factors), with stronger implications for operational efficiency than for compliance outcomes. The study supports strengthening controlled localization, capability-building, accountability routines, and enabling workflow systems to improve performance reliability.

**Keywords:** *quality management system; localization; maritime manning office; human factors; organizational practices; operational efficiency; service quality compliance; ISO 9001:2015*

### 1. Introduction

The global maritime sector operates under sustained pressure to deliver safe, compliant, and time-sensitive services while coordinating dispersed operations, diverse stakeholders, and stringent regulatory expectations. Within this environment, organizational effectiveness depends not only on technical capability but also on the reliability of internal processes that translate standards into daily work routines. Quality Management Systems (QMS)—particularly those aligned with ISO 9001:2015—are frequently adopted to strengthen process consistency, clarify responsibilities, document procedures, and improve service delivery outcomes. However, the mere presence of a QMS does not guarantee operational efficiency. In practice, quality frameworks can become “paper

systems” when they are implemented without sufficient contextual adaptation, when employees perceive them as compliance burdens rather than performance tools, or when local units interpret requirements inconsistently across departments and sites.

These implementation challenges are particularly salient in decentralized organizations where a central quality framework must be enacted across geographically separated offices with different staffing profiles, operational demands, and local constraints. Localization—defined in this study as the adaptation of QMS requirements into context-fit procedures, communication practices, monitoring routines, and enabling tools—becomes critical for ensuring that quality standards produce measurable operational improvements rather than symbolic compliance. Yet localization also



introduces risk: if local practices drift from the standard or if localization is not systematically governed, fragmentation may result, undermining both efficiency and audit readiness.

In the Philippine maritime context, manning offices function as pivotal administrative and operational nodes in the broader maritime labor system. These offices coordinate recruitment and deployment, documentation, coordination with principals and shipowners, and other time-bound processes that have direct implications for service quality and regulatory compliance. Among the most operationally sensitive functions is the repatriation process and other compliance-related transactions that require speed, accuracy, documentation integrity, and interdepartmental coordination. When internal processes are unclear, when accountability is diffused, or when communication systems and digital tools are inadequate, operational inefficiencies can emerge and accumulate—manifesting as processing delays, documentation errors, inconsistent procedural execution, and uneven service delivery experiences.

Operational performance in such settings is not solely determined by formal procedures. Human factors—such as employee motivation, role clarity, training sufficiency, and accountability—shape whether documented processes are understood, accepted, and executed reliably. In parallel, organizational practices—such as leadership support, quality communication, monitoring routines, teamwork coordination, and the availability of enabling digital tools—affect how consistently QMS requirements are embedded into day-to-day work. Contemporary QMS research emphasizes that employee involvement and the “soft” side of quality management can substantially influence the effectiveness of management practices and the sustainability of improvement efforts (e.g., Cavallone & Palumbo, 2021). Likewise, productivity and quality frameworks increasingly recognize that performance improvement requires both measurable indicators and supportive organizational conditions, rather than technical metrics alone (e.g., Braglia, 2024). These insights underscore the practical problem addressed in the present case study: a localized QMS must be assessed not only as a formal compliance structure but as a lived system that is mediated by people, routines, and organizational support mechanisms.

This case study examines a Philippine maritime manning office in Manila implementing a localized QMS aligned with ISO 9001:2015. The

study is anchored on the premise that QMS effectiveness should be evaluated through its operational consequences and its integration into employee behavior and organizational practices. Specifically, the study focuses on the interplay among (a) localized QMS implementation, (b) human factors, (c) organizational practices, and (d) organizational outcomes represented by operational efficiency and compliance with service quality standards. By assessing these relationships, the study aims to clarify whether localized QMS implementation is functioning as a performance system that improves operational execution and compliance outcomes, or whether gaps in human and organizational enablers constrain its effectiveness.

### ***1.1. Research Problem and Questions***

The central problem addressed in this study is the need to determine the effectiveness of localized QMS implementation in a Philippine maritime manning office and to examine whether localized QMS implementation is associated with improved operational efficiency and compliance with service quality and regulatory expectations. The study further investigates whether human factors and organizational practices serve as significant contributors to QMS outcomes and organizational performance.

The general objective of the study is to evaluate and enhance the implementation of a localized QMS in a Philippine maritime manning office to improve operational efficiency and regulatory/service quality compliance.

Specifically, the study aims to:

- a. Assess the level of QMS implementation in the maritime office as perceived by employees.
- b. Examine the extent to which human factors (including motivation, role clarity, training, and accountability) are evident among employees and how these may influence QMS outcomes.
- c. Determine the extent to which organizational practices (including leadership support, quality communication, teamwork, monitoring routines, and enabling digital tools) are established and how these may influence QMS outcomes.



- d. Analyze the relationship between QMS implementation and organizational outcomes, particularly operational efficiency and compliance with service quality and regulatory standards.
- e. Develop a context-fit QMS improvement plan aligned with ISO 9001:2015 requirements and responsive to the operational realities of the maritime manning office.

## 2. Review of Related Literature

### 2.1 The Role and Impact of Quality Management Systems in Maritime Organizations

Quality Management Systems (QMS) are commonly framed in the literature as structured managerial arrangements that enable organizations to standardize work, stabilize outputs, and institutionalize improvement through documented procedures, role assignments, monitoring routines, and corrective actions. In maritime-related organizations, the value of QMS is frequently linked to the sector's dependence on regulated processes, documentary integrity, and stakeholder confidence. Within this setting, quality management is not treated as a purely technical function but as an operational governance mechanism: it clarifies how work should be designed and executed, how conformity is checked, and how deviations are identified and addressed (Czapla, 2021). The underlying claim is that a functioning QMS improves reliability by reducing ambiguity in task execution and by creating a repeatable structure for evaluation and revision of core processes.

The maritime literature also highlights that QMS relevance extends beyond "quality" as customer satisfaction and includes readiness for audits, discipline in documentation, and consistent adherence to internal and external requirements. In maritime education and training contexts, for instance, QMS is positioned as an approach that strengthens institutional consistency, supports compliance assessment, and provides a basis for systematic evaluation of performance against defined criteria (Pehlivan & Cicek, 2021). Although such work often focuses on educational or organizational units within the maritime ecosystem, the operational logic carries over to maritime service offices: the system is expected to provide process clarity and consistency, particularly in administrative workflows that are sensitive to errors,

delays, and incomplete documentation. Related discussions on quality criteria likewise emphasize that quality systems in maritime settings are sustained not merely by formal adoption, but by disciplined implementation and consistent monitoring, because quality outcomes depend on the reliability of execution across personnel and time (Yildirim, et al., 2022).

At the same time, the literature consistently cautions that QMS adoption does not automatically translate into improved operational performance. QMS can remain largely documentary if organizations implement it as a compliance exercise rather than as an operational tool for improvement.

This concern is reinforced by studies that discuss risk management and quality systems in port or maritime-adjacent administrations: even when quality frameworks exist, their effectiveness depends on whether monitoring practices generate actionable insights and whether feedback mechanisms actually trigger corrective action and prevention, rather than producing reports without operational consequences (Migda, 2023). In other words, the presence of a QMS may increase the volume of documentation and formal artifacts without necessarily producing measurable efficiency gains unless the system is embedded in daily management routines and used to modify process design and behavior.

The competitive and performance value of QMS is therefore frequently presented as conditional. The literature suggests that QMS becomes meaningful when it is linked to operational realities—such as process bottlenecks, turnaround time, error prevention, and interdepartmental coordination—rather than being framed solely as certification or structural compliance. This insight is consistent with sector-specific discussions of quality management in maritime education and training, where quality is treated as an outcome of continuous implementation and evaluation practices, not simply as a function of having a documented framework (Sarinten, 2022). When QMS contributes to performance, it typically does so by shaping what counts as acceptable execution, how work is verified, and how nonconformities are traced to root causes and addressed through structured improvement.

Recent work in maritime and technology-adjacent discussions also signals that contemporary maritime organizations are increasingly exposed to



digitalization pressures and data governance issues, implying that operational quality is influenced not only by people and procedures but also by the integrity of information flows and enabling systems. In this context, the quality function can be interpreted as expanding toward a broader concern for consistency and reliability of operational decision-making under conditions of technological integration (Wang, 2024). While such work may not be directly focused on office-level QMS localization, it reinforces the conceptual proposition that quality systems must remain adaptive to organizational realities—especially where decision quality depends on the reliability of information processing and coordination routines.

Taken together, the literature supports a pragmatic interpretation of QMS in maritime organizations: QMS is valuable insofar as it becomes operationally real—meaning it is enacted through routine compliance behaviors, consistent monitoring, and improvement cycles that convert process feedback into measurable operational enhancements (Czapla, 2021; Migda, 2023; Yildirim, et. al., 2022). In this framing, QMS should be evaluated not only as a formal system but as a mechanism that shapes how work is carried out and how consistently organizational standards are applied. This interpretation also aligns with the broader argument that performance gains from management systems depend on implementation fidelity and continuous improvement loops, rather than on system adoption alone (Atento, Quinto, Espelita, & San Juan, 2025).

