

## The Impact of Integrated Management Systems on Innovation Performance in the Electricity and Water Authorities in the UAE

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### ABSTRACT

Innovation performance has become a central strategic concern for public utility organisations seeking to improve operational efficiency, competitive positioning, and the quality-of-service provision. A clear understanding of both internal and external determinants of innovation is therefore essential to support long-term organisational sustainability. This study examines the influence of Integrated Management Systems (IMS) on innovation performance at the Dubai Electricity and Water Authority (DEWA), with specific emphasis on the direct effects of IMS on innovative outcomes. The analysis adopts a comprehensive perspective, illustrating how internal organisational arrangements, cultural dynamics, and external support structures collectively shape innovation processes within a public-sector utility setting. A quantitative methodological approach was utilised to empirically assess the proposed hypotheses and to test the underlying conceptual framework. Primary data were obtained through a structured questionnaire administered to DEWA employees selected using simple random sampling. Statistical analysis was performed using SPSS software. The empirical results demonstrate that IMS exerts a statistically significant positive effect on innovation performance. Furthermore, entrepreneurial orientation and government support programmes were found to partially mediate this relationship. The study advances the literature on organisational innovation by providing empirical evidence that highlights the critical role of IMS in fostering innovation within public utility organisations. The findings offer practical implications for both organisational leaders and policymakers, indicating the need to incorporate these insights into strategic decision-making processes. In particular, it is recommended that DEWA further reinforce quality-oriented cultural initiatives in order to maximise the innovation-related advantages derived from IMS adoption.

**Keywords:** Integrated Management System, Program, Innovation Performance

## INTRODUCTION

Contemporary organisations, particularly those operating within the utility and public service sectors, increasingly depend on quality assurance mechanisms to meet customer expectations and service standards. Within this context, IMS plays a crucial role in supporting the achievement of quality-related objectives. IMS offers structured and effective solutions that enable organisations to simplify workflows and accelerate operational processes. Consequently, IMS has evolved into a key managerial instrument for process integration, efficiency enhancement, and the removal of redundant operational activities (Tsopa et al., 2025). Moreover, IMS has been shown to mitigate various organisational challenges while simultaneously fostering innovation performance through multiple pathways (Daharat et al., 2022).

Despite these potential benefits, the effective integration of IMS to support organisational sustainability through innovation is often constrained by several challenges. Common barriers include insufficient expertise, limited training, and inadequate organisational readiness. Existing studies consistently associate innovation-driven initiatives with improved organisational outcomes and enhanced performance, primarily through the development of novel ideas, products, services, technologies, processes, and strategic practices. However, within the United Arab Emirates (UAE) context, these outcomes have not yet been comprehensively validated, particularly regarding the role of IMS in large-scale and mega infrastructure projects (Waqar et al., 2025). Evidence suggests that innovation-oriented strategies facilitated through IMS can significantly enhance organisational performance and long-term market viability (Gianni & Gotzamani, 2023; Mokadema et al., 2019). Innovation performance is therefore widely regarded as a fundamental objective for modern organisations seeking sustained competitiveness (Yoon & Oh, 2024).

Empirical research further indicates that optimising innovation performance within complex and large-scale solar energy projects remains a considerable challenge. In an era characterised by intense competition, innovation has become essential for economic sustainability and for enabling the production of affordable and renewable energy resources (Obaideen et al., 2021). Nevertheless, the principal challenges, opportunities, and risks associated with sustainable development have not been sufficiently explored. In particular, technological innovation is critical for the success of solar energy projects in environments affected by high dust levels, such as those found in the UAE (Li et al., 2018). Ineffective application of IMS within organisations continues to represent a major concern, as inadequate planning and poor integration can result in significant implementation difficulties during the initial stages (de Nadae et al., 2020). Utility sector organisations may enhance the effectiveness of IMS adoption by employing carefully structured implementation strategies that prioritise success criteria while systematically addressing and overcoming potential obstacles (Ikram et al., 2020). Although IMS represents a valuable strategic approach for organisations aiming to strengthen competitiveness and sustainability, the pathway to successful implementation is frequently hindered by structural and operational challenges. Consequently, utility organisations such as DEWA must place strong emphasis on innovation to effectively deploy IMS and achieve sustainability across all organisational functions.

