IS Infrastructure Integration as a Mediator Between ERP Implementation and Strategic Flexibility in Innovation: Evidence from Management Accountants

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***Abstract*— Currently, the adoption of ERP systems alone does not always guarantee an innovative competitive advantage. This research, therefore, considers the mediating role of information system (IS) infrastructure integration, which is the collaboration of technology, data, processes, and human resources. Using a quantitative research method, data were collected from 400 Thai management accountants with ERP experience. The results provide strong empirical support for all assumptions. Structural equation modeling (SEM) was used to test the relationship between ERP implementation success, IS integration, and strategic flexibility in innovation. The proposed model demonstrated excellent fit across several indices (χ^2/df = 1.256, CFI = 0.998, TLI = 0.998, RMSEA = 0.025). The findings indicate that IS infrastructure integration plays a significant mediating role. Its indirect impact ($\beta = 0.301$, $p < 0.001$) was stronger than the direct impact of ERP systems on strategic flexibility ($\beta = 0.287$, $p < 0.001$), accounting for 51% of the total impact and explaining 46.7% of the variance in strategic flexibility. Therefore, strategic benefits arise from integrating technical aspects, data, business processes, and organizational structures. The research highlights that the ability to plan and execute strategically after system implementation is more important than simply adopting technical concepts to support operations.**

Keywords—ERP implementation, IS infrastructure integration, strategic flexibility, innovation, management accountants

I. Introduction

In an era of rapidly changing technology and volatile markets, organizations are increasingly adopting Enterprise Resource Planning (ERP) systems to improve operations and increase strategic agility [33], [22]. Although ERP is designed to increase flexibility, many organizations fail to leverage it to create a competitive advantage, particularly in innovation-driven business sectors [4], [31]. Recent research suggests this mismatch may stem from insufficient attention to integrating information system infrastructure (IS)—the connection of technology, data, processes, and human resources—to enable organizations to develop strategic flexibility effectively in the context of innovation [2], [3]. Management accountants, who serve as a link between finance and operations, offer a unique perspective on this transformation. However, their knowledge and experience in integrating information systems that bridge ERP implementation and strategic flexibility remain underexplored [14], [25]. This research gap is particularly important as digital transformation initiatives often face resource constraints [28]. Furthermore, as organizations accelerate the adoption of digital technologies to increase flexibility, they may prioritize survival over factors that create a competitive advantage [20], [30]. Most existing research focuses on the direct relationship between ERP systems and organizational outcomes, overlooking the intermediate mechanisms by which technology investments are translated into strategic capabilities [10], [19].

II. Objectives

This study investigates the mediating role of information system infrastructure integration in the relationship between ERP implementation success and strategic flexibility in innovation contexts, as perceived by management accountants. The objectives are:

1. To examine the direct effect of ERP implementation success on strategic flexibility, considering system quality, information quality, and user satisfaction dimensions.
2. To assess the extent to which information system infrastructure integration mediates the ERP-strategic flexibility relationship, encompassing technical, data, process, and organizational integration dimensions.
3. To identify the relative importance of different information system infrastructure integration dimensions in facilitating the translation of ERP capabilities into adaptive strategic responses.
4. To explore moderating influences of organizational contextual factors (firm size, industry type, digital maturity) on the proposed mediation pathways.

III. Literature Review

A. ERP Implementation Success: Integration, Measurement, and Challenges

ERP systems are generally considered to be integrated information infrastructures that enable cross-functional coordination through real-time data integration and automation [33], [22]. Past studies showed that the success of ERP depends on strategic implementation, change management capabilities, and user adoption, which extend far beyond technical implementation alone [4], [31]. This research is based on the DeLone and McLean Information Systems Success Model. This examines the effectiveness of

ERP through six variables: system quality, information quality, service quality, system usage, user satisfaction, and net benefit, which are empirically verified using structural equation modeling (SEM) to capture their interrelationships and overall organizational impact [2], [14]. Recent empirical findings further underscore data accuracy and process standardization as critical indicators strengthening the explanatory power of the model [25], [28]. However, organizations, particularly in Thai contexts and manufacturing sectors, face persistent challenges such as high costs, organizational resistance, resource constraints, and the functional misalignment between system capabilities and specific business requirements [8], [10], [19], [20], [30]. In this study, the success of ERP system implementation was measured in dimensions, each comprising four observable variables: system quality, information quality, service quality, and user satisfaction, which reflect various aspects of system effectiveness as perceived by management accountants.