## **2.2 Localization and Contextualization of QMS in Decentralized Environments**

Decentralized implementation environments pose a persistent challenge for quality management systems (QMS), particularly when an organization seeks to enforce a common standard across units that operate under different operational constraints, staffing profiles, leadership practices, and enabling resources. In principle, decentralization can increase responsiveness and local problem-solving capacity; in practice, it can also produce uneven interpretations of policy and procedural requirements, thereby weakening standardization, comparability of outputs, and auditability. In studies examining decentralization reforms and local governance, implementation variance is repeatedly identified as a predictable consequence when local units are granted operational discretion without commensurate interpretive guidance and monitoring

structures (Barabash & Khaniuk, 2024; Sliusar & Levaieva, 2021).

Within QMS implementation, this tension is often expressed as a trade-off between uniformity and feasibility. “Localization” and “contextualization” are therefore not inherently undesirable. When treated as an intentional strategy, localization refers to the disciplined translation of system requirements into procedures, work instructions, and documentation routines that remain faithful to the standard while being executable within local realities. However, the literature on decentralization indicates that localized adaptation can also become informal drift when boundaries are unclear or when central oversight is weak, leading to fragmented practices and inconsistent process outputs across units (Barabash & Khaniuk, 2024; Sliusar & Levaieva, 2021). In QMS terms, this means that the same “standard” may be performed differently by different personnel or sites, undermining the reliability and predictability that quality systems are designed to produce.

A critical implication of this literature is that localization must be governed as controlled contextualization. Controlled contextualization requires explicit rules regarding which procedures may be tailored, how adaptations are documented, how performance indicators remain comparable across units, and how nonconformities are escalated and resolved. Without such control mechanisms, localization can unintentionally erode system coherence, because local workarounds and informal routines become normalized in ways that are difficult to detect through periodic audits alone. Thus, the theoretical value of localization depends on whether the organization can maintain traceability—i.e., a clear linkage between the localized procedure and the standard’s intent—while ensuring that local procedures remain measurable, reviewable, and consistently implemented (Barabash & Khaniuk, 2024; Sliusar & Levaieva, 2021).

Finally, the literature implies that decentralization challenges are not resolved solely through additional documentation. Implementation quality is also shaped by organizational learning mechanisms and by the ability of the system to generate actionable feedback. Related perspectives emphasizing analytics-informed governance and integration of managerial systems support the view that localized implementation can be strengthened when organizations use structured feedback loops, credible performance information, and systematic



monitoring to prevent drift and support continuous improvement across units (Atento, Quinto, Espelita, & Castaneda, 2025; Atento, Quinto, Espelita, & San Juan, 2025; Rao, Tian, & Atento, 2025). For the present case study, these perspectives reinforce a central rationale: localization should be evaluated not merely as “adaptation,” but as a managed process that preserves QMS coherence while improving operational fit and implementation fidelity.

### **2.3 Repatriation Process and Compliance Requirements**

Repatriation constitutes a central labor-protection mechanism in international shipping because employment at sea presupposes cross-border mobility, extended deployment cycles, and heightened exposure to occupational health and safety risks. In practice, repatriation functions both as a right of the seafarer and as a core duty of shipowners and manning agencies, requiring coordinated administrative action across flag States, port States, employers, insurers, and national regulators. The Maritime Labour Convention, 2006 (MLC, 2006) is generally treated as the primary global standard for “decent work” at sea; within this framework, repatriation obligations are linked to contract completion, termination for just cause, medical unfitness, shipwreck, and other contingencies that may arise during service (Cheng, 2020; Kouni, 2020). Compliance, however, is not exhausted by formal recognition of the right to repatriation. It entails reliable procedures, documented responsibility allocation, and timely execution under conditions that often involve disrupted routes, jurisdictional ambiguity, and constrained access to port-based services.

A major compliance challenge arises from the fragmented governance structure of international shipping. The “beyond the state” character of maritime labor regulation has been widely noted in relation to seafarer abandonment—circumstances in which workers are left without wages, basic support, or a viable pathway home. Empirical analysis of abandonment cases highlights how international standards can be robust in principle yet constrained in enforcement, particularly when responsible parties become insolvent, when vessel ownership structures are opaque, or when disputes cross multiple legal jurisdictions (Sampson, 2022). Within such cases, repatriation becomes not merely an

operational task but a test of whether regulatory architecture can effectively convert labor rights into enforceable outcomes. The implication for compliance systems is that repatriation readiness must anticipate worst-case contingencies (e.g., non-payment of wages, terminated contracts, detention of vessels) rather than assuming stable and cooperative employer behavior.

The introduction of financial security mechanisms under the MLC (2006) has been framed as a response to enforcement gaps, especially for claims related to unpaid wages and repatriation costs. From a regulatory design standpoint, financial security certificates are intended to reduce delays by ensuring that resources exist even when the direct employer fails. Nonetheless, legal and procedural complexities remain, including variation in how claims are processed, how responsibility is validated, and how quickly financial guarantees translate into actual assistance for seafarers (Cheng, 2020). Compliance therefore requires that agencies and employers treat documentation, reporting lines, and claims protocols as integral parts of repatriation management, rather than as ancillary administrative work completed after a crisis has already emerged.

The COVID-19 period further demonstrated that repatriation compliance must be resilient under global disruption. Restrictions on port entry, limited shore leave, disrupted flight networks, and quarantine policies created a “crew change crisis” in which repatriation—normally a predictable end-of-contract procedure—became uncertain, delayed, and unevenly implemented across countries and ports. Evidence from maritime health and policy analysis underscores that seafarers’ rights to repatriation and medical assistance can be severely constrained by public health measures, thereby revealing the dependence of labor rights on intergovernmental coordination and the operational discretion of local authorities (Hebbar & Mukesh, 2020). In this context, compliance does not only involve adherence to baseline labor standards but also the capacity to navigate rapidly changing rules on travel, testing, isolation, and port access while maintaining continuity of care and safe transfer for seafarers.

Seafarer repatriation is also closely tied to medical risk management. In operational terms, medical repatriation represents a high-stakes subset of repatriation processes because it requires clinical assessment, medical documentation, logistical coordination for transfer, and careful cost management. Longitudinal evidence on Filipino



seafarers' medical repatriation indicates that repatriation cases are not marginal events but recurring outcomes associated with injuries and illness patterns that can be profiled and anticipated (Abaya et al., 2023). Such profiling supports an important compliance argument: repatriation systems should be integrated with occupational health surveillance, pre-deployment screening, onboard health protocols, and claims management. Without this integration, repatriation becomes a reactive administrative burden; with integration, it becomes a predictable component of maritime workforce governance with actionable prevention strategies.

Beyond objective constraints, subjective and psychosocial concerns also shape repatriation experiences and compliance outcomes. Research on seafarers' perceived concerns during crisis conditions suggests that uncertainty, fear of infection, isolation, and procedural opacity intensify stress and reduce confidence in institutional support. Such concerns are relevant to compliance because they influence reporting behavior, cooperation with protocols, and trust in agencies that coordinate repatriation and welfare support (Nguyen et al., 2023). Hence, repatriation compliance should be conceptualized not solely as a legal-technical function but also as a service system that manages expectations, communication, and clarity of responsibility. Inadequate communication can function as a compliance failure even when formal procedures exist, particularly when seafarers and families require timely information on status, timelines, and entitlements.

At the national level, repatriation systems operate within broader state capacity and labor migration governance. Large-scale emergency repatriation efforts illustrate the operational complexity of mobilizing return pathways under crisis, including coordination across agencies, transport logistics, quarantine facilities, and reintegration support. Lessons from Philippine repatriation operations emphasize that repatriation is not an isolated administrative function; it depends on interagency governance, reliable data systems, and a coordinated communication strategy capable of handling high volumes under uncertainty (Liao, 2020). Within the maritime sector, national statistical and regulatory reporting provides context for the scale and significance of seafaring labor, which can inform resource allocation, oversight priorities, and the design of compliance monitoring

approaches (Maritime Industry Authority [MARINA], 2022).

Taken together, the literature positions repatriation compliance as a multi-layered capability rather than a single procedural step. At a minimum, compliance presupposes alignment with international standards on repatriation rights and employer responsibilities (Cheng, 2020; Kouni, 2020). At a higher level, compliance requires institutional readiness to manage abandonment risks and enforcement limitations in a complex transnational industry (Sampson, 2022). Under crisis conditions, it requires adaptive capacity to operate amid rapidly changing rules and constrained mobility (Hebbar & Mukesh, 2020). Finally, medical and psychosocial dimensions suggest that repatriation should be embedded in integrated occupational health and welfare systems, supported by evidence-based profiling and transparent communication practices (Abaya et al., 2023; Nguyen et al., 2023). These themes justify examining repatriation processes not only as administrative sequences but as governance systems whose effectiveness can be evaluated through timeliness, clarity of responsibility, documentation reliability, and service responsiveness.

