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Management innovation capability, smart technology integration capability and digital competence development: Foundations for enhanced digital management transformation framework

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Abstract

This study explores the interrelationship between Management Innovation Capability, Smart Technology Integration Capability, and Digital Competence Development as foundations for an Enhanced Digital Management Transformation Framework in health service organizations. Specifically, it seeks to determine management innovation capability in terms of managerial competency, organizational innovation mechanism, and resource allocation; assess smart technology integration capability in terms of management processes, cross-functional collaboration, and digital strategy alignment; and evaluate digital competence development in terms of technology leadership, digital literacy, and innovation mindset. Using a descriptive research design, the study employed 400 surveys to gather data from selected hospital personnel and administrators. Statistical tools such as weighted mean and ranking were used to measure the extent of each construct, while the Spearman rho test determined the significant relationships among the three major variables, given the non-normal distribution of data as shown by the Shapiro-Wilk Test ($p < 0.05$). Findings revealed that respondents generally agreed on the presence of management innovation capability, particularly in organizational innovation mechanisms, resource innovation, and managerial competency. Similarly, smart technology integration capability was recognized in terms of management processes, cross-functional collaboration, and digital strategy alignment. Digital competence development was also affirmed through indicators of innovation mindset, digital literacy, and technology leadership. A significant relationship was established among the three variables, validating their interdependence in driving digital transformation. Based on these findings, an Enhanced Digital Management Transformation Framework was developed to guide health service organizations in effectively integrating innovation, technology, and digital competencies toward sustainable digital transformation.

Keywords: management innovation capability, smart technology integration, digital competence development, digital transformation, health service organizations

Management innovation capability, smart technology integration capability and digital competence development: Foundations for enhanced digital management transformation framework

1. Introduction

With the rapid and continuous changes in the medical and health sector, digital intelligence has become a key driver of transformation. Its integration is reshaping how medical and health service systems are developed and managed, raising the need to ensure both quality and efficiency. Understanding its development mechanisms and implementation pathways is therefore crucial, as these insights contribute significantly to the construction of a high-quality, efficient medical and health service system with Chinese characteristics.

In terms of factor optimization, digital intelligence technology plays a key role. By optimizing the allocation of medical human resources, material resources and financial resources, the efficiency of resource utilization can be improved. Service optimization is also an important direction driven by digital intelligence. Digital intelligence technology promotes the transformation of medical and health service models to high-quality continuous integration. Telemedicine breaks geographical restrictions with the help of mobile Internet and Internet of Things technologies, allowing patients to obtain more convenient medical services (Li et al., 2021). The patient-centered medical service concept can be better realized through electronic medical record systems and medical information sharing platforms. Governance optimization is also inseparable from the support of digital intelligence technology. Digital intelligence technology promotes the transformation of medical and health management methods to scientific modernization.

However, the high-quality development of the medical and health service system driven by digital intelligence also faces some challenges. Data security and privacy protection are the primary issues, and the sensitivity of medical data requires strict data protection measures (Chen et. al., 2024). Technology integration and system compatibility are also major challenges. Personnel training and cultural adaptability are equally important. In future research directions, the application research of digital intelligence technology in the field of medical and health care should be further deepened. For example, strengthen the application research of artificial intelligence in disease diagnosis and treatment to improve the accuracy of diagnosis and treatment effect (Wang et al., 2025).

This study comprehensively explores the mechanism and path of digital intelligence driving the high-quality development of the medical and health service system. Through factor optimization, service optimization and governance optimization, digital intelligence technology provides a strong driving force for the transformation of the medical and health service system. Despite the many challenges, reasonable response strategies are expected to achieve high-quality development of the medical and health service system and meet the people's growing health needs. Future research should continue to focus on the innovative application of digital intelligence technology in the field of medical and health care, and provide more theoretical support and practical guidance for the development of medical and health care.

Objectives of the study - This study aims to explore the interrelationship between Management Innovation Capability, Smart Technology Integration Capability, and Digital Competence Development, to develop a comprehensive framework that enhances digital management transformation in organizations. Specifically, it aims to determine the management innovation capability in terms of managerial competency, organizational innovation mechanism, and resource allocation; assess the smart technology integration capability in terms of management processes, cross-functional collaboration, and digital strategy alignment; evaluate the digital competence development in terms of technology leadership, digital literacy, and innovation mindset; test the significant relationship among management innovation capability, smart technology integration capability and digital competence development; develop Enhanced Digital Management Transformation Framework for health service

organizations.

