West Science Business and Management
Vol. 3, No. 03, September 2025, pp. 498~515

Digital Transformation as a Mediator of the Influence of Organizational Factors and Digital Disruption on Work Unit Performance (Case Study of PT. PP Properti Tbk.)

Muharram Aliansyah Effendi[1], Rina Djunita Pasaribu[2]
[1,2]Distance Learning Master of Management Study Program, School of Economics and Business, Telkom University, Main Campus (Bandung Campus)

Article Info

Article history:

Received July, 2025
Revised September, 2025
Accepted September, 2025

Keywords:

digital transformation,
digital culture,
technology infrastructure,
digital leadership,
digital skills,
digital disruption,
work unit performance.

ABSTRACT

Digital transformation is a strategic necessity in addressing challenges and market dynamics in Indonesia's property industry. This study examines the role of Digital Transformation as a mediator between Organizational Factors (Digital Culture, Digital Leadership, Digital Skills, Technology Infrastructure) and Digital Disruption on Work Unit Performance, in a case study at PT. PP Properti Tbk. Using a quantitative approach with SEM-PLS on data from managers and employees, results show that Digital Culture, Digital Leadership, and Digital Skills significantly influence Digital Transformation, while Technology Infrastructure and Digital Disruption do not. In contrast, Digital Culture, Digital Leadership, and Digital Skills directly enhance performance, whereas Digital Transformation shows no significant effect. Findings highlight those organizational capabilities outweigh technological or external factors in driving performance. Managerial implications emphasize strengthening leadership, culture, and skills, optimizing infrastructure integration and cybersecurity, and managing disruption through ecosystem collaboration, fostering a human-centric approach to digital transformation.

Corresponding Author:

Name: Muharram Aliansyah Effendi
Institution Address: Jl. Telekomunikasi No. 1, Bandung 40257, West Java, Indonesia.
e-mail: muharramaliansyah@student.telkomuniversity.ac.id

1. INTRODUCTION

The Indonesian property sector has witnessed remarkable growth over the past decade, consistent with rising national economic growth and consequent demand for housing and office spaces. This is indicated by the acceleration of affordable housing construction and readily available finance via mortgage schemes. The number of listed property stocks also grew, from 53 in 2011 to 81 in 2014 (ECFIN, 2012; 2014). However, the past five years have seen sharp volatility, which was primarily driven by the COVID-19 pandemic that impacted commercial segments such as hotels, malls, and offices. Even though 2022–2023 saw recovery beginning with government support and foreign investment, outside tailwinds such as a rise in BI interest rates and international uncertainty continue. At a 14.63% GDP contribution or Rp2,865 trillion in 2022, the industry is crucial to the economy. To remain competitive in light of regulations' complexity and fast-paced digital life, digital

transformation became a prime strategy. Digitalization has been discovered to enhance efficiency, data accuracy, and decision-making through means such as BIM, ERP, and IoT, which integrate data and business processes in real-time [1], [2]. Adoption of these technologies has the impact of raising collaboration and transparency, drivers that facilitate maximizing human resources and competitiveness in the real estate industry.

The success of digital transformation is heavily reliant on internal drivers such as digital culture, digital leadership, digital capability, and organizational response to disruption [3], [4], [5]. Technologies such as AR, VR, and Blockchain are being used increasingly to enhance customer experience and transparency [6]. Companies like Sinar Mas Land and Ciputra have led the adoption of integrated systems and the utilization of AI and IoT. PT. PP Properti Tbk also adopted digitalization since 2020 through the utilization of the Marketpro platform and virtual property walks. Its efficiency, however, is yet to be evaluated in the context of endogenous challenges like cultural resistance, integration capacity of systems, and low customer adoption of digital facilities. Therefore, the current study is interested in the mediating effect of digital transformation on organizational variables and digital disruption to work unit performance in PT. PP Properti Tbk.

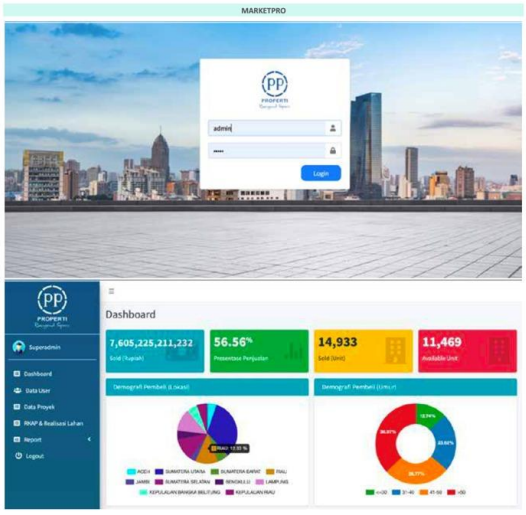

Figure 1. Marketpro Applications
Source: PT PP Properti Tbk., 2023

PT. PP Properti Tbk has applied Marketpro application as the IT tool for dealing with sales data processing, prospect customers, and marketing performance. Information technology investment in 2023 increased 30.88% to Rp2.28 billion, above target by 129% (PPRO Annual Report, 2023), on Autodesk licenses, hardware, and network upgrading. Integration of internal and external systems, including ERP, financial dashboards, and an LMS integrated with HRIS, is continuing to be further integrated to facilitate business process efficacy. However, this IT investment has not yet fully translated into more sales, indicating there is still a gap between effort in digitalization and achieved results.

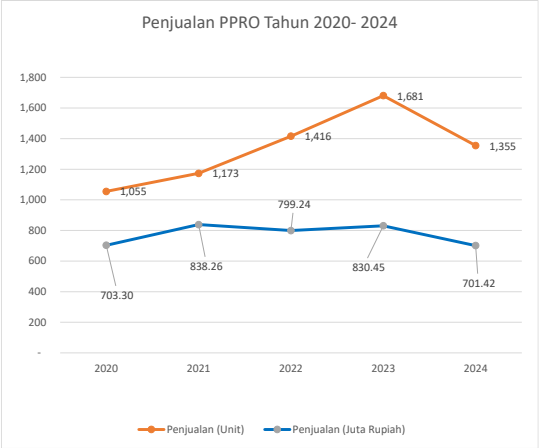

Figure 2. PPRO Sales Graph for 2020-2024
Source: PT PP Properti Tbk, 2025

PT. PP Properti Tbk's volume of sales in property units increased but remained low in terms of revenue due to discount policies and selling low-priced units, representing a decline in average selling prices. Deteriorating market conditions and declining buying power have forced the company to cut prices, despite the fact that such will be to the detriment of profit margins. This inefficiency is also evident in the 291% increase in digital budget over the past five years, while customer adoption has only increased by 16% cumulatively (PT PP Properti Tbk, 2025). This disparity is caused by a lack of specific advertisement, inability to utilize digital features, and insufficient education and training. Utilization of technologies such as AR and virtual tours

without researching the market has also failed to stimulate customer interest. As such, unplanned digital transformation has led to wastage of resources and reduced competitiveness.