Within this framework, DEWA has implemented IMS encompassing ISO 9001, ISO 14001, and OHSAS 18001 standards. While DEWA has reported substantial improvements in operational performance arising from quality management practices and ISO certification, the

extent to which these improvements translate into enhanced innovation performance remains insufficiently examined. This gap highlights the need for empirical investigation into the relationship between IMS and innovation performance. Accordingly, the present study adopts DEWA as a case study to systematically examine the linkages between IMS implementation and innovation performance.

## LITERATURE REVIEW

### Innovation Performance

Innovation performance denotes an organisation's capacity to effectively develop and apply novel ideas, products, processes, or services that generate customer value and stimulate organisational growth (Zhang et al., 2025). It reflects the extent to which an organisation can innovate while responding to evolving market dynamics, technological progress, and shifting customer expectations. Assessment of innovation performance commonly relies on indicators such as the volume of new product or service introductions, the speed of commercialisation, and the contribution of innovations to revenue generation and market positioning (Aljawarneh, 2024). Organisations demonstrating strong innovation performance are better positioned to outperform competitors, anticipate industry developments, and continuously refine offerings to address changing customer requirements.

Prior research conceptualises innovation performance as the capability to create new products, technologies, and marketing methods (Daharat et al., 2022). In parallel, technology has been broadly defined as all forms of artificial constructs developed for practical application (Franssen et al., 2009). Technological innovation involves the application of technology to create or enhance outputs that could not be achieved through conventional approaches. This form of innovation is knowledge-intensive and relies on the generation and application of new knowledge to support product development (Berndt et al., 2023). More specifically, technological innovation encompasses the effective design, development, and implementation of technology-based products, services, or processes that satisfy customer needs while addressing existing market deficiencies. Technological innovation emerges when organisations recognise technology as a critical determinant of competitive advantage (Fu et al., 2024). In this sense, technological innovation extends beyond technology development for its own sake and includes the integration of technological solutions into products and services. Many offerings do not rely on a single distinctive technology; instead, their success depends on the coordinated interaction of multiple technologies (Aljawarneh, 2024). For this reason, technological innovation is increasingly viewed as a systemic and cumulative process rather than a discrete activity.

Innovation performance holds particular importance for utility organisations. In a rapidly changing industrial environment, such organisations must continuously adapt to remain competitive and respond effectively to customer expectations. Through innovation, utility organisations can enhance operational efficiency, lower costs, and improve service quality. Innovation also supports sustainability objectives by enabling transitions towards cleaner and more sustainable energy solutions, thereby reducing environmental impact. Consequently, strong innovation performance is essential for utility organisations operating in complex and competitive contexts (Amin et al., 2021; Sajilan et al., 2019). Technological innovation may also be understood as the introduction of new or substantially improved procedures that exhibit technological characteristics distinct from previous practices. Implemented technological

outputs may take the form of new products or newly adopted operational processes introduced to the market. A product or process qualifies as a genuine innovation when it delivers clear advantages to the originating organisation. Unlike incremental improvements, many technologies are complex and cumulative in nature, often requiring advanced technical capabilities, whereas innovations may result in entirely new or significantly modified technological goods and processes (Stella et al., 2018).

In service contexts, technological innovation involves the combination of existing and emerging technologies to create new service solutions (Aljawarneh, 2024). More broadly, technological innovation includes the adoption of new products or techniques as technological capabilities advance. It encompasses service and process development aimed at technological progress (Daharat et al., 2022), the generation of creative ideas informed by external technological knowledge, and the application of new knowledge-based technologies (OECD, 2019). Structured knowledge is central to the development of new technologies and underpins technology-driven innovation (Namono et al., 2025). Keeping pace with technological change is therefore critical for organisational competitiveness. Technological innovation enhances access to external technological knowledge, enabling organisations to improve performance and generate new ideas (Fu et al., 2024). In the contemporary business environment, technological innovation has become a decisive factor in organisational success, requiring firms to actively develop and implement technological solutions (Namono et al., 2025). Innovation may manifest in various forms, including advances in technology and industrial practices. In particular, technological innovation transforms manufacturing processes by enabling improvements in equipment, adjustments to production structures, or both (Berndt et al., 2023). Such innovations can reduce production or service delivery costs, enhance product or service quality, or facilitate the introduction of new or upgraded offerings (Fu et al., 2024; Lugovoi et al., 2018).