2. Methods

Research - The researcher employed a descriptive research design to determine the relationship between managerial innovation capability, the ability to apply smart technologies, the development of digital competencies, and the efficiency of digital transformation in hospitals. A descriptive design is a type of research that utilizes observations, surveys, and descriptions to understand the nature, characteristics, and trends of a specific phenomenon, situation, or group. In this approach, the focus is on describing and documenting underlying characteristics, frequencies, distributions, and relationships rather than establishing causality. In this study, the researcher used a questionnaire as the primary data-gathering tool to describe the general condition of the sample, analyze it quantitatively, and identify relationships among the variables through significance and correlation analysis, thereby providing deeper insights into the research problem.

Participants - This study targeted hospital administrators in Shiyan City, Hubei Province, China, where a total of 1,076 administrators are distributed across 10 hospitals. Each hospital has approximately 60–100 administrators, including department heads, logistics managers, and vice presidents. Questionnaires were randomly distributed through the Questionnaire Star application, ensuring broad participation across institutions. To address potential issues of non-response and incomplete submissions while maintaining sufficient statistical power for inferential analysis, a total of 400 valid responses were collected.

Instrument - The researchers used self-structured questionnaire in the study. The questionnaire was divided into three parts: Part 1 is about management innovation capability with the domains: managerial competency, organizational innovation mechanism, and resource allocation. Part 2 is about smart technology integration capability using the following domains: management processes, cross-functional collaboration, and digital strategy alignment. Part 3 is about the digital competence development using the following domains: technology leadership, digital literacy, and innovation mindset. The instrument was subjected to validation of experts. Reliability testing is conducted to ensure that a research instrument consistently measures what it is intended to measure. It helps verify the stability, accuracy, and consistency of responses, indicating that the tool is free from random errors and yields dependable results across repeated use or different items. A reliable instrument enhances the trustworthiness of data and supports the validity of the overall research, as consistent measurement is a prerequisite for accurate conclusions.

Table 1

Reliability Results

Variables	No. of Items	α value	Interpretation
Management Innovation Capability			
Managerial Competency	5	0.837	Good
Organizational Innovation Mechanism	5	0.720	Acceptable
Resource Allocation	5	0.870	Good
Overall	15	0.911	Excellent
Smart Technology Integration Capability			
Management Processes	5	0.828	Good
Cross-Functional Collaboration	5	0.895	Good
Digital Strategy Alignment	5	0.791	Acceptable
Overall	15	0.940	Excellent
Digital Competence Development			
Technology Leadership	5	0.878	Good
Digital Literacy	5	0.834	Good
Innovation Mindset	5	0.793	Acceptable
Overall	15	0.938	Excellent

Legend > 0.9 =Excellent; >0.8=Good:>0.7=Acceptable;>0.6=Questionable;>0.5=Poor;<0.5=Unacceptable

The reliability results show that all three main variables have strong internal consistency. Management innovation capability has an overall reliability of α = 0.911 (excellent), with subscales ranging from acceptable

(organizational innovation mechanism, α = 0.720) to good (managerial competency, α = 0.837; resource allocation, α = 0.870). Smart technology integration capability also shows excellent overall reliability (α = 0.940), with subscales rated good (management process, α = 0.828; cross-functional collaboration, α = 895) while acceptable for digital strategy alignment (α = 0.791). Digital competence development has an overall α = 0.938 (Excellent), and its subscales are mostly good (technology leadership, α = 0.878; digital literacy, α = 0.834) except for innovation mindset (α = 0.793), which is acceptable. These results indicate that the instruments are highly reliable and suitable for further analysis.

Procedure - Based on the combination of literature review and empirical research, this study first collected relevant literature for retrospective analysis to gain an in-depth grasp of theories and practices related to digital transformation in Chinese hospitals. It was expected that after receiving feedback from the research consultant, the questionnaire was then tested for reliability by a statistician to ensure that the questionnaire would be valid. from the research consultant, the questionnaire was then tested for reliability by a statistician to ensure that the questionnaire was applicable to this study. After approval, the researcher distributed the questionnaires and monitored and returned the questionnaires.