Contrarily, previous studies have shown that synergistic digital transformation can result in dramatic increases in efficiency, innovation, and top-line growth supported by strategies and synergies among technology, processes, and human resources. PT. PP Properti Tbk (PPRO) performance over the recent past has been in a declining pattern, illustrating the company's suboptimal competitiveness. After a recorded 2019 revenue of Rp1.624 billion and profit of Rp247 billion, PPRO incurred a loss of Rp1.284 billion despite a 463% rise in revenue to Rp983 billion in 2023. According to Wildandi Djajakusuma (Corporate Marketing Head), digital transformation is not yet widely practiced and has not yet yielded tangible impacts on efficiency and sales. Technologies such as CRM and Google Analytics are introduced but not integrated. Muhammad Lutfi (Digital Communication Manager) pointed out five core issues: digital culture, infrastructure, leadership, digital competencies, and market disruption. Internal statistics confirm low adoption levels of technologies (35% of active employees), high costs, and uneven training. With increased technology investments and a planned digitalization road map, ground-level execution is not yet optimal.

Under the facts and conditions, digital transformation at PPRO continues to be constrained by structural and cultural barriers. Internally, these are resistance to change, not digitally savvy enough for most senior members of staff, and inadequate integration of current systems. Externally, technological disruption and changing consumer taste towards more digitally aware behavior place stress on the firm. Previous research studies [7], [8], [9] point out that the success of digital transformation depends on the interaction between technology, business processes, work culture, and human resources. Therefore, it is vital to conduct a systematic analysis in order to establish the role of digital transformation as a mediator in organizational variables to digital disruption on work unit performance at PT. PP Properti Tbk.

Some significant issues relating to effectiveness at PT are presented in this study from the background described above. PP Properti Tbk, i.e., whether there is influence of digital culture, technology infrastructure, digital leadership, digital skills, and digital disruption on digital transformation; and whether every one of the five variables, including digital transformation, has influence on work unit performance. Based on the research question, the objectives of this study are to empirically test the impact of digital culture, technology infrastructure, digital leadership, digital capabilities, and digital disruption on digital transformation; and to test the effect of each of these factors, including digital transformation, on the work unit's performance in the case of PT. PP Properti Tbk.

2. LITERATURE REVIEW

2.1 Grand Theory

Strategic management plays a pivotal role in responding to the market dynamics, particularly in the digital transformation age, which requires collaboration between managerial and operational capabilities [4]. Strategy development, execution, and evaluation form the core process underlying the interfacing of technology with the company's strategic direction [3], especially in SMEs requiring digital proficiency and technological infrastructure support to facilitate better financial performance [10]. In agreement with [11]. strategic management is the art and science of building, executing, and evaluating managerial decisions with consideration towards long-term performance. This is a process involving environmental monitoring, strategy development, execution, and control evaluation [12], which is interactive and calls for proactive reactions to internal capabilities and external threats through SWOT and

PESTEL analysis. All the four fundamental components provide a framework for understanding the direction of a firm's strategy in an adaptive and competitive way. Thus, the model of strategic management has a conceptual foundation for building digital transformation that not only relies on technology but also simplifies processes, human resources, and organizational structures in order to maintain competitiveness.

2.2 Digital Culture

Digital culture is perhaps the most critical pillar for supporting digital transformation success since it involves the norms, values, and behaviors that drive tech adoption, cross-functional collaboration, and continuous innovation [13], [14]. It is not only linked with the use of digital tools (artifacts), but also values like openness and learning, and basic assumptions around the importance of innovation [15]. Inclusive and adaptive digital cultures are more responsive to disruption and market change within organizations [16], and approaches like "fail fast, learn faster" have been found to accelerate innovation [17]. Research indicates that a sound digital culture contributes significantly to operational efficiency, profitability, and innovation [7], [18] as well as enhancing supply chain performance and digital abilities through the utilization of digital platforms [19]. To fully measure digital culture, [20] recommend three main dimensions: organizational culture (visionary and teamwork), human abilities (digital competency and preparedness), and innovation abilities (ability to adjust and innovate). These three dimensions complement one another and form a digital ecosystem that enables organizations to survive, yet most crucially, flourish during the era of digital transformation.

2.3 Digital Infrastructure

Technology infrastructure is the central building block of digital transformation, including networks, hardware, software, cloud, and system security and interoperability [21], [22]. Robust infrastructure fuels the adoption of emerging technologies such as IoT, AI, and big data and maintains digital efficiency and security [23]. The evidence shows that strong IT infrastructure reduces the technical barriers, reduces expenses, and augments innovation [24], [25], while technologies such as cloud computing and 5G drive competitive advantage through quick market response [13]. Human resource preparedness and effective change management are also required in digital transformation [26], [27]. Modular and integrated infrastructure was discovered to enhance business performance, innovation, and cross-functional coordination [28], [29], [30]. Overall, mature digital infrastructure encompasses physical, network, software, and cybersecurity dimensions [31], which are the enablement drivers of successful digitalization and long-term competitiveness.

2.4 Digital Leadership

Digital leadership refers to modern management theory that emphasizes the integration of technology into organizational strategy, the creation of an innovative culture, and timely response to data-driven disruption [14], [32]. Drawing from Transformational Leadership (Bass & Riggio, 2006), digital leaders must possess a digital mindset, strategic competence, technical proficiency, and emotional intelligence [33]. Evidence indicates that digital leadership enhances transformation and organizational success, especially through mastery of AI, data analytics, and digital learning culture [34], [35], [36]. Also, this kind of leadership prefers management of global ecosystems, internal entrepreneurial fortification, and building long-term competitive advantages [33], [37], [38].