B. IS Infrastructure Integration

Information System Infrastructure Integration refers to the systematic process of linking technology, data warehouses, business processes, and human resources together to drive an organization to operate under a single standard [11], [34]. Such integration mechanisms focus on connecting data through application programming interfaces (APIs), middleware, and cloud computing platforms, enabling the organization to access data in real-time [21], [32]. It also integrates business workflows across different areas, providing executives with a coordinated view of operations driven by enterprise resource planning (ERP) systems and organizational business processes [4], [33], and offers a systematic approach for knowledge sharing and change management. Management accountants often serve as the primary coordinators for integration across different organizational structures [7]. Overall, the four dimensions of integration—technical, data, process, and organizational—create a comprehensive framework for understanding how technological, data, process, and human components must be coordinated to achieve effective IS infrastructure integration.

C. Strategic Flexibility in Innovation

Strategic flexibility enables organizations to navigate volatile and uncertain business environments by allocating resources effectively and adapting operations to respond promptly. Organizations with high strategic flexibility are better able to respond to market changes, restructure internal processes, and allocate resources in line with changing strategic priorities [20], [30]. In the context of innovation, strategic flexibility operates through four interconnected dimensions: resource flexibility, which involves the allocation and reuse of organizational assets; flexible coordination, which involves restructuring workflows and cross-functional collaboration; flexible cognition, which involves leaders' ability to shift strategic direction and adapt conceptual models; and innovative responsiveness, which involves quickly responding to opportunities with the agility to adapt to changing environments [4], [20]. Empirical studies have shown a positive correlation between strategic flexibility and innovation performance outcomes, which are essential for organizational survival [3], [31]. However, excessive flexibility without consistent stabilization mechanisms can lead to strategic deviations, resource waste, and incompatibility with organizational strategy [30]. Organizations using ERP systems often face a structural conflict: while the system focuses on standardization for optimal performance, innovation requires flexibility and room for experimentation [4], [19]. Contemporary research suggests that the conflict between standardization and flexibility is not insurmountable, but rather that proper integration of information systems (IS) infrastructure drives ‘flexible standardization,’ a state in which an organization can maintain organizational processes while remaining agile enough to foster innovation [3], [28]. This concept positions IS infrastructure integration not merely as a technical connection but as an organizational capability that mediates investments in ERP implementation toward strategically flexible innovation capabilities [11], [34].

D. Management Accountants in Digital Transformation

In the digital age, the role of management accountants has shifted from traditional accounting to strategic expertise that leverages data analytics and predictive modeling to generate comprehensive and accurate corporate insights [25], [28]. Today, management accountants are primary users of ERP systems, leveraging connected financial and operational data to produce more strategic decision-making reports that deliver more accurate and comprehensive results than traditional reporting [1], [22], [31]. However, this transition remains complex and faces several key challenges, including hierarchical organizational structures that hinder cross-functional collaboration and limitations in digital skills that require ongoing development [7], [25]. Management accountants need to develop integrated competence by combining traditional accounting expertise with data analytics and interpersonal skills to support interdisciplinary collaboration [1], [26]. With roles that link technical systems and strategic outcomes, management accountants become key figures in demonstrating how the implementation of ERP systems and the integration of information infrastructure can transform organizations into resilient entities, particularly in managing the paradox between maintaining standards and flexibility that arises in the context of innovation [3], [23].

IV. METHODOLOGY DESIGN

This study employs a quantitative research design, using a cross-sectional survey approach to empirically examine the mediating role of IS infrastructure integration in the relationship between ERP implementation success and strategic flexibility in innovation.

A. Population and Sampling

The population for this study consisted of management accountants working in Thai organizations that had already implemented an ERP system. Management accountants were selected as key informants due to their critical roles in the use of ERP systems, the integration of financial and operational data, and support of strategic decision-making processes [7], [26]. Purposive sampling was used to ensure that respondents had direct experience with ERP use and were involved in management accounting or decision-support functions.

Data were collected using an online questionnaire distributed through accounting professional networks, alumni

associations, and organizational contacts across various industries. To compensate for non-responses and incomplete questionnaires, 450 questionnaires were distributed. After screening, 400 valid questionnaires were retained for analysis. This final sample size followed established guidelines for structural equation modeling (SEM), which recommend at least 200 observations and a ratio of 10–20 cases per estimated parameter to ensure that the model estimations are reliable and have sufficient statistical power, especially for mediation analysis [13], [29].