#### ***2.4 Operational Efficiency and Performance Metrics in Maritime Operations***

Operational efficiency is commonly treated in maritime research as an outcome of how effectively organizations transform inputs (e.g., labor, capital, time, information, and energy) into desired outputs while minimizing delays, waste, rework, and avoidable costs. In maritime settings, the conceptual meaning of efficiency is rarely confined to speed alone. Rather, it is framed as the combined capacity to deliver reliable service performance, maintain continuity of operations, and sustain compliance and safety expectations under conditions of uncertainty and complex coordination. This expanded framing is important because maritime systems are inherently multi-actor environments: vessels, ports, logistics intermediaries, regulatory bodies, and administrative service entities operate with interdependent decision cycles. Consequently, inefficiencies tend to propagate across the system, making measurement and control a central managerial concern (Abeng, 2022; Marcos & Pereira, 2024).

A recurring emphasis in the literature is that operational efficiency requires measurement systems that translate complex operational realities



into interpretable indicators. Maritime performance research often uses quantitative methods to estimate efficiency, including frontier-based approaches such as data envelopment analysis (DEA), stochastic frontier analysis, and related comparative benchmarking models. Such approaches are frequently applied to evaluate operational performance across ports, terminals, shipping services, and logistics networks by comparing observed outputs to an efficiency frontier given similar input conditions (Ighravwe & Mashao, 2023; Marcos & Pereira, 2024). In this tradition, efficiency measurement is not merely descriptive. It is employed as a diagnostic mechanism to identify relative underperformance, isolate plausible sources of inefficiency (e.g., resource underutilization, congestion, weak coordination), and guide targeted interventions.

In parallel, the literature also highlights that efficiency in maritime operations increasingly intersects with sustainability, environmental performance, and governance expectations. Studies examining operational efficiency alongside ESG-related performance suggest that efficiency assessments are evolving beyond conventional cost and throughput measures to include broader organizational impacts and risk exposures (Xu & Wan, 2024). This is particularly salient in maritime industries where regulatory pressures (e.g., environmental controls, labor standards) may influence operational decisions and where performance legitimacy depends not only on speed but also on responsible and compliant execution. The implication is that operational efficiency is increasingly conceptualized as an integrated performance outcome: efficient organizations are not simply faster; they are also more predictable, lower in avoidable risk, and better aligned with evolving governance expectations (Xu & Wan, 2024).

Another strand of research emphasizes the role of analytics, modeling, and decision-support systems in improving maritime operational performance. Studies on maritime and logistics operations increasingly discuss the use of structured analytics to detect patterns in operational data, optimize resource allocation, and improve decision quality under uncertainty (Bui & Lokukaluge, 2021; Godet et al., 2023). This literature suggests that efficiency gains are frequently realized not through singular interventions but through systemic improvements: enhanced monitoring, better coordination mechanisms, and iterative process

redesign based on performance feedback. In this context, operational metrics function as learning instruments. They allow organizations to convert routine data into actionable insights that support continuous improvement and operational resilience (Godet et al., 2023).

From a managerial and strategic standpoint, operational efficiency is also discussed as a product of organizational development choices—particularly in logistics and maritime service systems where operational capability is shaped by process integration, infrastructure planning, and the alignment of administrative systems with field realities (Abeng, 2022). This perspective is useful for studies focusing on service-oriented maritime entities because it emphasizes that operational inefficiency often results from misalignment between formal procedures and actual workflow constraints, inadequate enabling tools, and unclear coordination arrangements across roles. Consequently, operational efficiency improvements require attention to how processes are designed, monitored, and governed, rather than relying solely on individual effort or ad hoc problem-solving (Abeng, 2022; Braglia, 2024).

Within broader operations and performance research, efficiency is frequently tied to the logic of continuous improvement, where measurement is embedded into a repeating cycle of diagnosis, corrective action, and standardization. Contemporary discussions in productivity and quality research often highlight that measurable improvements tend to be sustained when organizations institutionalize monitoring practices and use results to drive process refinement (Braglia, 2024). In maritime contexts, such approaches align with the need to manage variability arising from demand fluctuations, operational disruptions, and human-dependent decision pathways. Thus, operational efficiency is best understood as a system property: it emerges when organizations can consistently execute processes with minimal variance, detect deviations early, and implement corrective actions that prevent recurrence (Braglia, 2024; Ighravwe & Mashao, 2023).

Finally, the literature implies that the operational definition of efficiency must be sensitive to the unit of analysis. While many maritime efficiency studies focus on ports, shipping, or logistics chains, the conceptual principles remain applicable to administrative and service organizations in the maritime ecosystem. In service



contexts, efficiency is plausibly represented through process metrics such as cycle time, error rates, rework frequency, queue delays, and predictability of output delivery. These measures align with the broader literature's emphasis on minimizing waste and variance while maintaining reliability and compliance. Within such a framing, an operational study can evaluate efficiency not only as "faster processing," but as improved process stability, fewer nonconformities, and better service consistency—outcomes that are conceptually compatible with measurement-based improvement models in maritime operations research (Marcos & Pereira, 2024; Xu & Wan, 2024).

### **2.5 Human Factors and Organizational Practices Enabling QMS Effectiveness**

A recurring conclusion in quality and performance literature is that the outcomes of a quality management system (QMS) depend not only on the formal design of procedures and documentation but also on the human and organizational conditions that shape how the system is enacted in daily work. This "enactment" perspective is particularly relevant in service-oriented and compliance-sensitive contexts, where process reliability is mediated by employee judgment, interdepartmental coordination, and the consistency of routine behaviors over time. Accordingly, the literature frequently treats human factors—such as engagement, role clarity, competence, and accountability—as essential enabling conditions for QMS effectiveness, rather than as peripheral influences. In this framing, a QMS becomes operationally meaningful when employees internalize its requirements, perceive its relevance to performance, and have the competence and support necessary to execute procedures consistently (Cavallone & Palumbo, 2021; Dvarikova & Sriteska, 2024).

Employee involvement and engagement are among the most frequently emphasized human factors in the quality literature. The soft-side of total quality management (TQM) scholarship argues that employee involvement affects the adoption and sustainability of management practices, because quality systems require routine compliance behaviors and continuous improvement contributions from staff, not only periodic audits or managerial directives (Cavallone & Palumbo, 2021). Engagement-oriented perspectives in organizational research similarly suggest that engaged employees demonstrate higher discretionary effort, more proactive problem-

solving, and greater persistence in meeting procedural and performance expectations, which collectively influence execution quality and operational reliability (Pahi et al., 2020; Nur et al., 2021). These claims imply that QMS success is partly contingent on whether employees experience the system as enabling—supporting clarity and performance—rather than as an externally imposed burden.

Role clarity and competence development also appear consistently as determinants of execution consistency. Where responsibilities, decision boundaries, and escalation pathways are unclear, staff may revert to informal routines or workarounds that erode standardization and increase performance variance. Conversely, where competence-building initiatives are sustained, organizations are more likely to maintain implementation fidelity and reduce nonconformities attributable to misunderstanding, skill gaps, or inconsistent interpretation of procedures (Adolfsson & Hakkanson, 2024; Koch et al., 2021). Research on teacher capacity-building and multiyear development initiatives emphasizes that capability is strengthened through sustained learning structures rather than one-time training, suggesting that organizations seeking stable quality outcomes must institutionalize learning and reinforcement mechanisms (Adolfsson & Hakkanson, 2024). Although such work may arise from education-oriented contexts, the underlying organizational logic aligns with QMS implementation in administrative service settings: competence and interpretive clarity are prerequisites for consistent system enactment.

Organizational practices operate alongside human factors as structural enablers of QMS effectiveness. Leadership commitment, communication practices, monitoring routines, and the availability of enabling tools shape whether the QMS remains integrated into routine management or becomes a symbolic system maintained primarily for formal compliance. Studies examining leadership and workplace conditions suggest that leadership behaviors influence employee willingness to comply with procedures, participate in improvement activities, and sustain performance under operational pressure (Saxena & Mishra, 2023; Setyaningrum & Muhamad, 2021). In addition, organizational studies on workplace wellbeing and work-life conditions indicate that the perceived quality of the work environment can influence satisfaction and performance outcomes, thereby



indirectly shaping procedural compliance and reliability (Albar et al., 2025; Rabiul et al., 2025). This literature implies that QMS outcomes may be weakened when employee morale and workplace conditions are poor, because the system's demands for documentation discipline and consistent execution are more difficult to sustain under conditions of disengagement or burnout.

A further implication concerns governance practices that sustain implementation over time. Research on organizational systems emphasizes that monitoring and feedback loops must be credible and actionable; otherwise, performance measurement degenerates into reporting without improvement. From this view, effective QMS governance involves routine review mechanisms that identify process failures, assign accountability for corrective action, and ensure prevention measures are institutionalized. Such practices are likely to be particularly important in decentralized or multi-unit settings where inconsistent implementation can occur across personnel and departments. Where governance is weak, local interpretations may drift and become normalized, thereby undermining standardization and audit readiness (Kusuma & Agoes, 2021; Edwar, Lubis & Tabrani, 2021). Conversely, when leadership and monitoring practices are aligned, organizations are more likely to achieve high-fidelity QMS implementation and translate it into operational efficiency improvements.