2.5 Digital Skills

Digital competencies are primary skills of digital transformation, which include technical, cognitive, and social skills enabling individuals to use technology to influence work and life activities [39]. Ownership of digital skills has been a key enabler for the adoption of technologies such as AI and cloud, and improved business performance, innovation, and competitiveness [40], [41],

[42]. Studies show that gaps in digital skills hinder transformation, but continuous training, micro-learning, and mentoring have worked (World Bank, 2020; AG, 2023; Bresciani et al., 2021). The positive impact of digital skills also echoes in the situation of SMEs, manufacturing, and global SMEs but is still a problem of technostress and access gaps [43], [44], [45]. Therefore, cross-industry collaboration via digital education policy, industry certification, and training subsidy investment is necessary to facilitate the sustainability and success of digital transformation (UNESCO, 2021; World Economic Forum, 2023; [20]

2.6 Digital Disruption

Digital disruption refers to a fundamental change caused by technological advancements such as AI, big data, and digital platforms that disrupt traditional business models [46], [47]. This kind of phenomenon not only creates new economic possibilities but also challenges corporate resilience, affects labor arrangements, and drives the formation of platform economies such as Netflix, Uber, or Gojek. Empirical research indicates that firms that form dynamic capabilities are better able to respond to disruption and accelerate digital transformation [48], [49]. It is evident from other research that disruption impacts business performance significantly through increased innovation, operational efficiency, and customer experience [50], [51], [52]. Disruption also carries social challenges such as the digital divide and privacy issues [53], which require adaptive policies to improve the positives of technology inclusion. [54] define digital disruption by three dimensions: digital innovation that triggers systemic change, a digital ecosystem that allows new collaboration of value, and platform-based value logic that forces organizations to transform in order to stay competitive in the digital era.

2.7 Prior Research and Hypotheses

Previous studies provide a firm theoretical and empirical foundation for grasping digital transformation dynamics, particularly in the case of variables such as digital culture, digital leadership, technology infrastructure, digital skills, and digital disruption. All research methodologies—qualitative, quantitative, and meta-analysis—establish the significance of these variables to digital transformation process and performance, although most are limited to general contexts or other industries such as SMEs, education, and logistics. Research such as [21], [49], [55] identifies the need for the integration of strategy, technology, and leadership, while research such as [33], [56] affirms the requirement for human resources and leadership capabilities in addressing digital challenges. Thus, it is the aim of this study to fill this void through an examination of the general impact of five key variables on digital transformation and work unit performance specifically in the real estate sector, i.e., at PT. PP Properti Tbk.

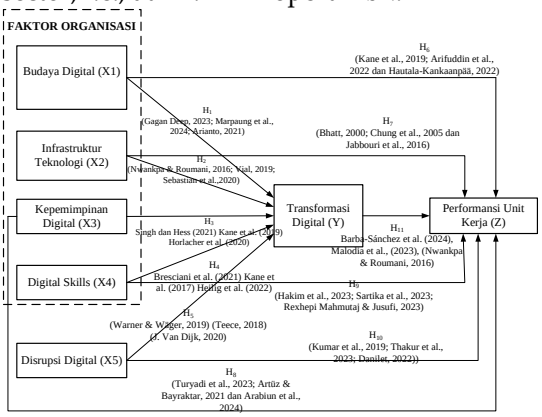

Figure 3. Conceptual Framework

3. METHODS

3.1 Research Design and Approach

This study adopts a causal explanatory quantitative design aimed at examining the influence of organizational factors and digital disruption on work unit performance, with digital transformation as a mediating variable. The research was conducted at PT. PP Properti Tbk, an Indonesian property developer currently undertaking digital transformation initiatives to address market challenges and strengthen competitiveness.

3.2 Population, Sample, and Data Collection Methods

The population comprises 387 employees and managers directly involved in the implementation and application of the company's digital systems. The sampling technique used was purposive sampling, selecting respondents based on their direct involvement in digitalization processes or their job positions affected by digital transformation initiatives.

The minimum representative sample size was determined using Slovin's formula with a 10% margin of error, resulting in:

$$n = \frac{N}{1 + N(e)^2} = \frac{387}{1 + 387(0.10)^2} = 79{,}5$$

To anticipate potential non-responses, the sample size was increased by 25%, giving a final target of 100 respondents. Data collection was carried out via a structured questionnaire using a 6-point Likert scale, developed based on construct indicators for digital culture, technological infrastructure, digital leadership, digital skills, digital disruption, digital transformation, and work unit performance. The instrument was pilot-tested prior to distribution. The study successfully obtained valid responses from 104 respondents.

3.3 Data Analysis Techniques

The data were analyzed using Partial Least Squares-based Structural Equation Modeling (SEM-PLS) technique with the help of SmartPLS 4 software. The analysis process was conducted in two major steps, i.e., outer model and inner model evaluation. Outer model testing attempts to evaluate convergent validity through the use of outer loadings and Average Variance Extracted (AVE), discriminant validity using the Fornell-Larcker criterion and cross-loading, and construct reliability using Cronbach's alpha and composite reliability. Inner model testing, however, was used to test constructs in relationships, evaluate R-square and f-square values, and identify direct and indirect effects through the mediating effect of digital transformation. Hypothesis testing was conducted using the bootstrapping technique to report t-statistics and p-values indicating the influence significance between variables. This model enables researchers to empirically understand the mediating role of digital transformation and provide an estimate of the effectiveness of strategic factors in supporting work unit performance in the digital era.

4. RESULTS AND DISCUSSION

4.1 Respondent Characteristics

104 participants who met the inclusion criteria as workers in PT. PP Properti Tbk, which is involved in digital transformation, was the subject of this research. The profiles of respondents were divided into gender, age, job position, acquaintance with digitalization, and involvement in digital transformation, as seen in the table below.

