Vol. 8, No. 2, April 2026

ISI Journal of Information Systems and Informatics

Published By Asosiasi Doktor Sistem Informasi Indonesia

Linking IT Governance to Organizational Performance in Higher Education: The Role of Digital Capability and Organizational Agility

Amrullah[1], Khairul Imtihan[2], Baiq Yulia Fitriyani[3], Mardi[4], Muhamad Rodi[5]

[1,2,4,5]Department of Information Systems, STMIK Lombok, Praya, Central Lombok, Indonesia

[3]Department of Informatics Engineering, STMIK Lombok, Praya, Central Lombok, Indonesia

Received:
October 26, 2025
Revised:
March 27, 2026
Accepted:
April 1, 2026
Published:
April 12, 2026

Corresponding Author:
Author Name*:
Amrullah
Email*:
amrul0658@gmail.com

DOI:
10.63158/journalisi.v8i2.1581

© 2026 Journal of Information Systems and Informatics. This open access article is distributed under a (CC-BY License)

Abstract. This study examines how IT governance contributes to organizational performance through information systems (IS) success, digital capability, and organizational agility in higher education institutions. It addresses a critical gap by exploring why improvements in IT governance and system quality do not always translate into higher organizational capabilities and performance. A quantitative survey was conducted with 342 respondents from higher education institutions in Nusa Tenggara Barat (NTB), Indonesia, and analyzed using PLS-SEM. The results show that IT governance significantly improves system, information, and service quality. However, these dimensions do not significantly influence digital capability, and digital capability does not significantly affect organizational agility. Instead, organizational agility is the only construct that significantly enhances organizational performance, while IT governance shows no direct effect. These findings suggest that IT value creation is not linear but depends on the organization's ability to translate technological resources into adaptive capabilities. This study provides empirical evidence on the indirect role of IT governance and offers a contextual clarification of IS success and digital capability relationships within NTB higher education institutions.

Keywords: IT Governance, Digital Capability, Organizational Agility, Organizational Performance, Higher Education.

1. INTRODUCTION

The increasing adoption of information technology (IT) in higher education has transformed the way academic institutions manage teaching, administration, and decision-making processes. In this context, IT governance has become a critical mechanism to ensure that IT investments align with institutional goals and generate organizational value. Effective IT governance encompasses structures, processes, and relational mechanisms that guide IT decision-making, risk management, and performance evaluation [1], [2]. Prior studies have demonstrated that IT governance contributes significantly to organizational performance by enhancing transparency, accountability, and strategic alignment [3], [4], [5], [6]. However, despite its recognized importance, the implementation of IT governance in higher education institutions, particularly in developing regions, remains suboptimal and often fails to deliver the expected performance outcomes.

In the context of higher education institutions in Nusa Tenggara Barat (NTB), Indonesia, several critical challenges persist in the implementation of IT governance. These challenges include the lack of clear IT decision-making structures, limited alignment between IT strategy and institutional strategy, and inadequate monitoring and evaluation of IT performance. Furthermore, constraints related to digital human resource competencies, uneven IT infrastructure, and limited awareness of IT governance practices hinder the effective utilization of information systems. As a result, the quality of IT services experienced by stakeholders such as lecturers, students, and academic administrators remains inconsistent. This condition leads to suboptimal system utilization, reduced effectiveness in decision-making, and ultimately, limited contribution of IT to organizational performance.

From the perspective of information systems success, the DeLone and McLean model emphasizes system quality, information quality, and service quality as key determinants of IS effectiveness [7], [8]. Empirical studies indicate that poor system reliability, inaccurate or untimely information, and inadequate IT support services significantly hinder the successful use of information systems [9], [10], [11], [12]. These issues are particularly evident in many regional higher education institutions, including those in NTB, where systems are often not fully integrated and fail to provide relevant and timely

information. Consequently, information systems have not yet fully functioned as strategic enablers of organizational performance, highlighting the need for a deeper investigation into their role within the IT governance framework [13], [14].

Importantly, while information systems success focuses on the technical and service performance of systems (e.g., system quality, information quality, and service quality), it does not automatically reflect the organization's ability to leverage these systems into higher-level capabilities. In contrast, organizational capability particularly digital capability represents the institution's capacity to integrate, adapt, and strategically utilize digital resources to support innovation and decision-making. This distinction is critical, as high system performance does not necessarily translate into enhanced organizational capability without effective transformation processes.

In addition, the ongoing digital transformation has emphasized the importance of digital capability as a strategic organizational resource. Digital capability refers to an organization's ability to adopt, integrate, and leverage digital technologies to support innovation and data-driven decision-making [15], [16], [17]. Unlike IT governance, which focuses on structures and control mechanisms, and IS success, which reflects system-level performance, digital capability represents the organization's ability to translate technological resources into actionable competencies. However, many higher education institutions in NTB still exhibit low levels of digital capability, as reflected in limited data utilization, lack of system integration, and insufficient digital competencies among staff. This limitation reduces the organization's ability to respond effectively to environmental changes, including evolving educational demands and technological advancements. In this regard, organizational agility defined as the ability to sense and respond rapidly to change has been identified as a critical factor influencing organizational performance in dynamic environments [18], [19], [20].

Despite the growing body of literature, prior studies on IT governance and organizational performance have predominantly emphasized direct relationships, with limited attention to the underlying mechanisms through which IT governance creates value [21], [22], [23], [24]. Moreover, existing studies rarely integrate information systems success, digital capability, and organizational agility into a unified sequential framework that explains how value is progressively realized from system quality to organizational outcomes. In

addition, many studies conceptualize organizational performance as a single-dimensional construct, whereas contemporary approaches recommend multidimensional evaluation frameworks such as the balanced scorecard. These limitations highlight a significant research gap in understanding the process-based and capability-driven pathways linking IT governance to organizational performance, particularly in higher education institutions in developing regions [25], [26], [27].

Therefore, this study addresses this gap by developing an integrative empirical model that explicitly distinguishes between system-level success and organizational-level capability, and examines how IT governance contributes to organizational performance through a sequential pathway involving information systems success, digital capability, and organizational agility. The novelty of this study lies in providing a contextual and process-oriented empirical clarification of IT value creation rather than proposing a new theoretical framework. Accordingly, this study aims to analyze both direct and indirect relationships among IT governance, IS success dimensions, digital capability, organizational agility, and organizational performance, using evidence from higher education institutions in Nusa Tenggara Barat, Indonesia. The findings contribute by clarifying the mechanism through which IT resources are transformed into organizational outcomes and by offering practical insights for strengthening digital transformation strategies in higher education.

2. METHODS

This study adopts a quantitative research design to examine the relationships among IT governance, information systems success, digital capability, organizational agility, and organizational performance within higher education institutions. A survey-based approach was employed as it is widely recognized as an effective method for capturing perceptions and evaluating latent constructs in information systems and organizational research [1], [28]. The research setting focuses on higher education institutions in Nusa Tenggara Barat (NTB), Indonesia, encompassing both public and private universities. This context is particularly relevant due to the ongoing challenges in IT governance implementation and digital transformation within regional educational institutions.