Recent integrative perspectives in analytics and interdisciplinary management also suggest that complex organizational systems benefit from frameworks that connect human-centered considerations with measurement, monitoring, and performance governance. Conceptual works that integrate health and business analytics emphasize that organizational performance is often shaped by the interaction of system design, data-informed monitoring, and human-centered management practices, especially in environments where performance outcomes depend on both technical and behavioral execution (Atento, Quinto, Espelita, & Castaneda, 2025; Atento, Quinto, Espelita, & San Juan, 2025). These perspectives reinforce an important premise for QMS-focused studies: understanding "quality effectiveness" requires attention to how system requirements are operationalized through people, organizational routines, and governance mechanisms, rather than attributing outcomes solely to the presence of documented procedures.

Overall, the literature supports a socio-technical interpretation of QMS effectiveness. QMS contributes to operational outcomes when employees are engaged and competent, when leadership provides consistent reinforcement and credible monitoring, and when organizational practices support systematic feedback and improvement. Human factors and organizational practices are therefore not merely contextual variables; they are plausible explanatory conditions that shape whether localized QMS implementation can produce measurable operational efficiency and compliance outcomes in service-oriented maritime settings (Cavallone & Palumbo, 2021; Nur et al., 2021).

## 2.6 *Synthesis of the Literature*

The literature on quality management systems (QMS) in maritime and maritime-adjacent organizations consistently presents QMS as more than a compliance artifact; rather, it is framed as a governance mechanism intended to stabilize operational routines, reduce process variation, and institutionalize continuous improvement in settings characterized by high regulatory exposure and reputational risk (Pehlivan & Cicek, 2021; Yildirim, 2022; Migda, 2023). In this view, quality does not emerge primarily from the existence of documentation, but from the degree to which documented standards are translated into repeatable practice across functional units, roles, and decision points. This translation is particularly salient in maritime contexts where organizations operate under overlapping accountability regimes (e.g., safety, labor, client audits) and where operational disruptions carry both financial and human consequences.

A central theme emerging from the reviewed studies is the distinction between formal QMS design and practical QMS enactment. Research on maritime education, training, and quality assessment underscores that standardized systems tend to improve outcomes when they are operationalized through well-defined internal controls, competent implementers, and feedback mechanisms that detect nonconformance early and convert it into preventive action (Pehlivan & Cicek, 2021; Sarinten, 2022). Complementary organizational perspectives suggest that performance gains from quality systems are conditional: organizations can formally adopt quality standards without experiencing measurable operational improvements if implementation fidelity is weak or if the system remains disconnected from



frontline workflow and supervisory routines (Koch et al., 2021; Gupta, 2023).

A second theme concerns localization and contextualization. Across decentralized and multi-unit organizations, the literature indicates that localized implementation is not inherently a deviation from QMS principles; it can be a necessary adaptation that reconciles universal standards with local constraints, task environments, and resource realities (Zastrozhnikova & Cheremisina, 2022; Barabash & Khaniuk, 2024). However, the same stream of research cautions that “localization” can function either as constructive tailoring or as informal drift, depending on the presence of explicit boundaries defining what may be adapted and what must remain standardized. Where these boundaries are absent, organizations may experience fragmentation—uneven practice, inconsistent decision quality, and weak audit trails—undermining the very reliability QMS is intended to create (Sliusar & Levaieva, 2021; Kukhar & Musilovskyi, 2024).

A third theme aligns QMS with process performance and operational efficiency. Studies linking quality initiatives to operational outcomes emphasize that efficiency is not limited to speed or cost reduction; it includes reduction in rework, error containment, smoother handoffs between roles, and improved predictability of service delivery (Ighravwe & Mashao, 2023; Marcos & Pereira, 2024). Within this framing, QMS supports efficiency when it functions as a process discipline—standardizing critical tasks, clarifying accountability, and embedding monitoring practices that convert performance signals (e.g., delays, bottlenecks, nonconformities) into corrective action. Conversely, organizations may exhibit administrative compliance (e.g., completed checklists, scheduled audits) without operational efficiency gains if monitoring is ceremonial or if performance information is not used for decision-making and improvement.

A fourth theme foregrounds the human and organizational conditions that make quality systems workable. Across organizational behavior and quality literature, enabling factors repeatedly include leadership commitment, role clarity, employee engagement, and a quality-oriented culture that supports disciplined adherence rather than selective compliance (Cavallone & Palumbo, 2021; Edwar et al., 2021). Related studies further emphasize the importance of competency development and capability-building, arguing that

QMS performance depends on training systems and supervisory capacity—particularly in environments where procedures intersect with high-stakes outcomes and multiple stakeholders (Dvarikova & Sriteska, 2024; Adolfsson & Hakkanson, 2024). Taken together, these findings suggest that QMS effectiveness is a socio-technical outcome: procedures and forms matter, but their impact is mediated by the quality of leadership routines, accountability structures, and employee participation.

Synthesizing these streams produces a coherent conceptual trajectory. QMS is designed to produce stable and auditable routines; localization is often necessary but must be governed to prevent practice fragmentation; operational efficiency is a plausible downstream outcome when QMS is enacted with fidelity and used as an improvement system rather than a static compliance mechanism; and these relationships are strengthened or weakened by human and organizational enabling conditions. This synthesis motivates empirical attention to how localized QMS implementation is associated with operational efficiency in specific institutional settings, particularly where service quality and compliance processes converge in the same workflow.

## 2.7 Gaps in the Literature

Despite substantial conceptual agreement on QMS as a driver of standardization and improvement, three gaps remain salient when the focus shifts from general maritime organizations to localized operational units and administrative offices.

First, the literature frequently advances QMS—performance claims at a broad organizational level, but offers less empirical specificity on how QMS becomes “operational” in localized administrative settings where compliance is achieved through service routines, documentation cycles, coordination practices, and time-sensitive decision points. While studies discuss QMS compliance assessment and quality criteria in maritime contexts (Pehlivan & Cicek, 2021; Yildirim, 2022), fewer studies examine the day-to-day translation of QMS into localized office procedures—particularly where the operational definition of “efficiency” includes turnaround time, process continuity, and error containment rather than production throughput.

Second, the localization discourse remains under-resolved in terms of its measurable



organizational consequences. Existing studies recognize decentralization and contextualization as inevitable and sometimes beneficial (Zastrozhnikova & Cheremisina, 2022; Barabash & Khaniuk, 2024), yet there is limited empirical clarity on when localized adaptation improves operational reliability versus when it becomes informal deviation that increases variance across personnel and units (Sliusar & Levaieva, 2021). Put differently, the literature provides strong conceptual arguments but relatively fewer setting-specific investigations that connect “localized QMS implementation” to measurable operational outcomes in real organizational environments.

Third, human and leadership factors are often treated as enabling conditions in principle, but are less frequently integrated into a unified explanatory account that connects them to localized QMS enactment and operational efficiency simultaneously. While the organizational literature emphasizes employee involvement, role clarity, leadership, and engagement as contributors to quality outcomes (Cavallone & Palumbo, 2021; Edwar et al., 2021), many studies stop short of specifying how these conditions interact with localized QMS—whether as mechanisms that preserve implementation fidelity, as moderators that strengthen the QMS–efficiency relationship, or as independent drivers of operational performance.

Given these gaps, there is a clear need for a setting-specific case study that (a) operationalizes localized QMS implementation in concrete organizational terms, (b) defines and measures operational efficiency in a way that reflects administrative and service workflows, and (c) examines the relationship between localized QMS implementation and operational efficiency within a maritime manning office context where compliance pressures, stakeholder expectations, and process reliability converge. Addressing these gaps can contribute both practical implications for quality governance in localized operational units and empirical grounding for QMS claims that are often advanced at a more general level.

### 3. Methodology

#### 3.1 Research Design

This study employed a quantitative descriptive–correlational design to (a) describe the

perceived level of Quality Management System (QMS) implementation, human factors, organizational practices, operational efficiency, and compliance/service quality within the target maritime manning office; and (b) determine the strength, direction, and predictive influence of QMS implementation-related factors on organizational outcomes. The descriptive component addressed the study’s baseline assessments of each construct using summary statistics (means and standard deviations). The inferential component examined associations among variables through Pearson’s correlation, and tested predictive relationships through multiple linear regression, consistent with the study’s intent to identify which factors statistically influence operational efficiency and compliance outcomes.

#### 3.2 Research Setting

The research was conducted in a Philippine-based maritime manning office in Manila functioning as a local branch of an international shipping organization. The office performs core manning functions such as crewing coordination, documentation, deployment support, repatriation processing, and welfare-related coordination. Although the parent organization maintains an established QMS framework, the local office was described as operating under localized implementation conditions (i.e., procedures and awareness vary by role and unit), which justified examining how system implementation, human factors, and organizational practices relate to operational outcomes.

#### 3.3 Population, Sampling Technique, and Sample Size

The study population consisted of personnel directly engaged with, or affected by, office QMS-driven processes. A total enumeration (census) approach was adopted due to the manageable population size and the relevance of all roles to QMS implementation and service delivery. A total of 150 respondents participated, composed of seafarers ( $n = 130$ ; 86.7%) and office staff ( $n = 20$ ; 13.3%), reflecting the organization’s workforce structure and the operational reality that QMS-related processes (e.g., documentation, compliance requirements, crew welfare procedures, repatriation-related coordination) involve both office functions and seafarer-facing service delivery.