Table 1. Characteristics Respondents

Characteristic	Category	N = 104	Percentage
Gender	Male	63	60.6%
	Female	41	39.4%
Age	18–24 years	3	2.9%
	25–34 years	58	55.8%
	35–49 years	43	41.3%
Job Position	Department Head	7	6.7%
	Manager	28	26.9%
	Staff	69	66.3%
Role in Digital Transformation	Project Executor	40	38.5%
	Researcher/Observer	1	1.0%
	Policy Maker	30	28.8%
	Active User	33	31.7%

Source: Primary data processed, 2025

Based on Table 1, the majority of respondents were male (60.6%), a typical gender imbalance within the property and technology sectors, according to the World Economic Forum (2023). The majority of them belong to working ages (25–49 years), where the 25–34 age group is the largest (55.8%), an indication of the predominance of the millennial generation of digital transformation in PT PP Properti Tbk. From an occupational function standpoint, the biggest percentage were staff (66.3%), while managers and department heads were only 33.6%, showing that digital process implementation is driven by more technical implementers than decision-makers. Respondents' participation in the digital process is dominated by project implementers (38.5%) and active users (31.7%), while evaluative roles such as researchers take up only 1%. This imbalance risks holding back systematic evaluation of the digital transformation, contrary to the call for balance between implementation and oversight by [25].

4.2 Outer Model

Convergent validity was used to examine the extent to which indicators measure the construct, using cut-off point of outer loading > 0.5; where indicator values were below this, they were omitted. Construct reliability was also determined through composite reliability scores, acceptable if > 0.70.

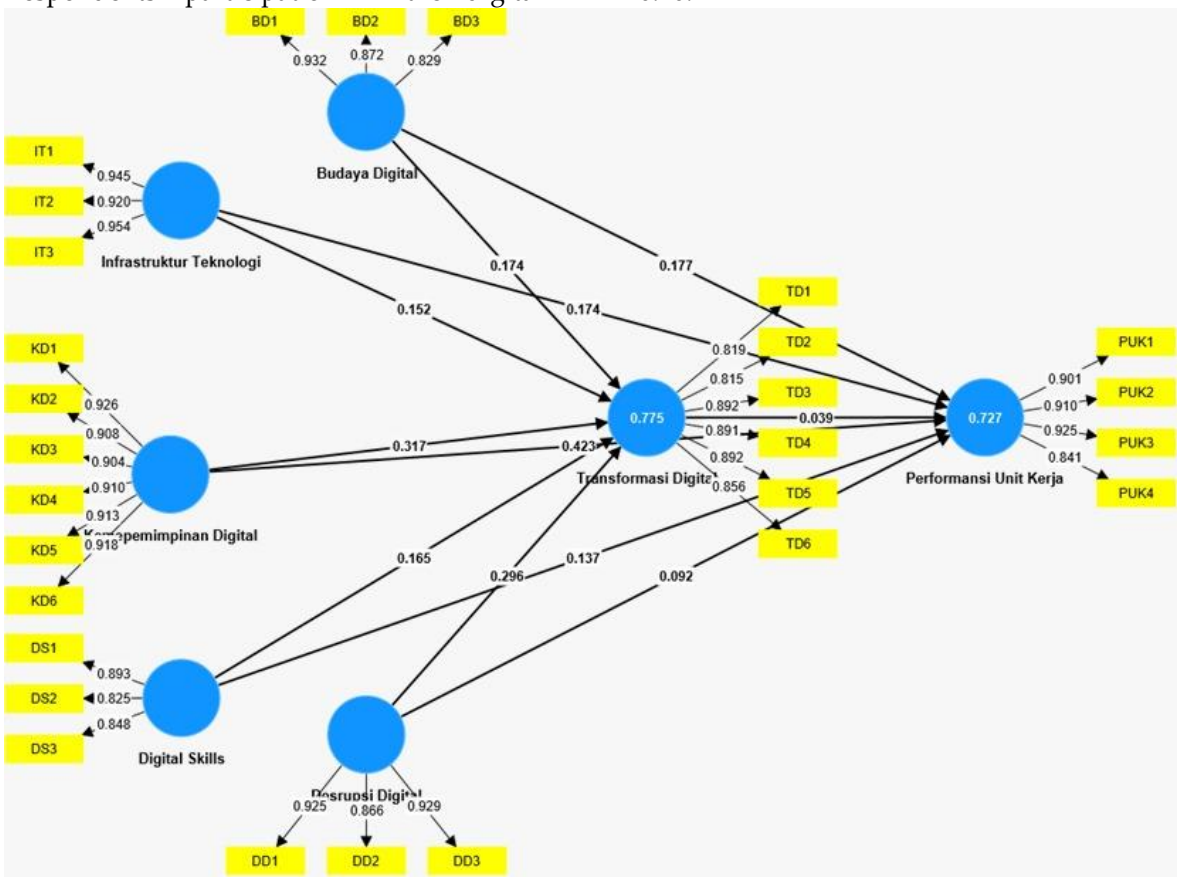

Figure 3. PLS Algorithm

Referring to the figure above, the PLS Algorithm is used to evaluate the outer model, including the loading factor, Cronbach's alpha (CA), composite reliability (CR), and average variance extracted (AVE).

Table 2. Measurement Model

Variable	Indicator	Loading Factor	t-value	p-value	CA	CR	AVE

Digital Culture	BD1	0.932	77.803	0.000	0.799	0.881	0.712
	BD2	0.876	32.159	0.000			
	BD3	0.824	21.939	0.000			
Digital Disruption	DD1	0.925	41.368	0.000	0.927	0.914	0.783
	DD2	0.867	21.583	0.000			
	DD3	0.928	52.341	0.000			
Digital Skills	DS1	0.896	37.473	0.000	0.722	0.836	0.629
	DS2	0.817	18.827	0.000			
	DS3	0.854	22.866	0.000			
Technology Infrastructure	IT1	0.945	103.086	0.000	0.928	0.954	0.874
	IT2	0.920	49.420	0.000			
	IT3	0.954	106.653	0.000			
Digital Leadership	KD1	0.925	63.908	0.000	0.959	0.967	0.832
	KD2	0.908	39.984	0.000			
	KD3	0.903	48.628	0.000			
	KD4	0.912	51.752	0.000			
	KD5	0.912	54.785	0.000			
	KD6	0.918	49.282	0.000			
Unit Performance	PUK1	0.914	54.758	0.000	0.871	0.912	0.721
	PUK2	0.922	54.265	0.000			
	PUK3	0.934	65.240	0.000			
	PUK4	0.886	33.441	0.000			
Digital Transformation	TD1	0.822	25.531	0.000	0.864	0.899	0.599
	TD2	0.810	19.570	0.000			
	TD3	0.895	39.442	0.000			
	TD4	0.892	43.843	0.000			
	TD5	0.893	38.136	0.000			