ISI Journal of Information Systems and Informatics
Published By Asosiasi Doktor Sistem Informasi Indonesia

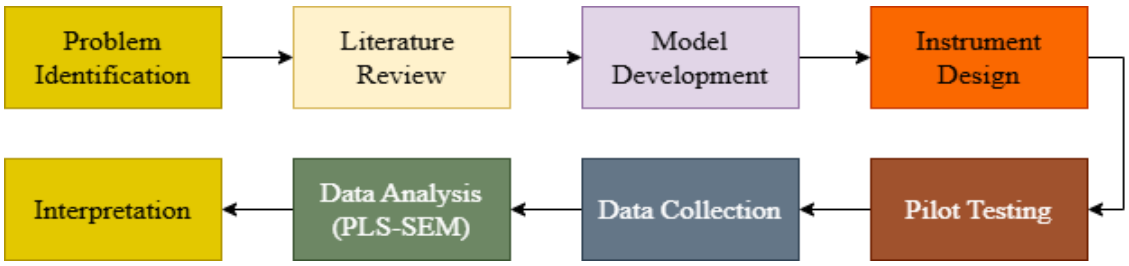

Figure 1. Research Workflow of the Study

The overall research procedure is illustrated in Figure 1. The study was conducted through a systematic sequence of stages, beginning with problem identification and literature review to establish the theoretical foundation. This was followed by the development of the conceptual model and research instrument. The instrument development process involved a structured procedure, including item adaptation from prior validated studies, expert review, and pilot-stage evaluation to ensure measurement validity and contextual relevance. Prior to large-scale data collection, a pilot test was conducted to refine the measurement instrument. Subsequently, data were collected through a structured survey and analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM) with SmartPLS 4.0. The final stage involved interpreting the results and discussing their theoretical and practical implications.

2.1. Conceptual Framework

Figure 2 illustrates conceptual framework developed in this study, which integrates IT governance, information systems (IS) success dimensions, digital capability, organizational agility, and organizational performance within a unified structural model. The framework is grounded in a process-based perspective, emphasizing that IT governance contributes to organizational performance not only directly, but also through a sequence of intermediate mechanisms involving system-level quality, organizational capability development, and adaptive capacity. This study proposes a structured empirical framework that explains the process through which IT governance creates organizational value.

IT governance is conceptualized as a foundational mechanism that enhances the effectiveness of information systems through structured decision-making, alignment processes, and performance monitoring [1], [21]. In this model, IT governance is hypothesized to directly influence three key dimensions of IS success, namely system

quality, information quality, and service quality, as derived from the DeLone and McLean IS Success Model [7], [8]. These dimensions represent the technical performance, informational value, and service support of information systems, respectively. Building on this foundation, the model proposes that IS success dimensions serve as enablers of digital capability. Digital capability reflects the organization's ability to deploy, integrate, and leverage digital technologies to support operational efficiency, innovation, and data-driven decision-making [29], [30]. High-quality systems and information are expected to facilitate the development of such capabilities, thereby strengthening the organization's capacity to utilize digital resources effectively.

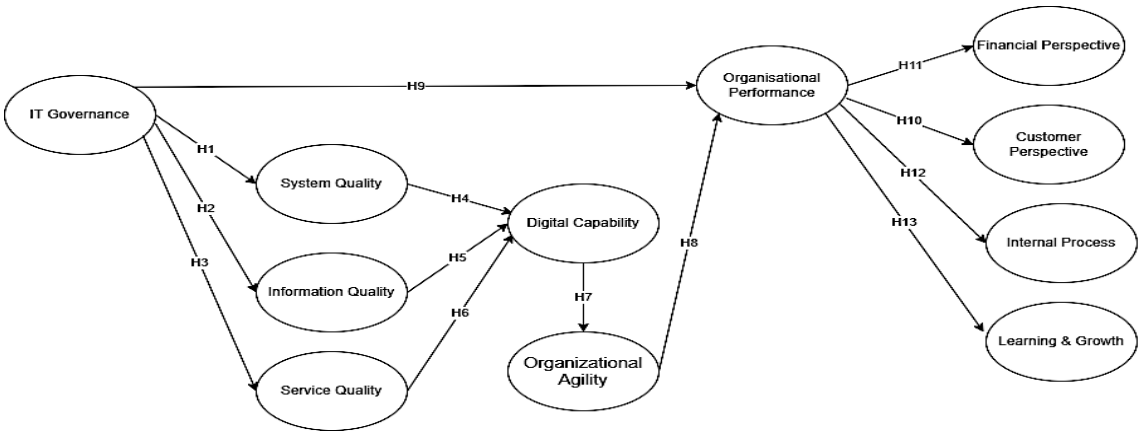

Figure 2. Conceptual Framework

Furthermore, digital capability is hypothesized to enhance organizational agility, defined as the ability to sense, respond, and adapt rapidly to environmental changes. This relationship reflects a capability-building process in which digital resources are transformed into dynamic organizational responses. Organizational agility, in turn, is expected to drive organizational performance, as agile organizations are better positioned to respond to uncertainty and achieve superior outcomes [31], [32]. Importantly, the model also includes a direct path from IT governance to organizational performance to examine whether governance mechanisms can generate value independently of capability development processes [33], [34]. Organizational performance is modeled as a second-order reflective construct based on the balanced scorecard framework, encompassing financial, customer, internal process, and learning and growth perspectives. This multidimensional approach enables a more comprehensive evaluation of performance outcomes beyond single-dimensional measures [35], [36].

ISI Journal of Information Systems and Informatics
Published By Asosiasi Doktor Sistem Informasi Indonesia

2.2. Research Procedure and Data Collection Stages

Data were collected over a three-month period, from January to early March 2026. The survey was distributed online through academic and institutional communication channels, including official university groups, faculty networks, and student communities across multiple higher education institutions in Nusa Tenggara Barat (NTB), Indonesia. A total of 5 universities, consisting of both public and private institutions, were involved in the data collection process, ensuring broader institutional representation. The distribution of respondents across institutions is as follows: University A (25%), University B (20%), Institute C (18%), College D (17%), and College E (20%). The institutions are anonymized to ensure confidentiality. This distribution reflects a diverse representation across different types of higher education institutions.

The sampling technique employed in this study is purposive sampling, where respondents were selected based on specific inclusion criteria. Participants were required to have prior experience in using institutional information systems or IT services, such as academic information systems, learning management systems, or administrative platforms. This criterion ensures that respondents possess sufficient familiarity to evaluate IT governance and system-related constructs. The survey link was distributed through institutional coordinators and academic networks in each participating university to ensure targeted respondent recruitment. Although minor variations in respondent proportions exist across institutions, this reflects natural differences in population size and access to respondents rather than systematic bias. Therefore, the sample composition is considered adequate for capturing diverse perceptions of IT governance and organizational performance constructs.

The research instrument was developed based on established constructs and measurement items adapted from prior studies. A detailed measurement item-source mapping is provided in Appendix A, which specifies the origin of each construct and its corresponding indicators. Specifically, IT governance items were adapted from governance and alignment literature, IS success dimensions were derived from the DeLone and McLean model, and constructs such as digital capability, organizational agility, and organizational performance were adopted from prior empirical studies.