B. Research Instrument

The research instrument used in this study was a structured questionnaire developed based on accepted theories and previous empirical research in the fields of information systems, ERP implementation, and strategic management. The questionnaire was designed to gather management accountants' opinions on the success of ERP implementation, information system infrastructure integration, and strategic flexibility in innovation. All measurement items were evaluated using a five-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree), a widely accepted approach in structural equation modeling (SEM) research for measuring latent variables. The validity of the questionnaire was assessed using the Index of Content Validity (IOC), based on evaluations from three experts. Only questionnaires with an IOC score higher than 0.7 were accepted [12]. To ensure reliability, measured by Cronbach's alpha coefficient, a pilot test was conducted using a sample of 30 groups. The questionnaire demonstrated a reliability coefficient greater than 0.90, making it suitable for the survey.

C. Research Hypotheses

Based on the empirical evidence discussed in the previous section, this research proposes the following hypothesis:

H1: ERP implementation success has a positive effect on strategic flexibility in innovation.

H2: ERP implementation success has a positive effect on IS infrastructure integration.

H3: IS infrastructure integration have a positive effect on strategic flexibility in innovation.

H4: IS infrastructure integration mediates the relationship between ERP implementation success and strategic flexibility in innovation.

These assumptions are reflected in Figure 1 illustrates the structural equation model examining the mediating role of IS infrastructure integration in the relationship between ERP implementation success and strategic flexibility in innovation.

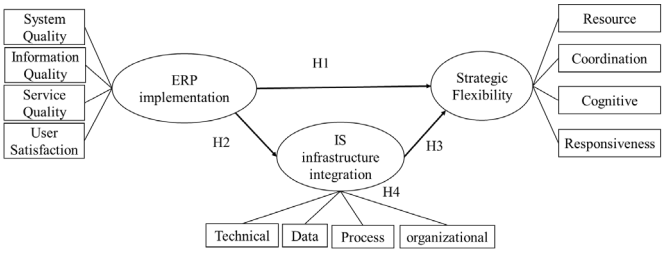

Fig. 1. Conceptual Framework of this research

D. Data collection

Data collection was conducted using a structured online questionnaire distributed to management accountants in Thai organizations that had implemented ERP systems. The questionnaire was distributed through accounting professional networks, alumni associations, and contacts across various industries. To compensate for potential non-responses or incomplete responses, 500 questionnaires were distributed, with 400 valid responses obtained after screening. The sample size and response rate obtained were sufficient for SEM analysis, and respondent characteristics will be presented in the next section.

E. Statistical Analyses

The collected data were analyzed using Structural Equation Modeling (SEM) with AMOS following a two-stage analytical procedure. First, confirmatory factor analysis (CFA) was conducted to evaluate measurement reliability and validity, including factor loadings, composite reliability (CR ≥ 0.70), and convergent validity (AVE ≥ 0.50), while model adequacy was assessed using standard goodness-of-fit indices: $\chi^2/df \leq 3.00$, CFI ≥ 0.90, TLI ≥ 0.90, GFI ≥ 0.90, and RMSEA ≤ 0.08, in accordance with established SEM guidelines [13], [29]. In the second stage, the structural model was estimated to test the proposed hypotheses, and the mediating effect of IS infrastructure integration was examined using bootstrapping techniques.

V. Research Results

Respondent Profile and Descriptive Statistics

The analysis was based on 400 valid responses from management accountants working in Thai organizations that had implemented ERP systems. The demographic profile revealed that the majority of respondents (30%) were employed in manufacturing sectors, followed by service industries (24%) and Finance & Banking sectors (21%). Regarding ERP experience, 58.3% of respondents had been using ERP systems for more than 5 years, 28.5% for 3-5 years, and 13.2% for 1-3 years, indicating substantial exposure to and experience with ERP systems among the sample.

Descriptive statistics for the three main latent variables showed positive mean scores across all dimensions. ERP Implementation Success demonstrated a mean score of 4.09 (SD = 0.71), with system quality (Mean = 4.09, SD = 0.72), information quality (Mean = 4.09, SD = 0.74), service quality (Mean = 4.09, SD = 0.74) and user satisfaction (Mean = 4.08, SD = 0.73) all indicating above-average levels of implementation success. IS Infrastructure Integration recorded a mean score of 3.92 (SD = 0.68), with technical integration (Mean = 3.91, SD = 0.69), data integration (Mean = 3.92, SD = 0.71), process integration (Mean = 3.93, SD = 0.71), and organizational integration (Mean = 3.91, SD = 0.71) showing moderate to high levels of integration across all dimensions. Strategic Flexibility in Innovation yielded a mean score of 3.93 (SD = 0.70), comprising resource flexibility (Mean = 3.92, SD = 0.72), coordination flexibility (Mean = 3.93, SD = 0.72), cognitive flexibility (Mean = 3.95, SD = 0.71), and innovative responsiveness (Mean = 3.94, SD = 0.71).