The results of the outer loading analysis indicate that all indicators meet the convergent validity criteria with loading values greater than 0.7 and are significant at the 99% confidence level (p-value = 0.000). Technology Infrastructure shows the highest loading values (0.945–0.954) with a t-value up to 106.653, indicating excellent indicator reliability. Digital Culture and Digital Transformation also meet the criteria, although TD1 and TD2 record the lowest loadings among their respective indicators but still above the threshold. Reliability tests reveal that all constructs have Cronbach's Alpha (CA) and Composite Reliability (CR) values above 0.7, confirming strong internal consistency. The highest CA is found in Digital Leadership (0.959), followed by Technology Infrastructure (0.928), while the lowest CA is in Digital Skills (0.722) but still acceptable. The highest CR is also in Digital Leadership (0.967), followed by Technology Infrastructure (0.954), with Digital Skills recording the lowest CR (0.836) yet still within the acceptable range. The Average Variance Extracted (AVE) results show that all constructs exceed the 0.5 threshold, demonstrating high convergent validity. Technology Infrastructure records the highest AVE (0.874), followed by Digital Leadership (0.832), while Digital Transformation has the lowest AVE (0.599) but remains acceptable. These results confirm the quality and consistency of the measurement model for all constructs used in the study.

The discriminant validity test, assessed using the Fornell–Larcker criterion, shows that the square root of AVE for each construct (values on the diagonal) is greater than its correlations with other constructs, confirming that all constructs meet the

discriminant validity requirement. The outcome of this test is shown in Table 3.

Table 3. Discriminant Validity with Square Root of AVE and Correlations

	BD	DD	DS	IT	KD	PUK	TD
Digital Culture	0.844						
Digital Disruption	-0.099	0.885					
Digital Skills	0.352	-0.098	0.793				
Technology Infrastructure	0.451	0.122	0.467	0.935			
Digital Leadership	0.537	-0.023	0.400	0.530	0.912		
Unit Performance	0.678	-0.142	0.649	0.501	0.757	0.849	
Digital Transformation	0.672	-0.148	0.534	0.442	0.713	0.719	0.774

Source: Primary Data Processed by SMARTPLS 4.01 (2025)

Technology Infrastructure has the highest square root of AVE (0.935), followed by Digital Leadership (0.912) and Digital Culture (0.844). Digital Transformation records the lowest square root of AVE (0.774) but remains acceptable as it exceeds all inter-construct correlations. The highest correlation is observed between Digital Culture and Unit Performance (0.678), which is still lower than their respective square roots of AVE (0.844 and 0.849), thus satisfying the discriminant validity criteria. These results confirm that each construct in the model is statistically distinct and measures a different concept, in accordance with Fornell and Larcker (1981) standards.

4.3 Structural Model Analysis (Inner Model)

Structural model analysis (inner model) in this study aims at testing the linkages between the variables to determine if the hypothesized linkages hold or are rejected. Testing the structural model in this study includes path coefficient analysis (β), determination coefficient (R-Square), and predictive relevance test (Q-Square).

4.3.1 Path Coefficient

Path coefficients (β) indicate direction and magnitude of the relationship between variables between –1 and 1. The (+) or (–) indicates the type of relationship, while significance is ascertained by t-statistics (≥1.96) and p-values (<0.05) using bootstrapping. Results are presented in Table 4.

Table 4. Path Coefficients

Relationship Between Variables	Path Coefficient	t-Statistic	p-Value
Digital Culture → Unit Performance	0.325	2.964	0.003
Digital Culture → Digital Transformation	0.366	2.368	0.018
Digital Disruption → Unit Performance	-0.058	0.630	*0.529*
Digital Disruption → Digital Transformation	-0.068	0.585	*0.559*
Digital Skills → Unit Performance	0.378	3.849	0.000
Digital Skills → Digital Transformation	0.251	1.966	0.049
Technology Infrastructure → Unit Performance	-0.058	0.413	*0.680*
Technology Infrastructure → Digital Transformation	-0.072	0.503	*0.615*
Digital Leadership → Unit Performance	0.480	3.728	0.000
Digital Leadership → Digital Transformation	0.452	2.794	0.005
Digital Transformation → Unit Performance	-0.026	0.175	*0.861*

Source: Primary data processed using SMARTPLS 4.01 (2025)

Table 4 shows that Digital Culture, Digital Skills, and Digital Leadership have significant positive effects on both Digital Transformation and Work Unit Performance ($p < 0.05$). Technology Infrastructure and Digital Disruption have no significant effect on either Digital Transformation or Work Unit Performance. Digital Transformation itself does not significantly influence Work Unit Performance. These results suggest that

organizational capabilities, rather than technological infrastructure or external disruption, are the primary drivers of performance improvement.

4.3.2 Determination Coefficient

The coefficient of determination (R^2) test indicates strong predictive power of the model. Digital Transformation is explained by Digital Culture, Digital Disruption, Digital Skills, Technology Infrastructure, and Digital Leadership by 68% (R^2 = 0.680), while Work Unit Performance is explained by all predictor variables, including Digital Transformation, by 78.9% (R^2 = 0.789). The adjusted R^2 values remain high (0.633 for Digital Transformation and 0.751 for Work Unit Performance), indicating that the model is not overfitted and maintains strong predictive stability. According to Chin (1998), R^2 values above 0.67 are considered substantial, confirming that the research model demonstrates a very good explanatory capacity for the relationships among variables examined in this study.

4.3.3 Predictive Relevance

The predictive relevance (Q^2 predict) test shows strong predictive capability, with Q^2 values of 0.709 for Work Unit Performance and 0.514 for Digital Transformation, exceeding the 0.35 threshold suggested by [57]. These results indicate that the model possesses not only strong explanatory power but also high predictive relevance, making it both theoretically robust and practically valuable for forecasting outcomes in similar contexts.

4.4 F-Square (F2) Test

The application of the f-square value is to identify the extent to which the exogenous variables influence the endogenous variables. The assessment of the f^2 value relies on the following conditions: f^2 is 0.02, for a low effect of the exogenous variables in the structural model, 0.15 represents a moderate effect, and 0.35 represents a high effect on the model structure.