ISI Journal of Information Systems and Informatics
Published By Asosiasi Doktor Sistem Informasi Indonesia

To ensure content validity and clarity, the questionnaire underwent a formal expert review process involving two information systems scholars and one language expert. Revisions were made based on feedback related to wording clarity, construct representativeness, and contextual appropriateness. A pilot test was conducted prior to the main data collection phase using a sample of 50 respondents. The pilot-stage evaluation applied reliability and validity thresholds (outer loadings ≥ 0.70, Cronbach's alpha ≥ 0.70, and AVE ≥ 0.50) as criteria for item retention and refinement. Items that did not meet these criteria were revised or removed to improve measurement quality. The results indicated that all constructs met the recommended thresholds, confirming the adequacy of the instrument for full-scale data collection.

During the primary data collection phase, a total of 360 responses were obtained. After a data cleaning process to remove incomplete, duplicate, or inconsistent responses, 342 valid responses were retained for further analysis, as presented in Table 1. Although the sample is dominated by students (61.4%), this reflects the actual user composition of institutional information systems in higher education environments. Nevertheless, this composition may introduce perception bias toward usability and service experience; therefore, results are interpreted with consideration of this user-dominant perspective.

Table 1. Respondent Characteristics (N = 342)

Characteristics	Category	Frequency	Percentage (%)
Gender	Male	198	57.9%
	Female	144	42.1%
Age	< 25 years	120	35.1%
	25–34 years	150	43.9%
	35–44 years	60	17.5%
	> 44 years	12	3.5%
Respondent Status	Students	210	61.4%
	Lecturers	90	26.3%
	Academic Staff	42	12.3%
Experience in Using Information	< 1 year	150	43.9%
Systems	1–3 years	100	29.2%
	4–6 years	70	20.5%
	> 6 years	22	6.4%

ISI Journal of Information Systems and Informatics
Published By Asosiasi Doktor Sistem Informasi Indonesia

Characteristics	Category	Frequency	Percentage (%)
Usage Frequency	Rarely	90	26.3%
	Several times a week	120	35.1%
	Daily	132	38.6%
Total		342	100%

2.3. Data Analysis Technique

The data analysis was conducted using SmartPLS version 4.0. Partial Least Squares Structural Equation Modeling (PLS-SEM) was selected due to its suitability for analyzing complex models involving multiple constructs, mediating relationships, and second-order constructs, as well as its robustness in handling non-normal data and relatively small to medium sample sizes [28], [37]. The analysis followed a two-step approach, consisting of measurement model evaluation and structural model evaluation. In the first stage, the measurement model was assessed to ensure reliability and validity. Convergent validity was evaluated using outer loadings (≥ 0.70) and average variance extracted (AVE ≥ 0.50). Internal consistency reliability was assessed using composite reliability (CR ≥ 0.70) and Cronbach's alpha (≥ 0.70). Discriminant validity was examined using the Fornell–Larcker criterion and the heterotrait-monotrait ratio (HTMT ≤ 0.90).

In the second stage, the structural model was evaluated by analyzing path coefficients, coefficient of determination (R^2), effect size (f^2), and predictive relevance (Q^2). Hypothesis testing was performed using the bootstrapping procedure with 10,000 resamples to assess the significance of path relationships. Furthermore, this study incorporates a second-order construct for organizational performance, operationalized based on the balanced scorecard framework, which includes financial, customer, internal process, and learning and growth perspectives. This construct was modeled as a reflective-reflective higher-order construct using the repeated indicators approach, allowing for a comprehensive representation of multidimensional organizational performance. The reflective-reflective specification is appropriate as the dimensions are assumed to be manifestations of overall organizational performance, rather than forming it. Overall, this analytical approach ensures methodological rigor, reliability, and validity in evaluating the proposed research model and provides robust empirical evidence regarding the role of IT governance in influencing organizational performance in higher education.

2.4. Hypothesis Development

Information technology governance (IT governance) plays a critical role in aligning IT initiatives with organizational objectives, particularly in the context of digital transformation. Effective governance establishes structured decision-making processes, enhances accountability, and ensures the optimal utilization of IT resources, thereby improving system effectiveness and organizational outcomes [1], [21]. Within the Information Systems Success framework, IT governance functions as an antecedent that shapes system quality, information quality, and service quality through the establishment of standards, policies, and monitoring mechanisms. Empirical studies indicate that strong governance practices significantly improve system reliability, data accuracy, and service responsiveness [29]. Based on this reasoning, IT governance is expected to enhance the quality of information systems across its three core dimensions, forming the foundational layer of the proposed model.

System quality reflects the technical performance of an information system, including usability, reliability, and responsiveness, while information quality refers to the accuracy, relevance, and timeliness of outputs that support decision-making [38]. Service quality captures the effectiveness of IT support, including responsiveness and problem resolution. These dimensions collectively represent the core of IS success and provide the foundation for developing higher-level organizational capabilities. In this study, IS success is conceptualized not as an end outcome, but as an enabling mechanism that supports the development of digital capability. Digital capability refers to an organization's ability to adopt, integrate, and leverage digital technologies to create value. High system, information, and service quality facilitate effective data utilization, process integration, and innovation, thereby strengthening digital capability [39], [40].

Drawing on the dynamic capability perspective, digital capability enables organizations to sense opportunities, respond to environmental changes, and reconfigure resources [41], [42]. This capability represents a transformation stage in which technological resources are translated into adaptive organizational capacity. Consequently, digital capability is expected to enhance organizational agility, which reflects the organization's ability to respond rapidly and effectively to changing conditions. Organizational agility, in turn, plays a critical role in determining organizational performance, particularly in dynamic and uncertain environments. Agile organizations are better able to adjust

strategies and operations, leading to improved efficiency and effectiveness [43], [44]. This relationship highlights the final stage of the value-creation process, where adaptive capability is translated into measurable performance outcomes. In this study, organizational performance is conceptualized as a higher-order construct based on the Balanced Scorecard framework, integrating financial and non-financial dimensions.

In addition to the indirect pathways, IT governance may also directly influence organizational performance through improved resource allocation, risk management, and strategic alignment. Examining this direct relationship allows the study to assess whether IT governance creates value independently or primarily through sequential capability-building mechanisms. Based on the theoretical arguments and the sequential logic of the model, the following hypotheses are proposed:

H1 : IT governance positively influences system quality.
H2 : IT governance positively influences information quality.
H3 : IT governance positively influences service quality.
H4 : System quality positively influences digital capability.
H5 : Information quality positively influences digital capability.
H6 : Service quality positively influences digital capability.
H7 : Digital capability positively influences organizational agility.
H8 : Organizational agility positively influences organizational performance.
H9 : IT governance positively influences organizational performance.
H10 : Organizational performance positively influences customer perspective.
H11 : Organizational performance positively influences financial perspective.
H12 : Organizational performance positively influences internal process perspective.
H13 : Organizational performance positively influences learning and growth perspective.