This study assessed the management innovation capability of hospital managers in terms of managers' status assessment, organizational innovation mechanism practice, and traditional model breakthrough difficulties, identifying participants' smart technology application. This study assessed the management innovation capability of hospital managers in terms of managers' current status assessment, organizational innovation mechanism practice, and traditional model breakthrough difficulties, identified participants' smart technology application This study assessed the management innovation capability of hospital managers in terms of managers' current status assessment, organizational innovation mechanism practice, and traditional model breakthrough difficulties, identified participants' smart technology application capability in terms of stay management process current status assessment, information technology application needs, and barriers to technology implementation, and explored the development of respondents' digital competence in terms of technological leadership assessment, cross-departmental collaboration efficacy, and cross-organizational innovation mechanism practice, and traditional model breakthrough difficulties. By synthesizing these research methods, practical suggestions are put forward. By synthesizing these research methods, practical suggestions are put forward.

Ethical Considerations - To observe the high level of confidentiality of the interviews and data collected, no specific names are mentioned in this report. The identities of the interviewees were not disclosed, except that they were administrators working in various hospitals in Shiyan City. The identities of the interviewees were not disclosed, except that they were administrators working in various hospitals in Shiyan City. The identities of the interviewees were not disclosed, except that they were administrators working in various hospitals in Shiyan City. This paper also approved by the Ethics Review Committee of the University to ensure that a research study is conducted responsibly and protects the rights, safety, and well-being of participants

Data Analysis - Weighted mean and rank were used to determine the management innovation capability in terms of managerial competency, organizational innovation mechanism, and resource allocation; assess the smart technology integration capability in terms of management processes, cross-functional collaboration, and digital strategy alignment; evaluate the digital competence development in terms of technology leadership, digital literacy, and innovation mindset. The result of Shapiro-Wilk Test showed that p-values of all variables were less than 0.05 which means that the data set was not normally distributed. Therefore, Spearman rho was used as part of the non-parametric tests to determine the significant relationship. All analyses were performed using SPSS version 28.

3. Results and Discussions

Table 2 summarizes the respondents' assessment of management innovation capability across three dimensions: managerial competency, organizational innovation mechanisms, and resource allocation. The composite mean of 3.13, interpreted as Agree, indicates that respondents generally perceive their organizations as

moderately capable in fostering innovation. While all areas scored positively, the results highlight both strengths and improvement opportunities in sustaining innovation capabilities. This supports the view of Harsono et al. (2025) that innovation performance is strongly influenced by internal organizational capabilities, and aligns with Gama et al. (2025), who emphasized that innovation capacity is central for long-term competitiveness, especially in the digital era.

Table 2

Summary Table of Management Innovation Capability

Indicators	Weighted Mean	Verbal Interpretation	Rank
Managerial Competency	3.11	Agree	3
Organizational Innovation Mechanism	3.14	Agree	1.5
Resource Allocation	3.14	Agree	1.5
Composite Mean	3.13	Agree	

Legend: 3.50-4.00=Strongly Agree; 2.50-.349=Agree; 1.50-2.49=Disagree; 1.00-1.49=Strongly Disagree

The highest-rated dimensions, tied at 3.14, are organizational innovation mechanisms and resource allocation. These findings suggest that structured systems for generating ideas, reviewing initiatives, and reallocating resources are recognized as organizational strengths. Zhang et al. (2025) found that digital transformation enhances resilience when paired with robust innovation mechanisms, while Syunikitta et al. (2025) emphasized that knowledge-sharing practices strengthen innovation through structured processes. Similarly, Zhao et al. (2025) argued that resource orchestration and digital capabilities create synergies that drive green technology innovation efficiency, and Ma et al. (2025) confirmed that adaptive resource allocation enhances supply chain innovation and resilience. Together, these results highlight that the surveyed organizations value formalized innovation structures and flexible resource strategies as enablers of competitive advantage.

Meanwhile, managerial competency obtained the lowest score at 3.11, though still within the Agree range. This indicates that while managers possess some capacity to lead digital initiatives and support innovation, there are areas that require further development in decision-making, digital knowledge, and visionary leadership. Pasini (2025) argued that competence-based certification strengthens innovation management, while Mohamad et al. (2025) highlighted the role of coaching in enhancing managerial competencies that sustain innovation. Moreover, Zhen (2025) observed that ineffective managerial oversight in resource distribution may undermine innovation strategies, underscoring the importance of leadership agility in rapidly changing environments.