Table 5. F-Square Results

Relationship Between Variables	f-square	Criterion
Digital Culture → Unit Performance	0.257	Strong
Digital Culture → Digital Transformation	0.274	Strong
Digital Disruption → Unit Performance	*0.014*	Weak
Digital Disruption → Digital Transformation	*0.013*	Weak
Digital Skills → Unit Performance	0.429	Strong
Digital Skills → Digital Transformation	0.143	Medium
Technology Infrastructure → Unit Performance	*0.009*	Weak
Technology Infrastructure → Digital Transformation	*0.010*	Weak
Digital Leadership → Unit Performance	0.469	Strong
Digital Leadership → Digital Transformation	0.380	Strong
Digital Transformation → Unit Performance	*0.001*	Weak

Source: Primary Data Processed. 2025

The f-square (f^2) analysis shows that Digital Skills (0.429), Digital Leadership (0.469), Digital Culture toward Unit Performance (0.257), and Digital Culture toward Digital Transformation (0.274) have strong effects. Digital Leadership toward Digital Transformation (0.380) also indicates a strong impact. A moderate effect is observed for Digital Skills toward Digital Transformation (0.143). Meanwhile, Digital Disruption, Technology Infrastructure, and Digital Transformation toward Unit Performance record weak effects ($f^2 < 0.02$). These results highlight that leadership, skills, and culture are the most influential drivers in the model, while technology infrastructure and disruption play minimal roles in predicting performance outcomes.

4.5 Bootstrapping Test

The hypothesis was examined based on the significance and parameter values between latent variables, where the direction of the relationship and p-value were used as decision-making factors. The result of

bootstrapping analysis using PLS 4.0 for 104 samples is presented in the following table as inner weight output.

Table 6. Relationship Test Results Between Constructs (Hypothesis Testing)

	Relationship Between Variables	Original Sample (OS)	t-statistic	p-value
H1	Digital Culture → Digital Transformation	0.366	2.368	0.018
H2	Technology Infrastructure → Digital Transformation	-0.072	0.503	0.615
H3	Digital Leadership → Digital Transformation	0.452	2.794	0.005
H4	Digital Skills → Digital Transformation	0.251	1.966	0.049
H5	Digital Disruption → Digital Transformation	-0.068	0.585	0.559
H6	Digital Culture → Unit Performance	0.325	2.964	0.003
H7	Technology Infrastructure → Unit Performance	-0.058	0.413	0.680
H8	Digital Leadership → Unit Performance	0.480	3.728	0.000
H9	Digital Skills → Unit Performance	0.378	3.849	0.000
H10	Digital Disruption → Unit Performance	-0.058	0.630	0.529
H11	Digital Transformation → Unit Performance	-0.026	0.175	0.861

The bootstrapping test results show that for Digital Transformation as the dependent variable, Digital Culture (H1: β = 0.366, t = 2.368, p = 0.018), Digital Leadership (H3: β = 0.452, t = 2.794, p = 0.005), and Digital Skills (H4: β = 0.251, t = 1.966, p = 0.049) have significant positive effects, while Technology Infrastructure (H2) and Digital Disruption (H5) are not significant.

For Work Unit Performance, Digital Culture (H6: β = 0.325, t = 2.964, p = 0.003), Digital Leadership (H8: β = 0.480, t = 3.728, p = 0.000), and Digital Skills (H9: β = 0.378, t = 3.849, p = 0.000) significantly enhance performance, whereas Technology Infrastructure (H7), Digital Disruption (H10), and Digital Transformation (H11) show no significant impact.

In total, 6 of 11 hypotheses are supported, highlighting the dominant role of organizational capabilities over infrastructure or external disruption.

DISCUSSION

The Influence of Digital Culture on Digital Transformation

Based on SEM-PLS results, H1 is supported, with a path coefficient of 0.366, t-value 2.368, and p-value 0.018 (<0.05), indicating that Digital Culture has a significant positive effect on Digital Transformation. This confirms its role as a strategic foundation enabling technology adoption through openness to change, cross-department collaboration, and continuous learning [56]. The study by [58] also confirms that strong digital culture enhances agility in adopting new technologies such as cloud computing and CRM, despite challenges like data security or skill gaps. At PT PP Properti Tbk, digital culture—measured through collaboration, experimentation, and data-driven decision-making—creates an environment that accelerates transformation. This aligns with [7], [25] who highlight that digital culture builds organizational capabilities to respond to market disruption. For instance, using analytics in decision-making (BD3) has improved process efficiency. Additionally, the study by [18] also found digital culture positively correlates with innovation and cost efficiency, reinforcing its role as a prerequisite for sustainable digital transformation.

The Influence of Technology Infrastructure on Digital Transformation

SEM-PLS results show that Technology Infrastructure has no significant effect on Digital Transformation (β = –0.072, t = 0.503, p = 0.615), indicating that infrastructure quality is not a critical driver in

PT PP Properti Tbk's transformation. This contrasts with Azhar [2] and Naeem et al. [1], who found strong infrastructure improved project accuracy and reduced completion time. The lack of impact may stem from underutilization, limited integration, and low cybersecurity scores. Infrastructure's influence may be indirect, requiring mediators such as human resource readiness [14], or has reached a saturation point where additional investment yields minimal value.

The Influence of Digital Leadership towards Digital Transformation

Based on SEM-PLS results confirm that Digital Leadership significantly influences Digital Transformation ($\beta = 0.452$, $t = 2.794$, $p = 0.005$). Leaders at PT PP Properti Tbk demonstrate strong integration of digital tools into business strategy, with high scores in decision-making (4.30) and technology roadmap clarity (4.27). This aligns with Kane et al. [32] and Westerman et al. [14], who highlight visionary leadership as a key transformation driver. However, slightly lower communication-to-non-technical scores (4.11) indicate a need to strengthen soft skills alongside technical expertise [34]. Practical implications include enhancing leadership training, accelerating technology experimentation, and fostering cross-ecosystem collaboration to sustain transformation momentum.