3. RESULTS AND DISCUSSION

3.1. Measurement Model

The measurement model assessment was conducted to evaluate indicator reliability, internal consistency reliability, and convergent validity. The results are presented in Table 2 and Table 3. As shown in Table 2, all indicators exhibit outer loadings above the recommended threshold of 0.70, confirming satisfactory indicator reliability. Most indicators demonstrate strong loadings exceeding 0.80, particularly for System Quality,

Information Quality, and Service Quality, indicating a high degree of consistency and strong representation of their respective constructs. Although several indicators within Digital Capability and Organizational Agility show relatively lower loadings, these values remain within acceptable thresholds and do not compromise the overall measurement quality.

Table 2. Measurement Model Assessment (Outer Loadings)

Construct	Indicator	Code	Outer Loading
IT Governance	Clarity of IT decision-making structure	ITG1	0.844
	Alignment between IT and business strategy	ITG2	0.850
	Monitoring and evaluation of IT performance	ITG3	0.875
	Effective IT risk management	ITG4	0.856
	Compliance with IT policies and standards	ITG5	0.862
System Quality	Ease of system use	SQ1	0.928
	System responsiveness and speed	SQ2	0.914
	System reliability (minimal errors)	SQ3	0.858
	System integration	SQ4	0.861
Information Quality	Accuracy of information	IQ1	0.855
	Relevance of information	IQ2	0.922
	Timeliness of information	IQ3	0.876
	Completeness of information	IQ4	0.882
Service Quality	Responsiveness of IT support	SVQ1	0.928
	Competence of IT staff	SVQ2	0.914
	Accessibility of IT support	SVQ3	0.858
	Prompt problem resolution	SVQ4	0.861
Digital Capability	Ability to adopt new technologies	DC1	0.769
	Integration of technology into business processes	DC2	0.775
	Data-driven decision-making capability	DC3	0.857
	Digital infrastructure supports innovation	DC4	0.931
	Employees' digital competence	DC5	0.901
Organizational Agility	Rapid response to market changes	OA1	0.767
	Adaptability to technological changes	OA2	0.734
	Speed of decision-making	OA3	0.856
	Operational flexibility	OA4	0.820

ISI Journal of Information Systems and Informatics
Published By Asosiasi Doktor Sistem Informasi Indonesia

Construct	Indicator	Code	Outer Loading
Financial	Revenue growth	FP1	0.867
Perspective	Cost efficiency	FP2	0.888
	Profitability improvement	FP3	0.909
Customer	Customer satisfaction	CP1	0.891
Perspective	Customer loyalty	CP2	0.842
	Customer growth	CP3	0.920
Internal	Internal process efficiency	IP1	0.772
Process	Service quality improvement	IP2	0.863
	Standardization of processes	IP3	0.868
Learning &	Employee competency development	LG1	0.839
Growth	Innovation culture	LG2	0.847
	Organizational knowledge utilization	LG3	0.868

The reliability and convergent validity of the constructs were further assessed using Cronbach's alpha, rho_A, composite reliability (CR), and average variance extracted (AVE), as presented in Table 3. All constructs meet the recommended thresholds for internal consistency, with CR values exceeding 0.70 and AVE values above 0.50. These results confirm that the constructs are both reliable and capable of capturing a substantial proportion of variance from their indicators. The rho_A value for Digital Capability slightly exceeds 1.0; however, this condition may occur in PLS-SEM due to high inter-item correlations and does not invalidate the construct, as all other reliability indicators remain within acceptable limits. This interpretation is consistent with prior methodological guidelines in PLS-SEM literature.

Table 3. Construct Reliability and Convergent Validity

Construct	CA	rho-A	CR	AVE
IT Governance	0.910	0.912	0.933	0.735
System Quality	0.913	0.920	0.939	0.794
Information Quality	0.923	0.924	0.942	0.766
Service Quality	0.929	0.934	0.946	0.780
Digital Capability	0.926	1.011	0.935	0.705
Organizational Agility	0.874	0.903	0.906	0.659

ISI Journal of Information Systems and Informatics
Published By Asosiasi Doktor Sistem Informasi Indonesia

Construct	CA	rho-A	CR	AVE
Financial Perspective	0.866	0.872	0.918	0.789
Customer Perspective	0.861	0.867	0.915	0.783
Internal Process	0.782	0.782	0.874	0.698
Learning & Growth	0.810	0.811	0.888	0.725

Note(s): CA = Cronbach's alpha; rho_A = Dijkstra–Henseler's rho; CR = Composite Reliability; AVE = Average Variance Extracted

Discriminant validity was assessed using both the Fornell–Larcker criterion (Table 4) and the heterotrait–monotrait ratio (HTMT) (Table 5). The Fornell–Larcker results indicate that the square root of AVE for each construct exceeds its correlations with other constructs, confirming adequate discriminant validity. Although relatively high correlations are observed between certain constructs, such as Customer Perspective and Internal Process, as well as Information Quality and Service Quality, these relationships reflect theoretical proximity rather than measurement redundancy. This indicates that the constructs remain conceptually distinct while capturing related dimensions of performance and service evaluation.

Table 4. Discriminant Validity (Fornell–Larcker Criterion)

Construct	CP	DC	FP	ITG	IQ	IP	LG	OA	SVQ	SQ
CP	0.885									
DC	0.097	0.840								
FP	0.686	0.044	0.888							
ITG	0.049	0.040	0.120	0.857						
IQ	0.358	0.063	0.251	0.507	0.875					
IP	0.694	0.049	0.536	0.033	0.306	0.836				
LG	0.587	0.068	0.591	0.074	0.214	0.707	0.851			
OA	0.406	0.068	0.481	0.094	0.380	0.368	0.486	0.812		
SVQ	0.368	0.054	0.246	0.217	0.661	0.283	0.275	0.510	0.883	
SQ	0.064	0.035	0.093	0.607	0.243	0.108	0.056	0.141	0.212	0.891

Note(s): CP : Customer Perspective; DC: Digital Capability; FP: Financial Perspective; ITG: IT Governance; IQ: Information Quality; IP: Internal Process; LG: Learning & Growth; OA: Organizational Agility; SVQ: Service Quality; SQ: System Quality.

The HTMT results further support discriminant validity, with all values below the recommended threshold of 0.90. The highest HTMT values are observed between Information Quality and Service Quality (0.617) and between Customer Perspective and Financial Perspective (0.597), indicating moderate associations that remain within acceptable limits. At the same time, several construct pairs exhibit low HTMT values, suggesting strong empirical separation across constructs.

Table 5. Discriminant Validity (HTMT Criterion)

Construct	CP	DC	FP	ITG	IQ	IP	LG	OA	SVQ	SQ
CP	—									
DC	0.099	—								
FP	0.597	0.034	—							
ITG	0.040	0.025	0.105	—						
IQ	0.319	0.066	0.224	0.468	—					
IP	0.571	0.027	0.442	0.008	0.259	—				
LG	0.494	0.022	0.496	0.063	0.185	0.563	—			
OA	0.374	0.050	0.438	0.002	0.317	0.321	0.430	—		
SVQ	0.327	0.056	0.216	0.203	0.617	0.240	0.238	0.436	—	
SQ	0.057	0.034	0.084	0.557	0.224	0.090	0.043	0.092	0.198	—

Note(s): CP : Customer Perspective; DC: Digital Capability; FP: Financial Perspective; ITG: IT Governance; IQ: Information Quality; IP: Internal Process; LG: Learning & Growth; OA: Organizational Agility; SVQ: Service Quality; SQ: System Quality.