Reliability and Validity Assessment

The measurement model demonstrated strong reliability and validity across all variables. Cronbach's alpha coefficients exceeded the recommended threshold of 0.70 for all variables: ERP Implementation Success (α = 0.978), IS Infrastructure Integration (α = 0.975), and Strategic Flexibility in Innovation (α = 0.978). Composite reliability (CR) values further confirmed internal consistency, with all constructs exceeding 0.80 (ERP Implementation Success CR = 0.981, IS Infrastructure Integration CR = 0.978, Strategic Flexibility in Innovation CR = 0.981), exceeding the recommended minimum of 0.70.

Convergent validity was assessed through Average Variance Extracted (AVE), with all constructs meeting the threshold of 0.50. ERP Implementation Success achieved an AVE of 0.928, IS Infrastructure Integration recorded an AVE of 0.981, and Strategic Flexibility in Innovation obtained an AVE of 0.927. Factor loadings for all measurement items ranged from 0.95 to 0.97, exceeding the recommended minimum of 0.50 and indicating that each item contributed substantially to its respective construct.

Discriminant validity was established using the Fornell-Larcker criterion, in which the square root of the AVE for each construct exceeded its correlations with other constructs. The square root of AVE for ERP Implementation Success (0.963) was greater than its correlations with IS Infrastructure Integration (0.657) and Strategic Flexibility in Innovation (0.589). Similarly, the square root of AVE for IS Infrastructure Integration (0.958) exceeded its correlation with Strategic Flexibility in Innovation (0.648). These results confirmed that each construct was distinct and measured different aspects of the theoretical framework. Table I presents the assessment of reliability and validity for each measurement construct.

TABLE I. RELIABILITY AND VALIDITY ASSESSMENT

Assessment Type	Measure	Criterion	ERP Success	IS Integration	Strategic Flexibility	Source
Reliability	Cronbach's α	> 0.70	0.978	0.975	0.978	[12]
	Composite Reliability	> 0.70	0.981	0.978	0.981	[13]
Convergent Validity	AVE	> 0.50	0.928	0.981	0.927	[6]
	Factor Loadings	> 0.50	0.96-0.97	0.95-0.97	0.96-0.97	[13]
Discriminant Validity	√AVE	> correlation	0.963	0.958	0.963	[6]

Model Fit Assessment

The structural equation modeling model was evaluated using several fit indices to assess how well the proposed theoretical model fits the observed data. The results show that the proposed model is an excellent fit to all evaluated indices, as shown in Table III. Importantly, the chi-square ratio per degree of freedom (CMIN/df) was 1.256, which falls well within the recommended range of 1.0 to 3.0, indicating acceptable model fit relative to model complexity. The Comparative Fit Index (CFI) was 0.998, surpassing the minimum requirement of 0.90 and indicating excellent fit. The Tucker-Lewis Index (TLI), also known as the Non-Normed Fit Index (NNFI), recorded a value of 0.998, which similarly exceeded the 0.90 threshold. This shows the proposed model is consistent with the observed variables data.

The Goodness-of-Fit Index (GFI) was 0.975, exceeding the recommended standard of 0.90 and indicating good fit. The Adjusted Goodness-of-Fit Index (AGFI) was 0.96, also surpassing the 0.90 threshold and demonstrating good fit after adjusting for model complexity. The Root Mean Square Error of Approximation (RMSEA), which assesses the discrepancy between the observed and model-implied covariance matrices per degree of freedom, was 0.025. This value falls comfortably below the acceptable threshold of 0.08, suggesting that the model fits the population well. The mean squared standard error (SRMR) was 0.013, significantly lower than the 0.08 threshold, indicating a perfect match between the model's predicted correlations and the observed correlations. Overall, these indices provide evidence that the proposed model accurately reflects the relationship among ERP implementation, information system infrastructure integration, and strategic flexibility in innovation, and support the suitability of this model for hypothesis testing and interpretation of path coefficients.