### **Integrated Management System**

An IMS brings together multiple management systems within a single unified framework while preserving the specific characteristics and functional requirements of each constituent system. The degree and effectiveness of integration are influenced by the structure and governance mechanisms that regulate these systems (Petrescu et al., 2020). Integration refers to the consolidation of several management systems into one coordinated system that shares resources and processes in order to meet stakeholder expectations more effectively (Bernardo et al., 2010). In the contemporary business environment, organisations increasingly depend on formal management systems and quality standards to ensure continuity, competitiveness, and long-term viability. As a result, growing attention has been directed towards IMS as a means of achieving business excellence, particularly through the integration of occupational health and safety, quality, and environmental management systems, which are regarded as core components of IMS frameworks. IMS is also intended to align organisational resources, including human capital, documentation, auditing activities, and compliance mechanisms, thereby reducing operational costs and enhancing strategic focus (Gianni & Gotzamani, 2023).

Considerable interest has emerged among academics, practitioners, industry stakeholders, and regulatory bodies in identifying the key drivers of IMS adoption, the underlying motivations for integration, and the resulting organisational benefits (Muthu et al., 2015). Through its managerial philosophy, IMS enables organisations to coordinate operations more effectively and achieve strategic objectives in a structured manner. Prior studies indicate that IMS can

support internal organisational development through multiple pathways, including process alignment and performance improvement (Burhan, 2018). In a dynamic and uncertain environment, organisations increasingly favour integrated approaches, as IMS facilitates the development of coherent and customised policies that enhance organisational consistency. Nevertheless, it has been noted that IMS integration standards are not universally applicable across all organisational contexts (Jørgensen et al., 2006). To address this issue, ISO introduced general principles and implementation guidelines in 2008 to support effective IMS adoption, outlining recognised best practices for management system integration (International Organization for Standardization, 2008). Evidence further suggests that organisations operating multiple ISO-based systems, such as ISO 9001 and ISO 14001, derive greater benefits when these systems are unified within an integrated structure (Casadesus & Ricart, 2011).

Earlier empirical research has demonstrated that the integration of core management systems, including quality, environmental, and occupational health and safety systems, contributes to improvements in organisational productivity, efficiency, and financial performance. By consolidating these systems into a single cohesive framework, IMS enhances coordination and reduces fragmentation across organisational processes (Benyettou & Megnounif, 2022). In addition, IMS supports organisations in clarifying strategic visions and objectives while enabling the gradual evolution of business processes in response to changing internal and external conditions.

According to the Chartered Quality Institute in the United Kingdom, the integration of multiple management systems involves the unification of all internal managerial practices into a new system in which previously separate components become interconnected elements of a single organisational framework. In this sense, IMS consolidates organisational responsibilities and activities into a coherent system that supports the achievement of strategic plans and operational goals. Within modern operational environments, quality is increasingly prioritised across all organisational functions (Heydari et al., 2016). Consequently, an integrated system that facilitates knowledge exchange across business activities is essential for attaining desired quality outcomes. Supporting evidence indicates that effective management of ideas aimed at enhancing performance and service delivery requires a unified management system capable of integrating information flows, improving accessibility, and providing structured guidance (Fareed et al., 2020; Santos et al., 2017).

As organisations adopt an increasing number and variety of management systems, integration becomes necessary to ensure alignment with organisational objectives. Systems such as management information systems, quality management systems, environmental management systems, information security management systems, business continuity systems, and energy management systems are progressively incorporated into IMS frameworks and certification processes (Saputra & ASMAWATI, 2025). IMS enables organisations to manage processes and activities that transform resources into products or services while meeting stakeholder requirements related to quality, health, safety, environmental protection, security, and ethical standards (Marieta et al., 2014). Where management systems fail to deliver expected outcomes, lead to duplicated efforts, or create excessive administrative burdens, IMS offers a structured solution to enhance coherence and efficiency.

A substantial body of literature highlights the advantages associated with system integration through IMS. Frequently cited benefits include reductions in documentation requirements, cost

efficiencies, improved communication, fewer audits, more effective resource utilisation, and enhanced decision-making processes. Additional benefits encompass increased employee motivation, greater customer orientation in decision making, and positive organisational culture shifts (López-Fresno, 2010; Saoula & Johari, 2016). Further gains include improved alignment of strategic planning, a holistic understanding of standards rather than a fragmented perspective, stronger employee commitment, and more effective training outcomes as standards become increasingly integrated. Moreover, IMS supports organisations in implementing innovative practices and achieving organisational excellence, thereby strengthening competitive advantage (Alnaqbi et al., 2024). In both commercial and service-oriented organisations, the growing emphasis on quality has reinforced the need for IMS adoption to enable centralised oversight of interconnected initiatives and facilitate information sharing in pursuit of quality improvement and operational excellence (Heydari et al., 2016).