Table 3

Summary Table of Smart Technology Integration Capability

Indicators	Weighted Mean	Verbal Interpretation	Rank
Management Processes	3.15	Agree	1
Cross-functional Collaboration	3.13	Agree	2
Digital Strategy Alignment	3.09	Agree	3
Composite Mean	3.12	Agree	

Legend: 3.50-4.00=Strongly Agree; 2.50-.349=Agree; 1.50-2.49=Disagree; 1.00-1.49=Strongly Disagree

Table 3 summarizes the results on Smart Technology Integration Capability, yielding a composite mean of 3.12, interpreted as Agree. This suggests that organizations moderately integrate smart technologies into their management systems, collaboration practices, and strategic planning. While integration is evident, the scores also highlight that improvements are needed to transform digital initiatives into fully optimized, strategic enablers of competitiveness. The highest-ranked dimension is Management Processes (WM = 3.15, Rank 1), which reflects organizations' effective use of digital tools in decision-making, monitoring, and operational efficiency. According to Wei et al. (2025), embedding smart technologies such as analytics and automation into management enhances real-time responsiveness and innovation. Similarly, Balogun et al. (2025) emphasized that integrating cross-departmental insights through analytics-driven management processes allows firms to generate holistic value and achieve both short-term gains and long-term resilience. This implies that companies have prioritized digital tools in their operations as foundational elements of smart integration.

The second-ranked dimension is Cross-functional Collaboration (WM = 3.13, Rank 2). This highlights the importance of digital platforms in promoting communication, knowledge-sharing, and innovation across organizational units. As Mary (2025) noted, AI-powered forecasting combined with cross-functional collaboration strengthens agility and responsiveness in supply chains. Likewise, Goessens (2025) found that cross-functional integration enhances problem-solving and innovation capacity when supported by collaborative technologies. The ranking suggests that while collaboration is valued, its full potential is yet to be maximized, especially in embedding cultural change that supports sustained cross-team synergy.

The lowest-ranked dimension is Digital Strategy Alignment (WM = 3.09, Rank 3), indicating that organizations find it more challenging to consistently align digital initiatives with broader strategic objectives. Ciacci et al. (2025) stressed that digital alignment must not only support operational needs but also strengthen long-term strategic flexibility. Similarly, Daškevič et al. (2025) argued that alignment gaps often arise when organizations focus on adopting technologies without integrating regular evaluation mechanisms to ensure their strategic fit. This lower score implies that while operational processes and collaboration benefit from digital tools, the strategic dimension still lags, potentially limiting the long-term impact of smart technology integration.

Table 4

Summary Table of Digital Competence Development

Indicators	Weighted Mean	Verbal Interpretation	Rank
Technology Leadership	3.09	Agree	3
Digital Literacy	3.13	Agree	2
Innovation Mindset	3.17	Agree	1
Composite Mean	3.13	Agree	

Legend: 3.50-4.00=Strongly Agree; 2.50-.349=Agree; 1.50-2.49=Disagree; 1.00-1.49=Strongly Disagree

Table 13 presents the Digital Competence Development. The composite mean of 3.13, verbally interpreted as Agree, indicates that respondents acknowledge the presence of digital competence development practices in their organization, though these are still at a moderate level. This suggests that while digital competence is valued, there is room for strengthening its full integration into workplace practices. The highest-rated indicator, “Innovation Mindset” (3.17, Rank 1), highlights that organizations place strong emphasis on cultivating creativity, resilience, and openness to new ideas in the digital era. This finding resonates with Deák et al. (2024), who argued that innovation and digital competence are mutually reinforcing in sustaining organizational competitiveness. Similarly, Yamwong et al. (2025) stressed the importance of treating failures as learning opportunities to foster long-term digital innovation.