To support adequacy for inferential testing, a minimum required sample was determined via  $G^*$ Power using a medium effect size assumption,  $\alpha$



= .05, and power = .80. The achieved sample exceeded the minimum threshold, increasing statistical power and strengthening confidence in regression estimates.

Inclusion criteria were (a) current affiliation with the organization during the study period, and (b) exposure to or interaction with at least one of the following: QMS procedures, documentation processes, compliance/service quality requirements, or operational workflow implementation.

Exclusion criteria were incomplete responses and respondents not meeting the inclusion criteria.

### 3.4 Research Instrumentation

Data were collected using a structured survey questionnaire designed to measure the study constructs using a 5-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree). The instrument was organized into the following sections:

- a. Demographic Profile (age, gender, current role, job level, length of service)
- b. QMS Implementation and Design (7 items)
- c. Human Factors (7 items)
- d. Organizational Practices (7 items)
- e. Operational Efficiency (7 items)
- f. Compliance and Service Quality (7 items)

Mean scores were interpreted using conventional 5-point scale cut-offs: 4.21–5.00 = Very High, 3.41–4.20 = High, 2.61–3.40 = Moderate, 1.81–2.60 = Low, and 1.00–1.80 = Very Low. Construct-specific descriptors (e.g., Moderately Implemented, Moderately Exhibited, Moderately Practiced, Moderately Efficient, Compliant) were mapped to these cut-offs for reporting clarity.

The instrument was subjected to reliability testing, yielding Cronbach's alpha coefficients within the acceptable-to-excellent range (reported overall between 0.84 and 0.91), supporting internal consistency for the study constructs. Content alignment was guided by the study's operational context (QMS implementation in a decentralized/local office environment), ensuring that item statements were interpretable to both office staff and seafarer-facing respondents.

### 3.5 Data Gathering Procedure

Data collection was conducted through an electronic survey distribution. Respondents were provided an information/consent statement describing the purpose of the study, confidentiality protections, and the voluntary nature of participation.

Participants were informed that responses would be reported in aggregate form and that no personally identifying information would be disclosed in the results.

Responses were encoded and cleaned prior to analysis. Only complete and valid responses were included in the final dataset.

### 3.6 Data Analysis and Statistical Treatment

Data analysis followed two stages:

#### a. Descriptive Analysis

Frequency and percentage distributions were computed for demographic variables.

Means and standard deviations were computed for each construct (QMS implementation, human factors, organizational practices, operational efficiency, and compliance/service quality).

#### b. Inferential Analysis

Pearson's  $r$  was used to determine the magnitude and direction of relationships among the major constructs.

Multiple linear regression tested the predictive influence of (a) QMS implementation on operational efficiency and compliance/service quality, and (b) human factors and organizational practices on QMS implementation and compliance/service quality, consistent with the study's inferential questions.

All hypothesis tests were evaluated using a conventional  $\alpha = .05$  significance level. Statistical analysis was conducted using Jamovi for correlations and regression modeling, consistent with the study's quantitative analytical approach.

### 3.7 Ethical Considerations

Ethical safeguards were implemented throughout the study. Participation was voluntary, and respondents could withdraw without penalty. Confidentiality was maintained through anonymous response handling and restricted access to raw data. Data were stored securely and used solely for academic purposes. The study also observed applicable data privacy principles consistent with Philippine standards for research confidentiality and responsible data handling.

**Table 1.** Demographic Profile of the Respondents (Background Information)

<i>Demographic</i>	<i>Intervals</i>	<i>f</i>	<i>%</i>
Age	21-35 years	64	42.7%
	36-50	70	46.7%
	51-65	16	10.6%
Gender	Male	104	69.3%
	Female	46	30.7%
Current Role	Seafarer	130	86.7%
	Office Staff	20	13.3%
Job Level	Senior Management	25	16.7%
	Junior Officers	67	44.7%
	Rank-and-File	57	38.0%
Length of Service	Less than 1 year	41	27.3%
	1-5 years	93	62.0%
	6-10 years	16	10.7%

#### 4. Results and Discussion

##### 4.1 Respondent Profile

Table 1 summarizes the respondents' demographic characteristics to provide context for interpreting perceptions of QMS implementation and related outcomes. In terms of age, the largest group belongs to 36–50 years ( $n = 70$ ; 46.7%), followed by 21–35 years ( $n = 64$ ; 42.7%), while 51–65 years comprises the smallest segment ( $n = 16$ ; 10.6%). For gender, respondents were predominantly male ( $n = 104$ ; 69.3%), with female respondents accounting for 30.7% ( $n = 46$ ).

Regarding current role, the sample was primarily composed of seafarers ( $n = 130$ ; 86.7%), while office staff represented 13.3% ( $n = 20$ ). For job level, junior officers formed the largest category ( $n = 67$ ; 44.7%), followed by rank-and-file personnel ( $n = 57$ ; 38.0%), with senior management comprising 16.7% ( $n = 25$ ). Finally, the distribution of length of service indicates that most respondents had 1–5 years of service ( $n = 93$ ; 62.0%), followed by those with less than 1 year ( $n = 41$ ; 27.3%), while 6–10 years represented the smallest group ( $n = 16$ ; 10.7%).

Overall, the demographic profile suggests that the respondent pool is largely mid-career, predominantly male, and heavily represented by seafarer roles, with most having a moderate tenure

range (1–5 years). These characteristics serve as descriptive background and are not treated as analytic variables in hypothesis testing.

##### 4.2 Level of QMS Implementation

The respondents' assessment of the level of Quality Management System (QMS) implementation in the Philippine maritime office is based on seven indicator statements measured through mean scores and standard deviations. Overall, the QMS was rated as Moderately Implemented ( $M = 3.10$ ,  $SD = 1.10$ ), indicating that QMS practices are present and generally observable in the organization, though not yet consistently experienced as fully embedded across all areas of work.

Across specific indicators, the highest-rated item was understanding of QMS applicability to one's role ( $M = 3.29$ ,  $SD = 1.22$ ), suggesting that respondents generally recognize how QMS requirements relate to their individual functions. The remaining indicators were similarly interpreted as Moderately Implemented, including perceptions that QMS workflows are structured and documented ( $M = 3.01$ ,  $SD = 1.18$ ), reflect actual procedures ( $M = 3.03$ ,  $SD = 1.22$ ), promote task standardization ( $M = 3.12$ ,  $SD = 1.24$ ), incorporate office feedback ( $M = 3.14$ ,  $SD = 1.17$ ), and support local decision-making ( $M = 3.13$ ,  $SD = 1.23$ ). The lowest mean was observed for the statement that the QMS is tailored to local operational needs ( $M = 2.95$ ,  $SD = 1.21$ ), implying that localization may be perceived as

**Table 2.** Linear Regression Results on the Significant Influence of QMS Implementation to Operational Efficiency and Compliance with Service Quality Standards

Dependent variable	Predictor	$\beta$	t	R <sup>2</sup>	F(df)	p
Operational efficiency	QMS implementation	0.556	8.14	0.309	F(1,148) =66.23	< .001
Compliance/service quality	QMS implementation	0.402	5.347	0.162	F(1,148) =28.59	< .001

comparatively weaker than other facets of implementation. The standard deviations (approximately 1.17–1.24 across indicators) further suggest notable dispersion in perceptions, consistent with the possibility of uneven experiences of QMS execution across roles or work exposure within the organization.

#### 4.3 Extent of Human Factors

The extent to which human factors are exhibited in the Philippine maritime office were measured across seven indicators. Overall, human factors were assessed as Moderately Exhibited (M = 3.39, SD = 0.91), indicating that respondents generally recognize positive individual and cultural conditions that support quality implementation, although these are not uniformly strong across all dimensions.

Among the indicators, the highest-rated items were respondents' motivation to comply with quality management processes (M = 3.58, SD = 1.02) and their active contribution to discussions on quality improvements (M = 3.56, SD = 1.03), both interpreted as Exhibited. Respondents likewise reported that their input is valued in shaping how quality standards are applied (M = 3.51, SD = 1.11) and that they clearly understand their quality-related responsibilities (M = 3.50, SD = 1.01), also rated as Exhibited. In contrast, the lowest-rated indicator was the presence of a culture of accountability for quality (M = 3.19, SD = 1.10), interpreted as Moderately Exhibited, followed by perceptions of ownership over the quality of work delivered (M = 3.31, SD = 1.14) and sufficiency of QMS training (M = 3.10, SD = 1.12), both likewise Moderately Exhibited. The standard deviations (approximately 1.01–1.14) suggest variability in experience, implying that exposure to training, accountability practices, and internal quality culture may differ across roles and work contexts within the organization.

#### 4.4 Level of Organizational Practices

The respondents also assessed the level of organizational practices in the Philippine maritime office based on seven indicators describing institutional supports that enable quality implementation and operational coordination. Overall, organizational practices were rated as Moderately Practiced (M = 3.28, SD = 0.91), indicating that foundational organizational supports for quality and performance are generally present, though not consistently strong across all practice areas.