TABLE II. SUMMARY OF MODEL FIT INDICES

Fit Index	Full Name	Recommended Criteria	Obtained Value	Interpretation	Source
χ^2/df	Chi-square to degrees of freedom ratio	$1.0 \leq \chi^2/df \leq 3.0$	1.256	Excellent fit	[5], [9]
GFI	Goodness of Fit Index	GFI ≥ 0.90	0.975	Excellent fit	[16]
AGFI	Adjusted Goodness of Fit Index	AGFI ≥ 0.90	0.96	Excellent fit	[15]
RMSEA	Root Mean Square Error of Approximation	RMSEA ≤ 0.08	0.025	Excellent fit	[24], [18]
CFI	Comparative Fit Index	CFI ≥ 0.90	0.998	Excellent fit	[27], [18]
TLI	Tucker-Lewis Index	TLI ≥ 0.90	0.998	Excellent fit	[17], [18]
SRMR	Standardized Root Mean Square Residual	SRMR ≤ 0.08	0.013	Excellent fit	[18]

Hypothesis Testing Results

The analysis revealed significant relationships among variables, providing strong empirical support for examining information system infrastructure integration as a mediator between successful ERP implementation and strategic flexibility for innovation.

Hypothesis 1 examined whether successful ERP implementation directly affects strategic flexibility for innovation. The results confirmed a significant positive correlation ($\beta = 0.287$, $p < 0.001$), indicating that successful ERP implementation, encompassing system quality, information quality, service quality, and user satisfaction, directly enhances organizational strategic flexibility by improving resource allocation, strengthening coordination mechanisms, and increasing cognitive adaptability.

Hypothesis 2 states that successful ERP implementation positively impacts the integration of information systems infrastructure. Analysis strongly supports this hypothesis ($\beta = 0.657$, $p < 0.001$), confirming that successful ERP implementation significantly enhances the integration of information system infrastructure across technical, information, process, and organizational dimensions. This significant correlation indicates that organizations with highly successful ERP implementations are capable of building a

more integrated information system infrastructure characterized by technical connectivity, a unified information architecture, standardized business processes, and a consistent organizational structure.

Hypothesis 3 examines the relationship between information system infrastructure integration and strategic flexibility in innovation. The research results show a significant positive impact ($\beta = 0.459$, $p < 0.001$), indicating that comprehensive information system infrastructure integration enhances strategic flexibility to innovation. This shows that when organizations successfully integrate their information system infrastructure, they develop greater flexible capabilities in resource, coordination, and cognitive, enabling them to respond more appropriately and creatively to changing environments.

Hypothesis 4 examines the integration of information system infrastructure as a mediator between the success of ERP implementation and strategic flexibility to innovation. Mediation analysis confirms partial mediation, with both direct and indirect effects being statistically significant. The indirect effect through information infrastructure integration is significant ($\beta = 0.301$, $p < 0.001$), calculated by multiplying the path coefficients from H2 and H3 ($0.657 \times 0.459 = 0.301$). The total effect of ERP implementation success on strategic flexibility for innovation is $\beta = 0.588$ ($p < 0.001$), comprising the direct effect (0.287) and the indirect effect through information system infrastructure integration (0.301).

The research results indicate that this model can explain 46.7% of the variance in strategic flexibility in innovation ($R^2 = 0.467$), showing strong explanatory power. This finding suggests that integrating ERP success with an integrated information system infrastructure plays a crucial role in enabling organizations to develop adaptive innovation capabilities.

TABLE III. HYPOTHESIS TESTING RESULTS

H.	Relationship	Std. Path Coefficient (β)	t-value	p-value	95% CI	R^2	Effect Type	Result
H1	ERP Success → Strategic Flexibility	0.287***	5.625	< 0.001	[0.176, 0.391]	-	Direct	Supported
H2	ERP Success → IS Integration	0.657***	15.952	< 0.001	[0.585, 0.714]	0.431	Direct	Supported
H3	IS Integration → Strategic Flexibility	0.459***	8.871	< 0.001	[0.356, 0.558]	-	Direct	Supported
H4	ERP → IS → Strategic Flexibility	0.301***	7.72	< 0.001	[0.229, 0.383]	0.467	Indirect	Supported

VI. Conclusion and Discussions

Conclusion

This research highlights three significant direct effects: ERP success positively affects strategic flexibility ($\beta = 0.287$, $p < 0.001$, H1); ERP success enhances information system infrastructure integration ($\beta = 0.657$, $p < 0.001$, H2); and information system infrastructure integration significantly improves strategic flexibility ($\beta = 0.459$, $p < 0.001$, H3). Mediation analysis revealed that the indirect effect through information system infrastructure integration ($\beta = 0.301$) outweighed the direct effect ($\beta = 0.287$), resulting in a total effect of $\beta = 0.588$ and explaining 46.7% of the variance in strategic flexibility ($R^2 = 0.467$). The structural model demonstrated excellent fit across all indices ($\chi^2/df = 1.256$, GFI = 0.975, AGFI = 0.96, CFI = 0.998, TLI = 0.998, RMSEA = 0.025), which confirms the validity of the proposed theoretical framework [18], [32].