The results from Table 2 to Table 5 demonstrate that the measurement model satisfies all key criteria of reliability and validity. The constructs are empirically robust and theoretically sound, providing a solid foundation for subsequent structural model analysis..

3.2. Structural Model

The structural model evaluation was conducted to assess the explanatory power and predictive relevance of the proposed model. The results are presented in Table 6. The model demonstrates substantial explanatory power for the dimensions of organizational performance, with R^2 values exceeding 0.60 for Customer Perspective, Financial Perspective, Internal Process, and Learning & Growth. This confirms that Organizational

Performance, as a higher-order construct, effectively captures its multidimensional nature based on the Balanced Scorecard framework. In contrast, the explanatory power for Organizational Performance itself is moderate (R^2 = 0.250), indicating that IT Governance and Organizational Agility only partially explain performance outcomes. More importantly, the model exhibits extremely low explanatory power for Digital Capability (R^2 = 0.005) and Organizational Agility (R^2 = 0.002), indicating that the proposed antecedents fail to adequately explain these constructs. This result should not be viewed merely as an empirical observation, but as a key limitation of the model, suggesting that important explanatory variables are not included. The predictive relevance (Q^2) results further reinforce this pattern. While performance-related constructs demonstrate strong predictive relevance, Digital Capability and Organizational Agility exhibit negligible predictive values. This indicates that the model lacks predictive accuracy for these intermediate constructs, further confirming the limitation in capturing capability development and agility formation mechanisms. Taken together, the low R^2 and Q^2 values for these constructs suggest that the model may omit critical antecedents such as leadership support, organizational culture, digital readiness, and human resource capability, which are often identified in prior studies as key drivers of digital transformation and organizational agility.

Table 6. Structural Model Quality and Predictive Relevance

Endogenous Construct	R^2	Adj. R^2	Interpretation (R^2)	Q^2	Interpretation (Q^2)
Customer Perspective	0.681	0.680	Substantial	0.515	Strong predictive relevance
Financial Perspective	0.639	0.638	Substantial	0.483	Strong predictive relevance
Learning & Growth	0.641	0.640	Substantial	0.441	Strong predictive relevance
Internal Process	0.617	0.615	Substantial	0.410	Strong predictive relevance
System Quality	0.310	0.308	Moderate	0.241	Moderate predictive relevance
Organizational Performance	0.250	0.245	Moderate	0.110	Weak–moderate predictive relevance
Information Quality	0.219	0.217	Weak–moderate	0.163	Moderate predictive relevance
Service Quality	0.041	0.038	Weak	0.029	Weak predictive relevance
Digital Capability	0.005	-0.004	Negligible	0.000	No predictive relevance
Organizational Agility	0.002	-0.000	Negligible	0.001	No predictive relevance

Note(s): R^2 = Variance explained; Adjusted R^2 = Adjusted coefficient of determination; Q^2 = Predictive relevance (Stone–Geisser criterion).

The results of hypothesis testing (Table 7) reveal an asymmetric pattern of relationships. IT Governance shows strong and significant effects on all three IS success dimensions, particularly System Quality (β = 0.557, p < 0.001), confirming its role as a foundational driver of system effectiveness. This finding is consistent with prior research emphasizing governance as a key determinant of system quality, information quality, and service quality.

Table 7. Structural Model Results and Hypothesis Testing

Hypothesis/ Relationship	β	t-value	p-value	f^2	Effect Size	VIF	Result
H1: ITG -> SQ	0.557	8.667	0.000***	0.449	Large	1.000	Supported
H2: ITG -> IQ	0.468	7.784	0.000***	0.280	Medium	1.000	Supported
H3: ITG -> SVQ	0.203	3.080	0.002**	0.043	Small	1.000	Supported
H4: SQ -> DC	0.018	0.300	0.764	0.000	None	1.059	Not Supported
H5: IQ -> DC	0.048	0.570	0.569	0.001	None	1.644	Not Supported
H6: SVQ -> DC	0.023	0.268	0.788	0.000	None	1.626	Not Supported
H7: DC -> OA	0.050	0.738	0.461	0.002	None	1.000	Not Supported
H8: OA -> OP	0.495	7.834	0.000***	0.326	Medium–Large	1.000	Supported
H9: ITG -> OP	-0.069	1.457	0.145	0.006	None	1.000	Not Supported
H10: OP-> CP	0.825	33.186	0.000***	2.137	Very Large	1.000	Supported
H11: OP -> FP	0.799	28.939	0.000***	1.769	Very Large	1.000	Supported
H12: OP -> IP	0.785	25.381	0.000***	1.608	Very Large	1.000	Supported
H13: OP -> LG	0.801	24.609	0.000***	1.784	Very Large	1.000	Supported

Note(s): β = path coefficient; f^2 = effect size (0.02 = small, 0.15 = medium, 0.35 = large); VIF = variance inflation factor. Significance levels: ***p < 0.001, **p < 0.01, *p < 0.05.

However, contrary to expectations, none of the IS success dimensions significantly influence Digital Capability. This finding contrasts with prior studies that report positive relationships between IS success and digital capability, particularly in contexts where organizations possess strong digital maturity, leadership commitment, and adequate training support. These studies argue that high-quality systems enable data integration, process optimization, and innovation capability. The divergence observed in this study suggests that the relationship between IS success and digital capability is highly context-dependent. In the context of higher education institutions in NTB, the absence of supporting organizational conditions such as digital literacy, structured training

programs, and strategic alignment may weaken the transformation of system quality into digital capability.

Similarly, Digital Capability does not significantly influence Organizational Agility, indicating a breakdown in the expected capability-to-agility linkage. While prior studies grounded in dynamic capability theory report a positive relationship between digital capability and agility, such effects are typically observed in organizations with flexible structures and decentralized decision-making. The non-significant result in this study suggests that digital capability alone is insufficient without complementary organizational mechanisms. This finding implies that the transformation of digital resources into adaptive organizational behavior requires more than technological readiness. Institutional constraints such as bureaucratic rigidity, centralized governance, and limited decision-making autonomy may inhibit the operationalization of digital capability into organizational agility.

In contrast, Organizational Agility emerges as the only construct with a strong and significant effect on Organizational Performance ($\beta = 0.495$, $p < 0.001$). This highlights agility as the primary mechanism through which value is realized. The findings indicate that performance improvements are not driven directly by IT Governance or Digital Capability, but by the organization's ability to respond and adapt to environmental changes. Furthermore, the direct relationship between IT Governance and Organizational Performance is not significant, reinforcing the argument that governance creates value indirectly through intermediate mechanisms rather than through direct performance effects. This finding supports a process-based perspective of IT value creation, in which governance enhances system-level performance, but requires transformation into organizational capabilities and adaptive responses to generate measurable outcomes.