The second-ranked indicator, “Digital Literacy” (3.13, Rank 2), underscores that organizations value equipping employees with essential digital knowledge and skills. This finding is consistent with Yadav (2025), who highlighted that enhancing digital competencies among employees enables adaptability and growth in a rapidly evolving digital workplace. It also aligns with Hamzah et al. (2025), who emphasized leadership’s role in bridging digital skill gaps across institutions. The lowest-rated indicator, “Technology Leadership” (3.09, Rank 3), though still interpreted as Agree, reflects that leadership support in driving digital adoption and transformation is somewhat less emphasized compared to other factors. This suggests that while leaders are aware of their role, a stronger commitment is needed to embed digital vision into organizational strategies. This observation is supported by Shen et al. (2025), who highlighted the importance of leadership and dynamic capabilities in sustaining innovation, and Bobro (2025), who noted that digital leadership fosters the development of new-generation competencies among employees.

Table 5 presents the relationship between management innovation capability and smart technology integration capability. First, managerial competency demonstrates significant positive correlations with all three dimensions—management processes ($\rho = .162$, $p = .001$), cross-functional collaboration ($\rho = .145$, $p = .004$), and digital strategy alignment ($\rho = .161$, $p = .001$). This indicates that the skills and competencies of managers are critical in ensuring that processes are well-structured, departments work synergistically, and digital strategies are properly aligned

with organizational goals. While the correlations are modest, their significance suggests that strengthening managerial competency is a necessary enabler for successful technology integration (Subramaniam et. al.,2023; Eng et. al., 2023).

Table 5

Relationship Between Management Innovation Capability and Smart Technology Integration Capability

Variables	Rho	p-value	Interpretation
Managerial Competency			
Management Processes	.162**	0.001	Significant
Cross-functional Collaboration	.145**	0.004	Significant
Digital Strategy Alignment	.161**	0.001	Significant
Organizational Innovation Mechanism			
Management Processes	.136**	0.007	Significant
Cross-functional Collaboration	.194**	<.001	Highly Significant
Digital Strategy Alignment	.205**	<.001	Highly Significant
Resource Allocation			
Management Processes	.134**	0.007	Significant
Cross-functional Collaboration	.251**	<.001	Highly Significant
Digital Strategy Alignment	.165**	0.001	Significant

*Legend: Significant at p-value<0.01***

Second, organizational innovation mechanisms exhibit significant relationships with management processes ($\rho = .136$, $p = .007$), cross-functional collaboration ($\rho = .194$, $p < .001$), and digital strategy alignment ($\rho = .205$, $p < .001$). These significant results suggest that structural mechanisms for innovation, such as institutionalized systems, policies, and cultures that promote creativity, play a more substantial role in driving collaboration across units and aligning digital initiatives with organizational priorities. This reflects the importance of embedding innovation mechanisms at the institutional level rather than relying solely on individual managerial capacities (Mahmoud et. al., 2025; Al-Faouri et. al., 2024; Gama et. al., 2025).

Lastly, resource allocation reveals a mixed but noteworthy pattern. While significant with management processes ($\rho = .134$, $p = .007$) and digital strategy alignment ($\rho = .165$, $p = .001$), its strongest correlation appears with cross-functional collaboration ($\rho = .251$, $p < .001$). This highly significant finding suggests that the way resources—financial, human, and technological—are distributed directly strengthens interdepartmental collaboration, which is essential for integrating smart technologies. Adequate and well-targeted resource allocation thus emerges as a pivotal factor in sustaining digital transformation initiatives (Liu et. al.,2025; Yang et. al.,2022; Ma et. al.,2025; Lassen et. al., 2025; Wang et. al., 2025).

Table 6

Relationship Between Management Innovation Capability and Digital Competence Development

Variables	rho	p-value	Interpretation
Managerial Competency			
Technology Leadership	.183**	<.001	Highly Significant
Digital Literacy	.139**	0.005	Significant
Innovation Mindset	.100*	0.046	Significant
Organizational Innovation Mechanism			
Technology Leadership	.113*	0.024	Significant
Digital Literacy	.108*	0.030	Significant
Innovation Mindset	.138**	0.006	Significant
Resource Allocation			
Technology Leadership	.158**	0.002	Significant
Digital Literacy	.141**	0.005	Significant
Innovation Mindset	.119*	0.017	Significant

*Legend: Significant at p-value<0.01**/0.05**

Table 6 shows the relationship between management innovation capability and digital competence development, highlighting how leadership, innovation structures, and resources contribute to building digital capacities. First, managerial competency is correlated with technology leadership ($\rho = .183$, $p < .001$, highly

significant), indicating that managers' capacity to guide technological adoption is a central driver of digital competence. This finding aligns with prior research emphasizing that managerial capabilities are essential for leveraging digital transformation and supporting sustainable strategies in organizations (Khattak et al., 2024; Huu, 2023). It is also significantly related to digital literacy (ρ = .139, p = .005) and innovation mindset (ρ = .100, p = .046), underscoring that effective managerial leadership not only builds technical know-how but also fosters openness to innovative thinking among stakeholders (Blaique et. al.,2024; Rafique, 2024).