### The Relationship between IMS and Innovation Performance

The literature analysis examines integration management systems, innovation management, The analysis further extends to quality and overall quality management–innovation linkages, while also examining the influence of integrated management approaches on organisational performance and competitiveness. By analysing how organisations successfully integrate multiple management systems, scholars can gain deeper insight into the strategic practices that support effective innovation and robust quality management. In addition, attention is given to the challenges and constraints organisations may encounter during the implementation and long-term maintenance of these systems when seeking to achieve sustainable competitive advantage.

Existing evidence indicates that IMS positively influences innovation performance. Bernardo (2014) emphasised that organisations require IMS to support innovation, as integrated systems facilitate process alignment and coordination across organisational functions. Through this alignment, departments operate cohesively towards shared objectives, which enhances innovation efficiency and strengthens overall organisational performance and competitiveness. Nevertheless, the implementation of IMS presents notable challenges, particularly due to the extensive coordination, communication, and organisational commitment required across functional boundaries. Addressing these challenges is essential for organisations striving to remain competitive in an increasingly dynamic business environment. The integration of quality, environmental, and occupational health and safety management systems has been shown to accelerate operational processes and stimulate innovation. Bernardo further argued that IMS enhances innovation performance by enabling effective information sharing, collaboration, and continuous improvement practices. By harmonising processes and aligning departmental goals, IMS improves organisational efficiency and responsiveness. This integrated configuration supports faster adaptation to market fluctuations and evolving customer expectations, thereby reinforcing competitive positioning. Through IMS adoption, organisations can cultivate a culture of continuous improvement and operational excellence that underpins sustained success.

Maier et al. (2015) conceptualised integrated management as inherently inclusive of innovation, proposing that innovation should be embedded within management processes rather than treated as a separate organisational activity. Their findings demonstrated that organisations embedding innovation within their management structures were more likely to sustain competitive advantage. This approach institutionalises innovation by making it an

integral component of organisational culture and daily operations, encouraging employees to continuously pursue improvement and novel solutions. As a result, organisations become more agile and better equipped to respond to market changes. Building on this perspective, [Maier et al. \(2017\)](#) developed and implemented an innovation management system model within an integrated quality–environment–safety framework. Similarly, [Zgodavova and Bober \(2012\)](#) advanced IMS-based environments designed to support innovation processes. Empirical evidence from Malaysia further confirms a significant relationship between IMS implementation and enhanced innovation performance ([Zainol et al., 2021](#)). Collectively, these studies establish a strong linkage between IMS adoption and innovation outcomes across diverse organisational contexts.

Overall, the implementation of integrated quality, environmental, and safety management systems extends beyond regulatory compliance and operational efficiency, providing a foundation for sustained competitiveness and organisational resilience ([Mokadem et al., 2024](#)). By prioritising continuous improvement and nurturing an innovation-oriented culture, organisations can achieve higher levels of performance and excellence in rapidly evolving markets ([Saoula et al., 2019](#)). Prior studies consistently underscore the importance of IMS in strengthening innovation performance, thereby reinforcing the relevance of integrated management approaches in driving organisational success. However, despite the breadth of evidence across multiple industries, limited empirical research has examined this relationship within utility and public service organisations. Accordingly, the present study seeks to address this gap by investigating the relationship between IMS and innovation performance in utility organisations such as DEWA.

## RESEARCH METHODOLOGY

This study adopted a quantitative research approach to examine the relationship between IMS and innovation performance within a public utility setting. Drawing on innovation theory and prior empirical studies, the analysis was designed to systematically evaluate the proposed association. The target population comprised employees of DEWA, including staff occupying technical, operational, and managerial positions. Data collection was carried out using a structured, self-administered questionnaire, which was selected to ensure uniformity in responses and to capture insights from multiple organisational levels. A simple random sampling technique was applied to obtain data from 391 respondents, thereby enhancing representativeness and minimising potential sampling bias. The collected data were processed and analysed using SPSS software, facilitating the application of descriptive statistical analysis, reliability testing, and hypothesis evaluation. This research design ensured methodological rigour and supported the generation of robust and generalisable findings. Overall, the approach provided empirical insight into the manner in which IMS collectively influence innovation performance within utility organisations.