3.3. Discussion

This study provides a nuanced understanding of how IT governance creates value within higher education institutions by uncovering the mechanisms through which technological and organizational factors interact. Rather than supporting a direct and linear pathway, the findings indicate that IT value creation is contingent upon organizational conditions and capability transformation processes. A central finding of this study is the failure of information systems success dimensions system quality, information quality, and service

quality to significantly influence digital capability. This result is particularly important, as it challenges a widely held assumption in the IS success literature that improvements in system quality naturally lead to enhanced organizational capabilities.

However, prior studies have reported positive relationships between IS success and organizational capability, particularly in contexts characterized by higher digital maturity and stronger organizational support. The contrast with the present findings suggests that the relationship is highly context-dependent and may weaken in environments where supporting conditions are not sufficiently developed. Despite strong and significant effects of IT governance on system quality ($\beta = 0.557$), information quality ($\beta = 0.468$), and service quality ($\beta = 0.203$), these improvements do not translate into digital capability. This indicates a disconnect between technological performance and organizational capability development.

This finding suggests that digital capability is not merely a technological outcome but a socio-technical construct shaped by human competencies, leadership commitment, and institutional readiness. This result reinforces the argument that technological improvements alone are insufficient without complementary organizational enablers. In the context of higher education institutions in Nusa Tenggara Barat, limited digital literacy, insufficient training, and weak strategic alignment may hinder the effective utilization of information systems. Thus, the results extend the IS success model by demonstrating that system quality alone is insufficient to generate higher-order organizational capabilities.

A similar breakdown is observed in the relationship between digital capability and organizational agility. Contrary to the assumptions of dynamic capability theory, digital capability does not significantly enhance organizational agility. While prior studies grounded in dynamic capability theory generally report a positive relationship between digital capability and agility, such effects are often contingent upon flexible organizational structures and decentralized decision-making. The absence of these supporting conditions in the present context may explain the non-significant relationship observed. This indicates that the mere possession of digital resources does not automatically translate into adaptive organizational behavior. Instead, agility appears to depend on the organization's ability to embed these capabilities into flexible processes

and decision-making structures. Institutional constraints such as bureaucratic rigidity and centralized governance may limit the operationalization of digital capabilities, preventing them from contributing to agility.

Furthermore, the findings suggest that organizational agility may be absorbing variance that theoretically belongs to other unobserved constructs, such as leadership capability, organizational culture, digital readiness, and governance maturity. The absence of these variables in the model may contribute to the low explanatory power observed in Digital Capability and Organizational Agility, and therefore represents an important limitation of the study. Another important finding is the absence of a direct effect of IT governance on organizational performance. This result reinforces the process-oriented view of IT value creation, suggesting that governance mechanisms primarily function as enablers rather than direct drivers of performance. IT governance enhances system-level outcomes but requires intermediate mechanisms to generate performance impact. This finding supports a process-based perspective of IT value creation, in which governance contributes indirectly through capability development and adaptive mechanisms.

In contrast, organizational agility emerges as the only construct with a strong and significant effect on organizational performance ($\beta = 0.495$), positioning it as the critical mechanism through which value is realized. This finding underscores that performance improvements are driven not by technological investments per se, but by the organization's capacity to respond and adapt to changing environments. In higher education institutions, this adaptability is reflected in the ability to redesign academic services, adopt innovative learning models, and respond to stakeholder demands. Furthermore, the strong relationships between organizational performance and its four dimensions financial, customer, internal process, and learning and growth, confirm the validity of its higher-order construct specification. The results also highlight the importance of non-financial dimensions, which play a dominant role in the education sector where value creation extends beyond economic outcomes.

Taken together, these findings provide a contextual and process-oriented explanation of IT value creation, highlighting that technological investments alone are insufficient without organizational transformation mechanisms. The results provide empirical support for the IT productivity paradox, showing that investments in IT and

improvements in system quality do not automatically lead to performance gains unless supported by organizational readiness and adaptive capabilities. From a practical perspective, the findings suggest that higher education institutions should move beyond a technology-centric approach. While investments in IT infrastructure and governance are necessary, they are insufficient to generate strategic value. Institutions must also invest in digital literacy, leadership development, and organizational transformation initiatives. In particular, strengthening organizational readiness and fostering adaptive structures are critical to ensuring that digital capabilities can be effectively translated into organizational agility and performance.

3.4. Theoretical Implications

This study provides several important theoretical contributions by refining existing perspectives on IT governance, information systems success, and dynamic capability within an integrated framework. First, the findings extend the Information Systems Success Model by demonstrating that system quality, information quality, and service quality do not necessarily translate into digital capability. This challenges the commonly assumed direct linkage in prior studies and suggests that IS success is a necessary but insufficient condition for capability development. The results highlight the importance of incorporating organizational factors such as skills, alignment, and managerial support in explaining how system quality leads to higher-order capabilities. Second, this study contributes to dynamic capability theory by showing that digital capability does not automatically lead to organizational agility. This finding suggests a distinction between potential capability (digital capability) and realized capability (organizational agility), indicating that capability transformation requires organizational processes and structural support. This refines the linear assumptions commonly found in the dynamic capability literature.

Third, the study advances IT governance research by confirming that its impact on organizational performance is primarily indirect. IT governance enhances system-level outcomes but does not directly generate performance gains. This supports a process-based view of IT value creation, emphasizing the role of mediating mechanisms in translating governance into organizational outcomes. Fourth, the findings provide empirical support for the IT productivity paradox, showing that improvements in IT governance and system quality do not automatically result in enhanced performance.

This suggests that the value of IT depends on the organization's ability to convert technological resources into actionable capabilities.

Finally, this study reinforces the multidimensional nature of organizational performance by validating its conceptualization as a higher-order construct based on the Balanced Scorecard framework. In addition, by focusing on higher education institutions in a developing region, the study highlights the importance of contextual factors in shaping IT value creation, suggesting that established theoretical relationships may not be universally applicable.

3.5. Practical Implications

The findings of this study offer several practical implications for higher education institutions, particularly in regions such as Nusa Tenggara Barat (NTB), where digital transformation is still evolving. First, the results indicate that improving system quality, information quality, and service quality alone is insufficient to enhance digital capability. Therefore, institutions should move beyond technology provision and focus on enabling effective use through digital literacy programs, continuous training, and the integration of digital tools into academic and administrative processes. Second, the absence of a significant relationship between digital capability and organizational agility highlights an implementation gap. Universities need to complement digital investments with organizational transformation by adopting more flexible structures, reducing bureaucratic rigidity, and promoting decentralized decision-making. Leadership commitment is essential to foster a digital mindset and support innovation. Third, IT governance should be repositioned from a compliance-oriented approach to a value-driven mechanism. Institutions are encouraged to align IT initiatives with strategic objectives, establish clear performance indicators, and strengthen collaboration between IT units and academic functions to ensure that governance contributes to organizational outcomes. Fourth, the strong impact of organizational agility on performance suggests that adaptability should be treated as a strategic priority. Universities should enhance their responsiveness by adopting agile practices, such as flexible curriculum development, hybrid learning models, and data-driven decision-making. Finally, the multidimensional nature of organizational performance implies that institutions should adopt a balanced evaluation approach that includes both financial and non-financial indicators, such as service quality, stakeholder satisfaction, and staff development. Given

the contextual challenges in NTB, digital transformation strategies should be tailored to institutional readiness and resource availability rather than applying uniform approaches.