Among the indicators, the highest-rated items were the presence of effective communication within teams regarding quality standards and updates (M = 3.47, SD = 1.05) and the perception that leaders encourage staff to follow established quality procedures (M = 3.45, SD = 0.97), both interpreted as Practiced. Respondents also rated as Practiced the organization's use of regular quality monitoring and reporting routines (M = 3.39, SD = 1.00) and the existence of cooperation and teamwork across roles to meet quality and operational requirements (M = 3.38, SD = 0.98). These results suggest that communication and leadership reinforcement are relatively stronger facets of organizational practice. Conversely, the lower-rated indicators indicate areas where institutional supports may be less consistently experienced. These include perceptions of adequacy of resources and tools needed to comply with QMS requirements (M = 3.11, SD = 1.11) and the availability of digital systems to streamline workflow, documentation, and process coordination (M = 3.00, SD = 1.14), both interpreted as Moderately Practiced. The lowest mean was observed for the organization's consistency in enforcing quality-related policies across departments or units (M = 3.03, SD = 1.09), also interpreted as Moderately Practiced. The standard deviations (approximately 0.97–1.14) indicate perceptual variability, implying that experiences of resourcing, digital enablement, and

consistent policy enforcement may differ across functional roles and respondent groups within the office.

#### **4.5 Level of Operational Efficiency**

The level of operational efficiency in the Philippine maritime office was rated by participants across seven indicators. Overall, operational efficiency was rated as Moderately Efficient ( $M = 3.34$ ,  $SD = 0.92$ ), indicating that work processes are generally perceived as functioning with acceptable efficiency, although not consistently at a high level across all operational dimensions.

Across the specific indicators, the highest-rated item was the ability of respondents to accomplish work without confusion or overlapping of roles ( $M = 4.01$ ,  $SD = 0.87$ ), interpreted as Efficient. This suggests comparatively strong role clarity and work ownership at the individual level. Several indicators were assessed as Moderately Efficient, including perceptions that tasks are completed efficiently ( $M = 3.36$ ,  $SD = 1.06$ ) and that the office manages workload effectively ( $M = 3.26$ ,  $SD = 1.13$ ). Ratings also indicate moderate efficiency in process design and improvement, including the presence of procedures that reduce unnecessary steps ( $M = 3.21$ ,  $SD = 1.17$ ) and perceptions that work processes are continuously improved ( $M = 3.23$ ,  $SD = 1.18$ ), as well as in the efficient use of resources ( $M = 3.20$ ,  $SD = 1.18$ ).

The lowest mean was observed for the item indicating that delays or bottlenecks are quickly addressed ( $M = 3.11$ ,  $SD = 1.15$ ), suggesting that responsiveness to workflow disruptions may be a comparatively weaker operational area. The standard deviations (approximately 0.87–1.18) reflect variability in perceptions, implying that experiences of efficiency, process responsiveness, and improvement practices may differ across roles and work exposure within the organization.

#### **4.6 Extent of Compliance and Service Quality**

The respondents' assessment of the office's compliance and service quality was measured across seven indicators. Overall, compliance and service quality were rated as Compliant ( $M = 3.68$ ,  $SD = 0.88$ ), indicating that respondents generally perceive the office as meeting required standards and delivering services at an acceptable and credible level, although certain aspects of system-enabled consistency remain comparatively weaker.

Among the indicators, the highest mean ratings were shared by multiple items. Respondents most strongly affirmed that the office complies with required maritime quality standards ( $M = 3.77$ ,  $SD = 1.04$ ), that service recipients (e.g., clients, seafarers) are satisfied with the quality of service ( $M = 3.77$ ,  $SD = 1.01$ ), and that the quality of the office's work reflects well on the organization ( $M = 3.77$ ,  $SD = 1.01$ ), all interpreted as Compliant. Similarly, respondents rated as Compliant the office's practice of addressing issues through corrective action ( $M = 3.71$ ,  $SD = 1.00$ ) and maintaining complete and organized compliance documentation ( $M = 3.70$ ,  $SD = 1.05$ ). Perceptions regarding being regularly audited and responding effectively were also favorable ( $M = 3.58$ ,  $SD = 1.12$ ), likewise interpreted as Compliant.

The lowest-rated indicator was the statement that the QMS helps ensure consistent and reliable service delivery ( $M = 3.46$ ,  $SD = 1.11$ ), interpreted as Moderately Compliant. This pattern suggests that while respondents generally perceive strong compliance behavior and positive service reputation, the perceived role of the QMS as a mechanism that ensures service consistency may be less uniformly experienced. The standard deviations (approximately 1.00–1.12 across items) indicate moderate variability in perceptions, implying that experiences of audit responsiveness, documentation discipline, and consistency mechanisms may differ across respondent roles and exposure to QMS routines.

#### **4.7 Regression Results: QMS Implementation Predicting Outcomes**

Table 2 reports the linear regression estimates evaluating whether QMS implementation significantly predicts (a) operational efficiency and (b) compliance with service quality standards in the Philippine maritime office. The regression results indicate statistically significant predictive relationships for both outcomes.

For operational efficiency, QMS implementation yielded a strong positive standardized effect ( $\beta = 0.741$ ), and the model was statistically significant ( $t = 13.42$ ,  $p < .001$ ). The model fit statistics indicate substantial explanatory power ( $R^2 = 0.549$ ;  $F(1,148) = 180.09$ ;  $p < .001$ ), suggesting that QMS implementation accounts for approximately 54.9% of the variance in operational efficiency ratings.

For compliance with service quality standards, QMS implementation also demonstrated a positive and statistically significant effect ( $\beta = 0.402$ ;  $t = 5.347$ ;  $p < .001$ ). However, the explanatory power of the model was comparatively lower ( $R^2 = 0.162$ ;  $F(1,148) = 28.59$ ;  $p < .001$ ), indicating that QMS implementation explains about 16.2% of the variance in compliance/service quality outcomes. Overall, these results support the interpretation that stronger perceived QMS implementation is associated with higher perceived operational efficiency and higher perceived compliance/service quality, with the relationship being substantially stronger for operational efficiency than for compliance outcomes.

effects. Human factors showed a moderate positive influence ( $\beta = 0.371$ ,  $t = 5.482$ ,  $p < .001$ ), while organizational practices exhibited a comparatively stronger positive influence ( $\beta = 0.445$ ,  $t = 6.581$ ,  $p < .001$ ). The overall model explained a substantial proportion of variance in QMS implementation ( $R^2 = 0.583$ ;  $F(2,147) = 102.663$ ;  $p < .001$ ), indicating that variations in perceived QMS implementation are strongly associated with the combined presence of supportive human conditions and enabling organizational practices.

For compliance with service quality standards, both predictors likewise yielded statistically significant positive effects, but with a different relative strength pattern. Human factors emerged as

**Table 3** Linear Regression Results on the Significant Influence of Human Factors and Organizational Practices Influence the Implementation of And Outcomes of the QMS.

**QMS Implementation**

Predictor	Beta	t	Sig.	Interpretation
Human Factors	0.645	10.411	0.000	Significant
Organizational Practices	0.195	3.154	0.000	Significant

$R^2 = .583$ ,  $F(2, 147) = 102.663$ ,  $p < .001$

**Compliance with Service Quality**

Predictor	Beta	t	Sig.	Interpretation
Human Factors	0.371	5.482	0.000	Significant
Organizational Practices	0.445	6.581	0.000	Significant

$R^2 = .503$ ,  $F(2, 147) = 74.490$ ,  $p < .001$

**4.8 Regression Results: Human Factors and Organizational Practices Predicting QMS and Compliance**

Table 3 presents the regression results examining whether human factors and organizational practices significantly predict (a) QMS implementation and (b) compliance with service quality standards in the Philippine maritime office. Two regression models were estimated, one for each outcome, and both models were statistically significant.

For QMS implementation, both predictors demonstrated statistically significant positive

the dominant predictor ( $\beta = 0.645$ ,  $t = 10.411$ ,  $p < .001$ ), while organizational practices remained a significant but smaller predictor ( $\beta = 0.195$ ,  $t = 3.154$ ,  $p < .001$ ). The model explained approximately half of the variance in compliance outcomes ( $R^2 = 0.503$ ;  $F(2,147) = 74.490$ ;  $p < .001$ ), suggesting that perceived compliance and service quality are particularly sensitive to the human-side conditions of implementation (e.g., motivation, engagement, accountability, and role clarity), even as institutional practices continue to contribute meaningfully.

Overall, the regression results indicate that organizational practices play a stronger role in

**Table 4.** Pearson’s *R* Results on the Correlation of QMS Implementation, Human Factors, and Organizational Practices with Operational Efficiency and Compliance Outcome

Independent Variable	Dependent Variable	Pearson <i>r</i>	p-value	Interpretation
QMS Implementation	Operational Efficiency	.556**	< .001	<i>Significant</i>
	Compliance with Service Quality	.402**	< .001	<i>Significant</i>
Human Factors	Operational Efficiency	.629**	< .001	<i>Significant</i>
	Compliance with Service Quality	.598**	< .001	<i>Significant</i>
Organizational Practices	Operational Efficiency	.741**	< .001	<i>Significant</i>
	Compliance with Service Quality	.553**	< .000	<i>Significant</i>

predicting QMS implementation, whereas human factors exert a stronger influence on compliance and service quality outcomes, with both predictors remaining statistically meaningful across the two models.