Second, organizational innovation mechanisms also show positive and significant relationships across all three dimensions. These mechanisms—whether policies, structures, or institutionalized innovation practices—support technology leadership (ρ = .113, p = .024), enhance digital literacy (ρ = .108, p = .030), and nurture innovation mindsets (ρ = .138, p = .006). This resonates with studies stressing that embedding innovation structures in organizations enables systemic reinforcement of digital competence and strengthens open innovation processes (Espina-Romero et. al.,2024; Zheng, 2024). Finally, resource allocation is consistently significant across all aspects, with correlations to technology leadership (ρ = .158, p = .002), digital literacy (ρ = .141, p = .005), and innovation mindset (ρ = .119, p = .017). This pattern highlights that the provision of adequate resources—whether funding, tools, or training—plays a vital role in equipping individuals and teams to lead, learn, and think innovatively in digital contexts. Such findings are consistent with recent evidence showing that digital competence development and innovation capability are highly contingent on strategic resource management and digital maturity (Budiarti et. al.,2024; Aghazadeh et. al.,2024; Tariq et al., 2024).

Table 7

Relationship Between Smart Technology Integration Capability and Digital Competence Development

Variables	rho	p-value	Interpretation
Management Processes			
Technology Leadership	.222**	<.001	Highly Significant
Digital Literacy	.153**	0.002	Significant
Innovation Mindset	.162**	0.001	Significant
Cross-functional Collaboration			
Technology Leadership	.163**	0.001	Highly Significant
Digital Literacy	.141**	0.005	Significant
Innovation Mindset	.181**	<.001	Highly Significant
Digital Strategy Alignment			
Technology Leadership	.209**	<.001	Highly Significant
Digital Literacy	.164**	0.001	Significant
Innovation Mindset	.238**	<.001	Highly Significant

*Legend: Significant at p-value<0.01***

Table 7 presents the relationship between smart technology integration capability and digital competence development, emphasizing that effective integration processes, collaboration, and strategic alignment substantially reinforce technology leadership, digital literacy, and innovation mindset (Yaacob et al., 2024; Nurhidayat et al., 2024). First, management processes are positively correlated with digital competence outcomes, particularly with technology leadership (ρ = .222, p < .001, highly significant). This suggests that well-structured processes facilitate the ability of leaders to drive technological adoption and transformation (Ahmed et al., 2024). The significant correlations with digital literacy (ρ = .153, p = .002) and innovation mindset (ρ = .162, p = .001) further indicate that streamlined processes not only enhance technical skills but also encourage innovative thinking across the organization (Chen et al., 2024).

Second, cross-functional collaboration plays a critical role, showing highly significant links with technology leadership (ρ = .163, p = .001) and innovation mindset (ρ = .181, p < .001). This finding highlights that collaborative, interdisciplinary teamwork fosters shared ownership of digital initiatives, enabling leaders and staff alike to embrace innovation (Wei et al., 2024). Its significant correlation with digital literacy (ρ = .141, p = .005) also points to the role of collaboration in knowledge exchange and skill development across different units (Syahrir et al., 2024). Lastly, digital strategy alignment exhibits the correlations, particularly with innovation mindset (ρ = .238, p < .001, highly significant) and technology leadership (ρ = .209, p < .001, highly significant). These results

underscore that aligning smart technology initiatives with institutional strategies not only empowers leaders to champion digital transformation but also cultivates a culture of innovation (Chiu et al., 2024; Lucas et al., 2024). Its significant correlation with digital literacy ($\rho = .164$, $p = .001$) reinforces the idea that strategic coherence provides clarity in capacity-building efforts, ensuring that digital skills are aligned with long-term organizational goals (Cao et al., 2023; Makinde et al., 2024).