4. CONCLUSION

This study concludes that IT governance contributes to organizational performance primarily through indirect pathways rather than direct effects. While IT governance significantly enhances system quality, information quality, and service quality, these improvements do not automatically translate into digital capability or performance outcomes. Instead, organizational agility emerges as the key mechanism linking technological and governance-related resources to performance. The findings indicate that the effectiveness of IT governance depends strongly on organizational readiness, including digital competencies, structural flexibility, and the ability to operationalize technological resources. These results highlight that high-quality information systems alone are insufficient to generate strategic value without supportive organizational conditions. By integrating IT governance, IS success, and dynamic capability perspectives, this study provides a more nuanced understanding of IT value creation as a contingent and non-linear process. However, the findings are based on higher education institutions in Nusa Tenggara Barat (NTB), and therefore should be interpreted with caution and not generalized beyond similar contexts without further comparative research.

REFERENCES

[1] A. Joshi, J. Benitez, T. Huygh, L. Ruiz, and S. De Haes, "Impact of IT governance process capability on business performance: Theory and empirical evidence," *Decis. Support Syst.*, vol. 153, p. 113668, 2022, doi: 10.1016/j.dss.2021.113668.

[2] B. Wu, Y. Gong, H. Zheng, Y. Zhang, J. Huang, and J. Xu, "Enterprise cloud resource optimization and management based on cloud operations," *Applied and Computational Engineering*, vol. 67, pp. 8–14, 2024, doi: 10.54254/2755-2721/67/20240667.

[3] A. Y. Alodat, Z. Salleh, H. A. Hashim, and F. Sulong, "Corporate governance and firm performance: empirical evidence from Jordan," *Journal of Financial Reporting and Accounting*, vol. 20, no. 5, pp. 866–896, 2022, doi: 10.1108/JFRA-12-2020-0361.

[4] G. Danilov, "The impact of corporate governance on firm performance: panel data evidence from S&P 500 Information Technology," *Future Business Journal*, vol. 10, no. 1, p. 86, 2024, doi: 10.1186/s43093-024-00376-8.

[5] A. Al-Surmi, M. Bashiri, and I. Koliousis, "AI based decision making: combining strategies to improve operational performance," *Int. J. Prod. Res.*, vol. 60, no. 14, pp. 4464–4486, 2022, doi: 10.1080/00207543.2021.1966540.

[6] F. Olan, E. O. Arakpogun, J. Suklan, F. Nakpodia, N. Damij, and U. Jayawickrama, "Artificial intelligence and knowledge sharing: Contributing factors to organizational performance," *J. Bus. Res.*, vol. 145, pp. 605–615, 2022, doi: 10.1016/j.jbusres.2022.03.008.

[7] M. Y. Alduaij, M. A. Alterkait, and S. Alainati, "Using the Delone and McLean success model to evaluate moodle's information system success," *Engineering, Technology & Applied Science Research*, vol. 14, no. 4, pp. 15008–15015, 2024, doi: 10.48084/etasr.7300.

[8] W. M. Al-Rahmi *et al.*, "Validation of an Integrated IS Success Model in the Study of E-Government," *Mobile Information Systems*, vol. 2022, no. 1, p. 8909724, 2022, doi: 10.1155/2022/8909724.

[9] Y. Yang, Y. Xiao, and T. Li, "A survey of autonomous underwater vehicle formation: Performance, formation control, and communication capability," *IEEE Communications Surveys & Tutorials*, vol. 23, no. 2, pp. 815–841, 2021, doi: 10.1109/COMST.2021.3059998.

[10] Y. Li and J. Wang, "Evaluating the impact of information system quality on continuance intention toward cloud financial information system," *Front. Psychol.*, vol. 12, p. 713353, 2021, doi: 10.3389/fpsyg.2021.713353.

[11] K. P. Fadahunsi *et al.*, "Information quality frameworks for digital health technologies: systematic review," *J. Med. Internet Res.*, vol. 23, no. 5, pp. e23479–e23479, 2021, doi: 10.2196/23479.

[12] A. Demir, L. Maroof, N. U. Sabbah Khan, and B. J. Ali, "The role of E-service quality in shaping online meeting platforms: a case study from higher education sector," *Journal of Applied Research in Higher Education*, vol. 13, no. 5, pp. 1436–1463, 2021, doi: 10.1108/JARHE-08-2020-0253.

[13] K. Agustian, A. Pohan, A. Zen, W. Wiwin, and A. J. Malik, "Human resource management strategies in achieving competitive advantage in business administration," *Journal of Contemporary Administration and Management (ADMAN)*, vol. 1, no. 2, pp. 108–117, 2023, doi: 10.61100/adman.v1i2.53.

[14] M. Tutak and J. Brodny, "Business digital maturity in Europe and its implication for open innovation," *Journal of Open Innovation: Technology, Market, and Complexity*, vol. 8, no. 1, p. 27, 2022, doi: 10.3390/joitmc8010027.

[15] M. Nasiri, M. Saunila, and J. Ukko, "Digital orientation, digital maturity, and digital intensity: determinants of financial success in digital transformation settings," *International Journal of Operations & Production Management*, vol. 42, no. 13, pp. 274–298, 2022, doi: 10.1108/IJOPM-09-2021-0616.

[16] M. Nasiri, M. Saunila, J. Ukko, T. Rantala, and H. Rantanen, "Shaping digital innovation via digital-related capabilities," *Information Systems Frontiers*, vol. 25, no. 3, pp. 1063–1080, 2023, doi: 10.1007/s10796-020-10089-2.

[17] J. Benitez, A. Arenas, A. Castillo, and J. Esteves, "Impact of digital leadership capability on innovation performance: The role of platform digitization capability," *Information & Management*, vol. 59, no. 2, p. 103590, 2022, doi: 10.1016/j.im.2022.103590.

[18] H. Mao, Y. Gong, and R. Titah, "Understanding the relationship between IT capabilities and operational agility: a multi-method approach," *Journal of Enterprise Information Management*, vol. 36, no. 2, pp. 409–436, 2023, doi: 10.1108/JEIM-12-2021-0521.

[19] A.-T. Walter, "Organizational agility: ill-defined and somewhat confusing? A systematic literature review and conceptualization," *Management Review Quarterly*, vol. 71, no. 2, pp. 343–391, 2021, doi: 10.1007/s11301-020-00186-6.

[20] Z. Çakmak, "Adapting to environmental change: The importance of organizational agility in the business landscape," *Florya Chronicles of Political Economy*, vol. 9, no. 1, pp. 67–87, 2023.

[21] A. Ilmudeen, "Information technology (IT) governance and IT capability to realize firm performance: enabling role of agility and innovative capability," *Benchmarking: An International Journal*, vol. 29, no. 4, pp. 1137–1161, 2022, doi: 10.1108/BIJ-02-2021-0069.