The Role of Digital Skills in Digital Transformation

SEM-PLS analysis shows that Digital Skills significantly influence Digital Transformation ($\beta = 0.251$, $t = 1.966$, $p = 0.049$), though the effect is moderate compared to other variables. This aligns with van Laar et al. [39], who found that a one-point increase in employee digital competence accelerates technology adoption by 18% in the property sector. In PT PP Properti Tbk, technical skills (loading = 0.896) and digital collaboration (loading = 0.854) are the strongest contributors, as seen in the 40% efficiency improvement in project documentation after cloud computing tool training. However, data analytics skills (loading = 0.817) remain a weakness, with only 15% of construction teams proficient in using BIM for market analysis. Ng et al. (2022) emphasize that sector-specific training yields higher ROI, suggesting a skills hierarchy from basic (cloud computing) to advanced (AI in property). Applying van Laar et al.'s [39] Digital Skills Matrix integrating technical, cognitive, and social skills—could bridge intergenerational competence gaps. Quarterly digital skills assessments and targeted training could ensure sustained transformation readiness.

The Impact of Digital Disruption on Digital Transformation

Hypothesis H5 asserts that digital disruption has a positive influence on digital transformation, and the finding of this study supports hypothesis H5. Drives from new emerging technologies have pushed PT. PP Properti Tbk to significantly accelerate the deployment of digital solutions. This is consistent with the Theory of Disruptive Innovation [46], where alterations in market and technology require organizations to transform in order to remain competitive. Technologies such as proptech, predictive AI, and cooperation with fintech in the real estate industry are the key forces behind acceleration of digitalization. The Dynamic Capabilities Theory [48], [49] study also bring about organizational capabilities' importance in opportunity identification, new technology implementation, and adaptive resource reconfiguration. PT. PP Properti Tbk's move is also seen in using AI, analytics, and digital ecosystem cooperation as a way of remaining competitive. Although disruption creates issues such as displacement of familiar competences, good management with visionary leadership, creative culture, and human resource development can flip these issues into catalysts of transformation. More tailored technology-based service measures also uncover that disruption has shifted industry standards and encouraged improvement in customer experience. Therefore, action such as the creation of innovation teams, working with startups, and creating internal capabilities is important for companies to not merely survive but flourish in the ever-evolving digital environment.

The Impact of Digital Culture on Work Unit Performance

SEM-PLS results confirm a significant positive effect of Digital Culture on Work Unit Performance (β = 0.325, t = 2.964, p = 0.003). This finding aligns with Arianto [7] and Vial [25], which show that cultural values such as openness, collaboration, and continuous learning enhance organizational performance. In PT PP Properti Tbk, high scores in cross-department collaboration (4.28) and technology experimentation (4.23) indicate that cultural alignment supports productivity and innovation. Digital culture facilitates knowledge sharing, reducing project delays and improving decision-making speed. This supports Arifuddin et al. [18], who note that digital culture fosters efficiency and innovation, particularly in property development where project cycles are complex. Practical steps include embedding digital values in performance appraisals and creating incentives for innovation, ensuring culture becomes a performance driver rather than a by-product of technology adoption.

The Influence of Technology Infrastructure on Work Unit Performance

Results show no significant effect of Technology Infrastructure on Work Unit Performance (β = –0.058, t = 0.413, p = 0.680). Despite adequate infrastructure availability, underutilization and low cybersecurity readiness (score 4.07) may hinder performance impact. This contrasts with [2], who found infrastructure improvements enhanced accuracy and efficiency in property projects. The lack of effect may indicate diminishing returns, where additional infrastructure investment yields minimal benefits unless paired with process integration and employee capability building. PT PP Properti Tbk should focus on optimizing existing systems through integration, advanced analytics, and user training rather than solely expanding infrastructure capacity.

The Impact of Digital Leadership on Work Unit Performance

SEM-PLS results indicate that Digital Leadership has a significant positive effect on Work Unit Performance (β = 0.480, t = 3.728, p < 0.001), supporting H8. This suggests that digital leadership directly enhances business unit performance by enabling data-driven decision-making, establishing clear digital roadmaps, and fostering cross-department collaboration. These findings align with Resource-Based View theory [40] and Transformational Leadership theory, which view visionary, technology-adaptive leadership as a strategic resource for competitive advantage. Descriptive analysis shows a high mean score for Digital Leadership (4.19, "Good"), with top indicators in using digital tools for strategic decisions (4.30) and technology roadmap formulation (4.27). Work Unit Performance also scored high (4.37), particularly in customer satisfaction (4.46) and company reputation (4.42). Consistent with Kane et al. [32] and Singh & Hess [34], these results confirm that strong digital leadership accelerates performance improvement. Practically, PT PP Properti Tbk should sustain leadership development programs integrating both technological literacy and soft skills to maintain competitive momentum in the digital disruption era.

The Impact of Digital Skills on Work Unit Performance

The SEM-PLS analysis confirms that Digital Skills exert a significant positive impact on Work Unit Performance (β = 0.378, t = 3.849, p < 0.001), validating H9. This finding supports the Resource-Based View (Barney, 1991), which posits that employee digital competence is a strategic resource that can enhance competitive advantage. PT PP Properti Tbk's high mean scores in cloud computing usage (4.80) and digital collaboration (4.66) indicate effective technology adoption to improve efficiency and project execution. However, relatively lower proficiency in data analytics (15% of construction teams proficient in BIM market analysis) highlights a gap aligned with.

Empirical evidence from Bresciani et al. (2021) and Hakim et al. [43] confirms that organizations with robust digital skills experience improvements in productivity, operational efficiency, and market expansion. These skills extend beyond technical expertise, encompassing cognitive and social capabilities such as critical thinking and virtual collaboration. For sustained performance gains, PT PP Properti Tbk should implement structured upskilling/reskilling programs, adopt a Digital Skills Matrix to bridge intergenerational gaps, and invest in sector-specific competencies (e.g., BIM and AI for property operations). Collaborations with industry partners for certifications (e.g., Google Career Certificates) could further strengthen competitive positioning.