#### 4.9 Correlations Among Key Variables

Table 4 presents the Pearson’s correlation results examining the relationships of QMS implementation, human factors, and organizational practices with two key outcomes: operational efficiency and compliance with service quality standards. All reported relationships are positive and statistically significant ( $p < .001$ ), indicating that higher ratings on the independent variables are associated with higher ratings on both outcomes.

For QMS implementation, the correlation with operational efficiency was moderate and significant ( $r = .556, p < .001$ ), suggesting that stronger perceived implementation of QMS is associated with better perceived efficiency in office operations. The relationship between QMS implementation and compliance with service quality standards was also positive and significant but comparatively smaller ( $r = .402, p < .001$ ), indicating that QMS is related to compliance and service quality, though less strongly than it is to operational efficiency.

For human factors, the relationships were moderate-to-strong and significant for both outcomes. Human factors correlated with operational efficiency at  $r = .629 (p < .001)$  and with compliance with service quality standards at  $r = .598 (p < .001)$ . This pattern indicates that stronger human-side conditions (e.g., role clarity, engagement, accountability, and readiness to

comply with quality processes) are consistently associated with more favorable operational and compliance outcomes.

For organizational practices, the strongest relationship in the table was observed between organizational practices and operational efficiency ( $r = .741, p < .001$ ), indicating a strong positive association. This suggests that institutional supports—such as leadership reinforcement, communication routines, monitoring practices, and enabling systems—are closely linked to how efficiently operations are perceived to function. Organizational practices also showed a moderate and significant relationship with compliance with service quality standards ( $r = .553, p < .001$ ), reinforcing the view that organizational systems and practices contribute meaningfully to compliance and service quality outcomes.

Overall, the correlation results indicate that all three predictors are significantly associated with both outcome variables, with the strongest association observed between organizational practices and operational efficiency, and consistently substantive relationships also evident for human factors across both outcomes.

#### 4.10 Discussion of Findings

##### *Respondent Context and Interpretive Implications*

The respondent profile indicates that perceptions of QMS implementation and performance outcomes are derived primarily from a workforce that is (a) predominantly seafarer-facing, (b) largely male, and (c) concentrated in mid-career age bands with relatively moderate organizational



tenure. The high proportion of seafarers relative to office staff implies that results reflect not only internal administrative experiences but also service-recipient exposure to office processes (e.g., documentation handling, procedural clarity, and responsiveness). This composition has interpretive consequences: respondents who interface with office processes intermittently may perceive system coherence (e.g., documentation readiness or audit compliance) differently from those who manage process execution daily. Moreover, the concentration of tenure in the 1–5-year bracket suggests that a sizeable portion of respondents may have experienced only a limited cycle of QMS adjustments and continuous improvement activities, which may partially explain perceptual variability across items and constructs.

#### *Status of QMS Localization and Implementation Fidelity*

Results indicate that QMS implementation is moderately implemented overall ( $M = 3.10$ ,  $SD = 1.10$ ). The item-level pattern suggests that respondents generally recognize QMS relevance to their roles, but experience weaker evidence that the QMS is sufficiently tailored to local operational requirements. This is consistent with the conceptual distinction between formal adoption and operational embeddedness: a QMS may exist as a documented structure, yet remain only partially enacted as a day-to-day operational tool if localization boundaries, workflow alignment, and decision pathways are not adequately clarified (Czapla, 2021; Migda, 2023).

The weakest dimension—local tailoring—signals a practical localization problem: a system designed at a central or global level may not translate seamlessly to the local constraints of time, staffing, information flow, and coordination requirements in an office that must respond to variable crew demands and administrative contingencies. Literature on decentralized governance similarly argues that implementation variance is expected when local units operate under divergent conditions and when controlled mechanisms for adaptation are underdeveloped (Barabash & Khaniuk, 2024; Sliusar & Levaieva, 2021). The present findings therefore support an interpretation that the office does not lack a QMS as such, but faces a common decentralization challenge—ensuring that “standard requirements” become executable routines without degenerating into fragmented or inconsistent local practices.

#### *Human Factors as Enablers and Constraints*

Human factors are moderately exhibited overall ( $M = 3.39$ ,  $SD = 0.91$ ), with relatively strong signals of motivation and willingness to participate in quality-related discussion. This pattern suggests a generally receptive human climate for quality improvement. Such receptivity is important because the “soft side” of quality management emphasizes that QMS effectiveness depends on employee involvement, internalization of standards, and sustained discretionary effort in improvement behavior (Cavallone & Palumbo, 2021).

However, the lower ratings for sufficiency of training and the culture of accountability point to two frequent implementation bottlenecks. First, training deficits tend to manifest as interpretive inconsistency: staff may support quality in principle while applying procedures unevenly due to unclear operational rules or insufficient practice-based instruction. Second, weak accountability culture often leads to tolerance of deviations, informal workarounds, and inconsistent corrective action follow-through. In combination, these findings imply that the office may possess motivational readiness but requires stronger competence reinforcement and accountability structures to convert willingness into consistent execution (Nur, Lubis, & Tabrani, 2021).

#### *Organizational Practices and System-Level Reinforcement*

Organizational practices are rated as practiced overall ( $M = 3.28$ ,  $SD = 0.91$ ). The strongest indicators relate to leadership promotion of quality and managerial guidance, suggesting that leadership signaling and directive reinforcement are comparatively strong. Such leadership-driven reinforcement aligns with quality management perspectives that treat managerial commitment, communication clarity, and consistent reinforcement as essential for sustaining system enactment beyond formal documentation (Cavallone & Palumbo, 2021).

Nevertheless, several organizational practice elements remain only moderately practiced—particularly training execution consistency, employee support for learning new requirements, and the use of digital tools for monitoring or tracking. These weaker areas are notable because they represent institutional mechanisms that stabilize implementation over time. When training and system enablement lag, QMS enactment often becomes person-dependent, relying on experience and informal knowledge rather than standardized



capability. Moreover, limited digital monitoring capacity constrains feedback loops and makes it harder to detect bottlenecks, recurring nonconformities, or performance variance promptly—an issue commonly emphasized in contemporary operations and analytics discussions (Godet et al., 2023; Wang, 2024).

#### *Operational Efficiency as a Mixed Outcome*

Operational efficiency is moderately efficient overall ( $M = 3.34$ ,  $SD = 0.92$ ). The strongest result is role clarity and the ability to work without confusion or overlap ( $M = 4.01$ ,  $SD = 0.87$ ), indicating that individual task ownership is relatively stable. However, lower results for quick resolution of bottlenecks and only moderate ratings for process simplification and continuous improvement imply that system-level flow management may be less developed.

This pattern is consistent with the broader operations literature: efficiency is not only an individual attribute but a property of process design, monitoring, and coordination mechanisms (Abeng, 2022; Marcos & Pereira, 2024). Where roles are clear but bottlenecks persist, the limiting factor often shifts from “who does what” to “how work is handed off,” “how exceptions are processed,” and “how delays are diagnosed and corrected.” Continuous improvement requires credible feedback loops—an implication consistent with quality governance perspectives that emphasize monitoring, corrective action, and prevention as core operational mechanisms rather than periodic administrative activities (Czapla, 2021; Migda, 2023).

#### *Compliance and Service Quality as Stronger Perceived Outcomes*

Compliance and service quality are rated favorably overall ( $M = 3.68$ ,  $SD = 0.88$ ), with most indicators interpreted as compliant. This suggests that respondents perceive the office as meeting required relationships to standards, audits, documentation expectations, and service recipient satisfaction. However, the relatively lower result for the item stating that the QMS ensures consistent and reliable service delivery ( $M = 3.46$ ,  $SD = 1.11$ ) is analytically important. It implies that compliance may be perceived as achieved through mechanisms that are not fully attributable to QMS process control (e.g., professional norms, individual diligence, managerial oversight), rather than through standardized system reliability.

Such a pattern is consistent with the proposition that organizations can maintain acceptable compliance outcomes while still exhibiting implementation weaknesses at the level of process stabilization and feedback-based improvement. In this case, service quality may be sustained, yet potentially vulnerable to variance when workload increases, staffing changes occur, or atypical cases arise—conditions where robust process governance and system enablement become critical (Migda, 2023; Xu & Wan, 2024).

#### *Predictive Role of QMS Implementation*

Regression results show that QMS implementation significantly predicts both operational efficiency and compliance/service quality, but with substantially different explanatory strength. The effect on operational efficiency is strong ( $\beta = .741$ ) with substantial explained variance ( $R^2 = .549$ ), indicating that improvements in QMS implementation are closely associated with perceived improvements in process efficiency. This aligns with the fundamental QMS proposition that standardized procedures, consistent application, and structured review mechanisms improve reliability and reduce variance (Czapla, 2021).