[22] A. Ilmudeen, "IT Governance mechanism and IT-enabled dynamic capabilities drives firm performance: An empirical study in Sri Lanka," *Information Development*, vol. 40, no. 1, pp. 3–19, 2024, doi: 10.1177/02666669221074.

[23] I. M. Menshawy, R. Basiruddin, R. Mohdali, and N. Qahatan, "Board information technology governance mechanisms and firm performance among iraqi medium-sized enterprises: Do IT capabilities matter?," *Journal of Risk and Financial Management*, vol. 15, no. 2, p. 72, 2022, doi: 10.3390/jrfm15020072.

[24] K. Imtihan, M. Rodi, W. Bagye, and B. Y. Fitriyani, "Integrating Technology Acceptance and Government Trust to Explain Public Engagement on Social Media: An IPMA-Based Study in Local E-Government Communication," *Applied Information System and Management (AISM)*, vol. 8, no. 2, pp. 245–256, 2025, doi: 10.15408/aism.v8i2.46660.

[25] M. A. Camilleri, "Using the balanced scorecard as a performance management tool in higher education," *Management in Education*, vol. 35, no. 1, pp. 10–21, 2021, doi: 10.1177/0892020620921412.

[26] G. F. Frederico, J. A. Garza-Reyes, A. Kumar, and V. Kumar, "Performance measurement for supply chains in the Industry 4.0 era: a balanced scorecard approach," *International journal of productivity and performance management*, vol. 70, no. 4, pp. 789–807, 2021, doi: 10.1108/IJPPM-08-2019-0400.

[27] R. Adyaputra, K. Imtihan, and M. Saleh, "Assessing User Satisfaction of Local Government Websites Through ISO 25010 and Technology Acceptance Model (TAM): A SmartPLS and IPMA-Based Study in Lombok Tengah," *Journal of Information and Organizational Sciences*, vol. 49, no. 2, pp. 291–312, 2025, doi: 10.31341/jios.49.2.8.

[28] J. Hair and A. Alamer, "Partial Least Squares Structural Equation Modeling (PLS-SEM) in second language and education research: Guidelines using an applied example," *Research Methods in Applied Linguistics*, vol. 1, no. 3, p. 100027, 2022, doi: https://doi.org/10.1016/j.rmal.2022.100027.

[29] G. Anwar and N. N. Abdullah, "The impact of Human resource management practice on Organizational performance," *International journal of Engineering, Business and Management (IJEBM)*, vol. 5, 2021, doi: 10.22161/ijebm.5.1.1.

[30] M. H. Karataş and H. Çakır, "A systematic literature review on it governance mechanisms and frameworks," *Journal of Learning and Teaching in Digital Age*, vol. 9, no. 1, pp. 88–101, 2023, doi: 10.53850/joltida.1300262.

[31] L. Chen, H. Liu, Z. Zhou, M. Chen, and Y. Chen, "IT-business alignment, big data analytics capability, and strategic decision-making: Moderating roles of event criticality and disruption of COVID-19," *Decis. Support Syst.*, vol. 161, p. 113745, 2022, doi: 10.1016/j.dss.2022.113745.

[32] S. Ghosh, M. Hughes, I. Hodgkinson, and P. Hughes, "Digital transformation of industrial businesses: A dynamic capability approach," *Technovation*, vol. 113, p. 102414, 2022, doi: 10.1016/j.technovation.2021.102414.

[33] C. Gong and V. Ribiere, "Understanding the role of organizational agility in the context of digital transformation: an integrative literature review," *VINE Journal of Information and Knowledge Management Systems*, vol. 55, no. 2, pp. 351–378, 2025, doi: 10.1108/VJIKMS-09-2022-0312.

[34] V. Roy, T. Schoenherr, and J. Jayaram, "Digital enabled agility: Industry 4.0 unlocking real-time information processing, traceability, and visibility to unleash the next extent of agility," *Int. J. Prod. Res.*, vol. 62, no. 14, pp. 5127–5148, 2024, doi: 10.1080/00207543.2023.2284835.

[35] J. Motwani and A. Katatria, "Organization agility: a literature review and research agenda," *International Journal of Productivity and Performance Management*, vol. 73, no. 9, pp. 2709–2754, 2024, doi: 10.1108/IJPPM-07-2023-0383.

[36] A. Buchwald, N. Urbach, and F. Ahlemann, "Business value through controlled IT: Toward an integrated model of IT governance success and its impact," *Journal of Information Technology*, vol. 29, no. 2, pp. 128–147, 2014, doi: 10.1057/jit.2014.3.

[37] P. Mikalef, A. Pateli, and R. van de Wetering, "IT architecture flexibility and IT governance decentralisation as drivers of IT-enabled dynamic capabilities and competitive performance: The moderating effect of the external environment," *European Journal of Information Systems*, vol. 30, no. 5, pp. 512–540, 2021, doi: 10.1080/0960085X.2020.1808541.

[38] T. Gruchmann, G. M. Stadtfeld, M. Thürer, and D. Ivanov, "Supply chain resilience as a system quality: survey-based evidence from multiple industries," *International Journal of Physical Distribution & Logistics Management*, vol. 54, no. 1, pp. 92–117, 2024, doi: 10.1108/IJPDLM-06-2023-0203.

[39] R. Rupeika-Apoga, K. Petrovska, and L. Bule, "The effect of digital orientation and digital capability on digital transformation of SMEs during the COVID-19 pandemic," *Journal of Theoretical and Applied Electronic Commerce Research*, vol. 17, no. 2, pp. 669–685, 2022, doi: 10.3390/jtaer17020035.

[40] D. Tortora, R. Chierici, M. F. Briamonte, and R. Tiscini, "'I digitize so I exist'. Searching for critical capabilities affecting firms' digital innovation," *J. Bus. Res.*, vol. 129, pp. 193–204, 2021, doi: 10.1016/j.jbusres.2021.02.048.

[41] D. Ellström, J. Holtström, E. Berg, and C. Josefsson, "Dynamic capabilities for digital transformation," *Journal of Strategy and Management*, vol. 15, no. 2, pp. 272–286, 2022, doi: 10.1108/JSMA-04-2021-0089.

[42] M. H. G. Schneider, D. K. Kanbach, S. Kraus, and M. Dabić, "Transform me if you can: leveraging dynamic capabilities to manage digital transformation," *IEEE Trans. Eng. Manag.*, vol. 71, pp. 9094–9108, 2023, doi: 10.1109/TEM.2023.3319406.

[43] A. C. Yoshikuni, R. Dwivedi, J. E. R. Favaretto, and D. Zhou, "How enterprise information systems strategies-enabled strategy-making influences organizational agility: mediated role of IT-enabled dynamic capabilities in two BRICS countries study," *Journal of Enterprise Information Management*, vol. 37, no. 1, pp. 230–258, 2024, doi: 10.1108/JEIM-06-2023-0275.

[44] K. Saeed, M. Malhotra, and S. Abdinnour, "Enhancing supply chain agility through information systems artifacts and process standardization: an empirical assessment," *Journal of Systems and Information Technology*, vol. 26, no. 3, pp. 337–362, 2024, doi: 10.1108/JSIT-11-2023-0271.