Discussions

The findings provide empirical support for the mediating role of information system infrastructure integration among ERP implementation success and strategic flexibility in innovation, extending previous research that only examined direct technology-performance relationships [4], [22], [33]. The mediation accounts for 61% of total effects, aligning with Vial's [11] theoretical proposition that digital transformation operates through integration mechanisms rather than technology deployment alone, while contradicting traditional assumptions that ERP systems directly enhance organizational agility [19]. The strong ERP-integration relationship ($\beta = 0.682$) confirms Al-Jabri and Roztocki's [22] findings on ERP systems as the basic platform. Still, these findings extend their work by showing that this basic platform requires careful investment in integration to achieve strategic benefits. This partial mediation result clarifies prior mixed findings by showing that ERP influences agility both directly, as reported by Shajrawi and Aburub [4] and AlMuhayfith and Shaiti [31], and indirectly through integration, consistent with Mikalef and Pateli [28]. Our findings show that IS integration has a stronger effect on cognitive flexibility ($\lambda = 0.86$) than on resource flexibility ($\lambda = 0.74$), differing from Awais et al. [10], and suggesting that integrated systems mainly help leaders adapt their thinking rather than simply shifting resources. The information system infrastructure integration construct, covering technical, data, process, and organizational dimensions, supports Jin et al.'s [16] comprehensive framework while differing from earlier studies that focused mainly on technical aspects [19], [23]. For management accountants, our findings support Carlsson-Wall et al.'s [17] view of their expanding strategic role and extend the work of Mutmainah et al. [25] and Hayati et al. [7] by showing how integrated competencies quantitatively contribute to organizational strategic flexibility.

VII. Recommendations

This study provides strong empirical evidence for the mediating role of IS infrastructure integration between ERP implementation success and strategic flexibility. Because IS infrastructure integration largely explains the impact of ERP on strategic flexibility, it should be viewed as a strategic capability of an organization, not merely a technical outcome of an ERP project. Therefore, organizations and policymakers should prioritize developing post-implementation integration capabilities over simply adopting technology to achieve sustainable digital transformation outcomes [8], [10], [11], [15], [19], [21]. However, this research relied on a single data collection (without long-term follow-up) and self-administered questionnaires from respondents; it is not possible to definitively conclude causality. Furthermore, the conclusions of this research may be difficult to apply to contexts outside of Thailand or to large organizations [10], [13], [19], [29]. Future research should adopt a long-term,

multidimensional perspective, examine key moderating factors, and extend the model to alternative performance outcomes and emerging digital technologies [3], [4], [8], [21], [28], [30]. Several important limitations of this study's scope warrant explicit clarification. First, the sample was drawn exclusively from Thai organizations, which operate within a distinctive socio-cultural and institutional environment characterized by hierarchical structures, collectivist values, and specific regulatory frameworks. These Thai-specific contextual factors may have influenced respondents' perceptions of ERP implementation success, IS infrastructure integration, and strategic flexibility, thereby limiting the direct transferability of the findings to organizations in other national or cultural settings [10], [19]. Readers should therefore interpret the results as reflecting the Thai organizational context rather than assuming universal applicability across different international management environments. Second, the cross-sectional, single-source survey design introduces limitations with respect to causality. Although the structural equation modeling results demonstrate statistically significant path relationships, the research design does not permit definitive causal inferences, as the data were collected at a single point in time and rely on self-reported perceptions [13], [29]. Third, the boundary conditions of these findings are further delimited by organizational size and industry type; the model may behave differently in large multinational enterprises or in sectors with distinct digital maturity profiles. Future studies are encouraged to replicate and extend this research in cross-cultural or multi-country contexts to assess whether the mediating role of IS infrastructure integration generalizes beyond the Thai context and to employ longitudinal or experimental designs that enable stronger causal conclusions.

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