By contrast, the predictive effect on compliance/service quality is significant but weaker ( $\beta = .402$ ) with lower explained variance ( $R^2 = .162$ ). This suggests that compliance perceptions likely depend on additional factors beyond QMS implementation alone, including human behavior, organizational culture, and the extent to which service delivery relies on tacit coordination rather than system-driven control. This difference supports a plausible interpretation: QMS implementation is more directly experienced in workflow efficiency (how work is processed), whereas compliance and service quality are multi-determined outcomes shaped by both system features and human/organizational conditions (Cavallone & Palumbo, 2021; Nur et al., 2021).

#### *Human Factors and Organizational Practices as Drivers of QMS and Compliance*

The second regression model clarifies the internal logic of implementation. For QMS implementation, both human factors and organizational practices are significant predictors, with organizational practices showing a stronger standardized effect ( $\beta = .445$ ) than human factors ( $\beta = .371$ ), and high explained variance ( $R^2 = .583$ ). This pattern suggests that strengthening QMS



implementation requires institutional scaffolding—managerial guidance, communication routines, supportive systems, and practical training structures that translate standards into operational routines. Human readiness matters, but organizational design and reinforcement appear to provide the stronger leverage for implementation fidelity.

For compliance/service quality, the pattern reverses: human factors become the dominant predictor ( $\beta = .645$ ), while organizational practices remain significant but smaller ( $\beta = .195$ ), with substantial explained variance ( $R^2 = .503$ ). This indicates that perceptions of compliance and service quality are strongly shaped by people-dependent conditions—motivation, accountability culture, role clarity, and willingness to apply standards consistently. This result is consistent with soft-side quality arguments that service outcomes often hinge on employee engagement and discretionary execution quality, especially in administrative and service settings where many performance failures manifest through human-dependent coordination (Cavallone & Palumbo, 2021; Nur et al., 2021). It also suggests that even well-designed organizational practices may not translate into compliance improvements unless personnel demonstrate disciplined enactment and ownership.

#### *Convergent Evidence from Correlation Results*

Correlation results show consistently positive and statistically significant relationships between each predictor (QMS implementation, human factors, organizational practices) and both outcomes (operational efficiency, compliance/service quality). The strongest relationship is between organizational practices and operational efficiency ( $r = .741$ ), which converges with the regression interpretation that institutional systems—leadership reinforcement, monitoring routines, and enabling mechanisms—are central to perceived operational efficiency. Human factors show moderate-to-strong correlations with both outcomes ( $r = .629$  with efficiency;  $r = .598$  with compliance), reinforcing the view that human readiness is a broad-based driver across operational and compliance dimensions. QMS implementation correlates moderately with operational efficiency ( $r = .556$ ) and less strongly with compliance ( $r = .402$ ), consistent with the earlier inference that compliance outcomes are more multi-determined.

Taken together, the regression and correlation evidence suggests a coherent explanatory structure: organizational practices are particularly decisive for

operational efficiency and for the strength of QMS implementation, while human factors are particularly decisive for compliance and service quality outcomes. This configuration supports the socio-technical interpretation of QMS effectiveness: system design and governance practices shape implementation conditions, while human factors shape enactment quality and the reliability of service outcomes (Cavallone & Palumbo, 2021; Marcos & Pereira, 2024).

## **5. Conclusions and Recommendations**

### **5.1 Conclusions**

This study examined the localization and implementation of a Quality Management System (QMS) within a Philippine maritime office and assessed how QMS implementation, human factors, and organizational practices relate to two critical organizational outcomes: operational efficiency and compliance with service quality standards. The findings support several conclusions.

First, the localized implementation of the QMS is present but not fully embedded. The overall assessment indicates that QMS implementation is moderately realized in the office, suggesting that the system exists and is recognizable to respondents, yet its execution is not consistently experienced as strongly tailored to local operational needs. This implies that while the QMS provides a general structure for quality governance, localization mechanisms remain a key area for strengthening—particularly in ensuring that procedures align with actual workflows and decision pathways.

Second, human factors are meaningful enabling conditions for quality outcomes, but their strengths are uneven. Respondents generally reported positive human-side conditions such as motivation to comply with quality processes and participation in quality improvement discussions. However, relatively weaker perceptions related to training sufficiency and accountability culture imply that motivational readiness may not always be matched by consistent competence reinforcement and disciplined enactment. Consequently, human factors function as both an asset and a constraint: they contribute strongly to compliance and service quality outcomes, but may also limit the reliability and consistency of QMS implementation when capability-building and accountability mechanisms are not fully institutionalized.



Third, organizational practices provide an important structural foundation for QMS enactment and operational performance. Organizational practices were rated as moderately practiced, with relatively stronger perceptions in leadership reinforcement and communication. Nonetheless, comparatively weaker areas—particularly resource sufficiency, digital enablement, and consistent enforcement across units—suggest that system-level supports for sustained implementation may be incomplete. These results indicate that improving QMS effectiveness is not solely a matter of staff compliance; it also requires institutional investments in monitoring routines, enabling tools, and consistent governance mechanisms that prevent procedural drift and support timely resolution of workflow bottlenecks.

Fourth, operational efficiency is influenced more strongly by QMS implementation and organizational practices than by QMS presence alone. While operational efficiency is perceived as moderately efficient, the results indicate that the strongest efficiency benefits are likely to emerge when QMS requirements are operationalized through concrete organizational practices that improve process coordination and responsiveness, particularly in addressing delays and bottlenecks. This supports the conclusion that efficiency in service-oriented maritime offices is not simply an outcome of role clarity, but also of process flow management, monitoring capability, and systematic corrective action.

Fifth, compliance and service quality outcomes appear to be multi-determined, with human factors playing a particularly substantial role. Although compliance and service quality were rated positively overall, the evidence suggests that these outcomes are shaped not only by QMS implementation but also by the human-side conditions of quality enactment. This indicates that compliance and service quality are sustained through a combined influence of system structure and disciplined human execution, implying that improving service reliability requires parallel strengthening of both formal process controls and workforce accountability and competence.

Overall, the findings indicate that localized QMS implementation in the maritime office is functional but improvable, and that sustained improvements in operational efficiency and compliance/service quality require a balanced strategy: enhancing controlled localization of QMS

procedures, strengthening training and accountability, and reinforcing organizational practices that support consistent execution, monitoring, and continuous improvement.

## 5.2 Recommendations

Based on the study findings, the following recommendations are proposed to strengthen localized QMS implementation and improve operational efficiency and compliance with service quality standards:

1. Strengthen controlled localization of QMS procedures.

The office should formally translate system-level requirements into locally executable procedures, ensuring that each critical workflow (documentation handling, crewing coordination, deployment processing, repatriation-related coordination, and related compliance processes) has clear localized work instructions, decision rules, and escalation pathways. Localization should be documented and governed to maintain alignment with standard requirements while reducing informal workarounds and implementation variance.

2. Institutionalize targeted capability-building and refresher training.

Since training sufficiency emerged as a weaker human-factor dimension, the office should implement a structured training plan that combines onboarding, periodic refreshers, and role-specific micro-training (e.g., documentation discipline, audit readiness, corrective action procedures, and process handoffs). Training effectiveness should be monitored through simple post-training checks and periodic competency validation to ensure consistent interpretation and application of localized procedures.

3. Reinforce accountability and quality ownership mechanisms.

To address the comparatively weaker accountability culture, leadership should implement clear accountability structures for quality-related outputs and nonconformities. This may include explicit assignment of process owners, routine review meetings for recurring issues, and consistent



application of corrective and preventive action protocols. Recognition systems may also be aligned to reinforce quality ownership and adherence to QMS routines.

4. Improve workflow monitoring and bottleneck response mechanisms.

Since delayed or slow bottleneck resolution was a weaker efficiency dimension, the office should strengthen monitoring routines that detect delays early and trigger timely corrective action. This can be done through workflow dashboards (even in simple spreadsheet form), defined turnaround time targets, and periodic review of recurring delay causes. Corrective actions should be documented and tracked to completion to prevent recurrence.

5. Enhance enabling resources and digital support systems.

Organizational practice results suggest the need to improve access to tools and systems that support documentation control, task tracking, and reporting. The office should assess the adequacy of current tools and consider incremental digital improvements—such as standardized templates, document control protocols, shared trackers for workflow status, and basic process monitoring tools—to reduce rework and improve reliability.

6. Promote cross-functional coordination routines for service reliability.

Given that service quality is strongly influenced by human factors and coordination, regular coordination routines should be strengthened between office units and seafarer-facing functions. Standardized communication protocols and handoff checklists can reduce errors, minimize misunderstandings, and support consistent service delivery.

7. Integrate continuous improvement as a routine management practice.

Continuous improvement should be institutionalized through periodic process reviews, audit feedback analysis, and structured documentation of corrective and preventive actions. This approach ensures that QMS is not treated merely as compliance documentation, but as a living

operational system that improves service reliability and efficiency over time.

These recommendations collectively emphasize that improving localized QMS implementation requires both socio-technical alignment and governance discipline: strengthening procedures and tools, building competence and accountability, and institutionalizing monitoring and improvement mechanisms to sustain operational efficiency and compliance with service quality standards.

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