Research Output

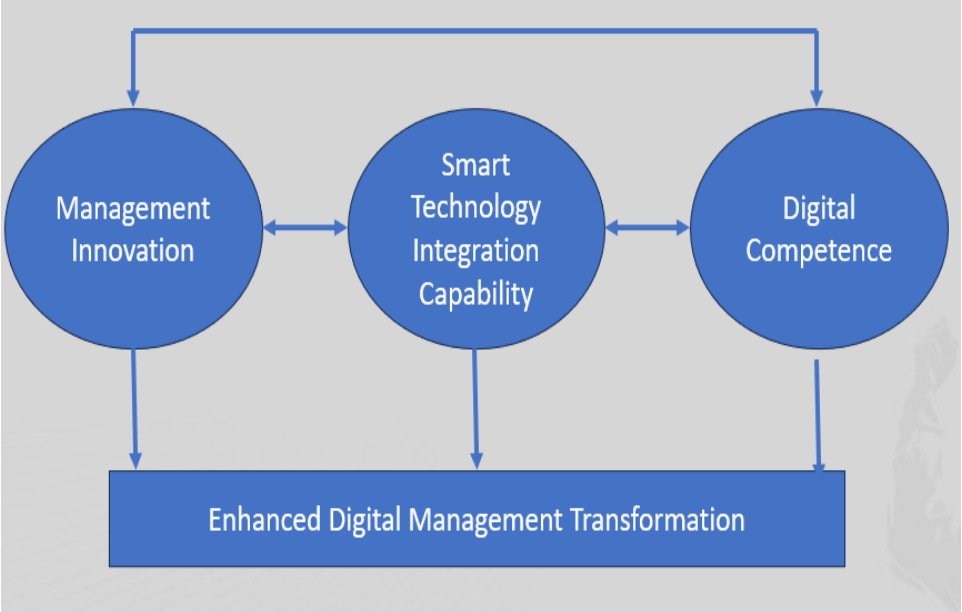

Figure 1. Enhanced Digital Management Framework

The figure illustrates the Enhanced Digital Management Transformation Framework, showing the interrelationships among Management Innovation, Smart Technology Integration Capability, and Digital Competence. Management Innovation represents the organization's ability to develop new managerial approaches, optimize resource allocation, and establish mechanisms that foster innovation. It provides the foundation for adopting digital solutions effectively. This includes managerial competency, organizational innovation mechanism, and resource allocation. Smart Technology Integration Capability tells how well organizations integrate advanced technologies into their processes, strategies, and collaborations. It acts as a bridge, connecting innovation in management practices with the development of digital competence. management processes, cross-functional collaboration, and digital strategy alignment.

Digital Competence here includes digital literacy, technology leadership, and innovative mindset, which equip individuals and organizations to use technology effectively and adapt to digital transformation. The arrows in the framework indicate that these three elements are interconnected and mutually reinforcing: Management innovation supports both digital competence and technology integration. Smart technology integration enhances both managerial practices and digital skills. Digital competence enables managers and employees to maximize the benefits of both innovation and technology. All three converge toward achieving Enhanced Digital Management Transformation, which signifies a more adaptive, efficient, and future-ready organizational system.

4. Conclusion

- The respondents generally agree on the presence of management innovation capability within the organizations in terms of organizational innovation mechanisms, resource innovation and managerial competency.

- The smart technology integration capability is generally agreed in terms of management processes, cross-functional collaboration and digital strategy alignment.
- The digital competence development is generally agreed in view of innovation mindset, digital literacy and technology leadership.
- There exist significant relationships among Management Innovation Capability, Smart Technology Integration Capability and Digital Competence Development
- An enhanced digital management transformation framework was developed.

Recommendation

- The company may strengthen managerial competency through continuous leadership development and training to complement the already strong innovation mechanisms and resource allocation.
- The company may enhance digital strategy alignment to ensure that smart technology initiatives are more closely integrated with long-term goals, thereby reinforcing the effectiveness of management processes and cross-functional collaboration.
- The administrators may strengthen technology leadership initiatives to balance digital competence development, ensuring that leadership capacity keeps pace with the already strong innovation mindset and digital literacy.
- The proposed framework may be presented to company administrators to enhance the Digital Management Transformation.
- Future studies may examine other sectors or industries to validate whether management innovation capability, smart technology integration, and digital competence development exhibit similar relationships.

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