## RESULTS AND DISCUSSION

The results of the data analysis presented in [Table 1](#) demonstrate that IMS exerts a statistically significant influence on innovation performance, as indicated by the significance value of 0.00 and a critical ratio of 3.40, which exceeds the threshold of 1.96. These results confirm the existence of a meaningful relationship between the two constructs. The standardised coefficient indicates a moderate positive association, with a beta value of 0.52, suggesting that stronger implementation of IMS is associated with higher levels of innovation performance. More

specifically, the findings reveal that IMS enhances innovation performance through its key dimensions, including perceived benefits, such as effective time allocation for system integration, implementation difficulties, such as challenges related to standardisation, and the degree of integration, particularly in terms of controlling nonconformities. Collectively, these dimensions contribute to strengthening innovation performance within DEWA by supporting more coordinated processes, improved control mechanisms, and a structured environment conducive to innovative outcomes.

**Table 1: Standardized Regression Coefficients and Significance of Relationships**

Relationship	Directions of Effects	Beta	C.R	Sig.	Result
IMS has a significant effect on innovation performance	IMS → Innovation Performance	0.52	3.40	0.00	Supported

Based on this relationship, the findings indicate that effective IMS implementation supports innovation outcomes, including improvements in products and processes, by rationalising management activities and minimising operational inefficiencies. Although the beta coefficient of 0.52 reflects a substantial positive influence, it simultaneously suggests that IMS does not fully explain variation in innovation performance. This partial effect implies the presence of external or contextual constraints, such as limited resources or cultural resistance, which may restrict the overall impact of IMS at DEWA. Accordingly, these results suggest that DEWA should give particular attention to addressing IMS-related challenges, for example through targeted training initiatives, as excessive reliance on IMS without resolving implementation difficulties may impede sustained innovation performance.

The magnitude of the beta coefficient further confirms that, while IMS is a significant contributor, innovation performance in large public utility organisations is shaped by multiple interrelated factors. Elements such as leadership commitment, organisational culture, technological preparedness, and resource availability play a critical role in shaping innovation outcomes. Consequently, barriers including resistance to change, insufficient employee capabilities, and structural rigidity may constrain the extent to which IMS can enhance innovation performance at DEWA. This underscores the need to mitigate IMS-related difficulties through capacity-building programmes, continuous professional development, and clearer communication of system benefits. By addressing these issues, DEWA can facilitate smoother integration of IMS components and realise greater innovation-related benefits. Moreover, the strong statistical significance of the relationship highlights IMS as a core driver of innovation performance, even when other organisational influences are acknowledged. Nevertheless, the moderate effect size indicates the need for further investigation into potential moderating factors, such as organisational scale, internal digital maturity, regulatory demands, or interdepartmental variation. Examining these contextual dimensions in future studies may clarify whether the strength of the IMS–innovation performance relationship differs across utility sectors or operational contexts. Overall, the findings reaffirm that IMS provides a solid structural foundation for innovation, while also indicating that its impact can be strengthened through complementary organisational strategies and enhanced readiness for change.

## CONCLUSION

This study investigated the impact of IMS on innovation performance within a leading public utility organisation, focusing on DEWA. The findings indicate that IMS exerts a significant and positive influence on innovation outcomes, with its integrated processes, standardised

procedures, and control mechanisms enhancing operational efficiency and supporting continuous improvement. While the relationship is moderate, it underscores that IMS provides a critical structural foundation for innovation, particularly when complemented by strong organisational alignment and effective implementation practices. The results also highlight the importance of addressing challenges associated with IMS adoption, including documentation demands, standardisation complexities, and resistance to change. By mitigating these obstacles through targeted training, enhanced communication, and reinforced managerial support, DEWA can further unlock the innovative potential inherent in its integrated systems. Overall, the study demonstrates that innovation performance in public utilities is optimally supported through a combination of robust internal systems and enabling organisational conditions. Although IMS is fundamental, its effectiveness is maximised within an environment that fosters experimentation, promotes capability development, and aligns with broader strategic objectives. Future research should examine potential contextual moderators, such as organisational size, digital maturity, and sector-specific limitations, to provide a deeper understanding of how IMS and related factors shape innovation performance across diverse utility contexts. Such insights would enable organisations like DEWA to tailor strategies for sustained innovation and long-term operational excellence.

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