The Impact of Digital Disruption on Work Unit Performance

H10 is rejected (β = -0.058, t = 0.630, p = 0.529), indicating that Digital Disruption does not directly enhance Work Unit Performance at PT PP Properti Tbk. This aligns with Dynamic Capabilities Theory (Teece, 2018), which asserts that disruption's effect is contingent upon organizational capacity to adapt and reconfigure resources. While disruption indicators scored relatively high (mean = 4.07), operational integration appears incomplete data analytics adoption (4.15) and ecosystem collaboration may still be fragmented. Studies by Kumar et al. (2019) and Thakur et al. (2023) similarly show that without readiness in human capital and supportive infrastructure, disruption can yield neutral or even adverse impacts. In PT PP Properti Tbk's case, adoption of advanced technologies like AI and virtual tours (score = 4.06) has yet to be fully synchronized with daily workflows. Christensen's (1997) theory of disruptive innovation underscores that positive performance outcomes require a holistic strategy encompassing process redesign, cultural adaptation, and leadership alignment. Practically, the company should strengthen absorptive capacity through targeted employee training, enhance cross-departmental collaboration for technology integration, and embed disruption initiatives within a broader innovation roadmap to transform potential threats into opportunities.

The Impact of Digital Transformation on Work Unit Performance

The analysis rejects H11 (β = -0.026, t = 0.175, p = 0.861), showing no statistically significant relationship between Digital Transformation and Work Unit Performance. Although the Digital Transformation construct achieved a "Good" mean score (4.34), strengths in cloud computing infrastructure (4.74) and CRM automation (4.45) are offset by weaknesses in cybersecurity (3.81) and data analytics utilization (4.14). This imbalance suggests a tools-driven rather than value-driven transformation, where technology adoption is not yet fully integrated with business strategies. Supporting Nwankpa & Roumani [24], the results highlight that successful transformation requires alignment among technology, strategy, and organizational capabilities. Despite high Work Unit Performance scores (mean = 4.37, with customer satisfaction at 4.46 and corporate reputation at 4.42), the lack of strategic integration prevents measurable performance gains. The gap underscores the need for PT PP Properti Tbk to enhance strategic analytics capability, fortify cybersecurity, and embed digital initiatives into core business processes. Moving from technology deployment to value creation will require leadership commitment, cultural alignment, and investment in advanced analytical capabilities to ensure digital transformation contributes directly to sustainable performance.

Research Novelty

This study offers three key theoretical contributions. First, it reveals that Digital Leadership has a direct and significant effect on work unit performance (β=0.480, p=0.000), contradicting prior assumptions that its influence is only indirect. This refines the Resource-Based View by positioning leadership not merely as an enabler of transformation but as a direct performance driver. Conversely, Digital Transformation shows no significant impact on performance

(β=-0.026, p=0.861), challenging its assumed mediating role.

Second, it uncovers a unique configuration of transformation drivers in Indonesia's property sector: Technology Infrastructure is insignificant (β=-0.072, p=0.615), while Digital Culture strongly influences both transformation (β=0.366, p=0.018) and performance (β=0.325, p=0.003). Digital Skills also directly enhance performance (β=0.378, p=0.000) without mediation, highlighting the primacy of human capital over infrastructure investment.

Third, it challenges the disruption narrative by showing Digital Disruption's non-significance for both transformation and performance, suggesting that asset-heavy, regulation-intensive industries require capability-focused resilience rather than reactive, disruption-driven strategies. This proposes a capability-centric framework as a more effective model for digital transformation in emerging-market property industries.

5. CONCLUSION

This study, using SEM analysis on PT PP Properti Tbk., reveals key causal relationships between organizational factors, digital transformation, and work unit performance. Overall, the company demonstrates strong digital foundations, with the highest scores in Digital Culture (4.63) and Digital Skills (4.54), while Technology Infrastructure (4.14) and Digital Disruption (4.07) rank lowest, highlighting gaps in AI adoption, analytics, and cybersecurity. Hypothesis testing shows that Digital Culture (β=0.366, p=0.018), Digital Leadership (β=0.452, p=0.005), and Digital Skills (β=0.251, p=0.049) significantly drive Digital Transformation, whereas Technology Infrastructure and Digital Disruption are not significant predictors. For work unit performance, Digital Culture (β=0.325, p=0.003), Digital Leadership (β=0.480, p=0.000), and Digital Skills (β=0.378, p=0.000) have significant positive effects, while Technology Infrastructure and Digital Disruption do not. Surprisingly, Digital Transformation itself does not significantly impact performance (β=-0.026, p=0.861). These findings emphasize that in the property sector, human capital factors leadership, culture, and skills are more decisive than technology investment alone. To sustain competitiveness, the company should focus on strengthening analytics capabilities, advanced technology adoption, and cybersecurity while aligning transformation efforts with core business strategies.

Practical Recommendations

Given the finding that digital transformation is not a proven mediator between drivers and work unit performance, PT PP Properti Tbk should focus on key enablers. First, strengthen Digital Culture by forming innovation teams to explore AI/IoT applications, allocating 5–10% of the IT budget for pilot projects, and rewarding innovative solutions. Second, address cybersecurity gaps (score 3.81) through biannual independent audits, regular awareness training, and investments in encryption and endpoint protection for sensitive data. Third, improve Technology Infrastructure by integrating CRM, ERP, and analytics into a unified platform, adopting hybrid cloud, and upgrading network capacity. Fourth, enhance Digital Leadership communication skills via monthly workshops, visual dashboards, and leadership role modeling. Fifth, boost Digital Skills in data analytics through certifications (e.g., Google Analytics, Tableau) and case-based competitions. Lastly, respond to Digital Disruption by partnering with proptech/fintech, creating an innovation hub, and implementing systematic market scanning to turn disruption into measurable opportunities.

Recommendations for Academics

Future research should expand variables by including emerging technologies such as AI Adoption, Digital Customer Experience, and Blockchain Implementation to examine their impact on digital transformation and performance. A mixed-method approach (quantitative–qualitative)

through in-depth interviews or case studies can provide a more holistic understanding. Extending the context to various types of property companies, including small-scale or international developers, will help test the generalizability of the findings. Additionally, incorporating mediating variables such as Digital Innovation Capability or moderating variables such as Organizational Agility may reveal boundary conditions that influence the strength of relationships within the model.

Acknowledgments

I would like to express my gratitude to PT. PP Properti Tbk. for permission and data provision, to my examiners and supervisors for direction and helpful hints, and to my colleagues and beloved family members for their unremitting moral support and prayers. Despite its limitations, I hope this research can have a scientific and practical contribution towards the improvement of digital transformation in the property sector.

REFERENCES

[1] N. Naeem, I. A. Rana, and A. R. Nasir, "Digital real estate: a review of the technologies and tools transforming the industry and society," *Smart Constr. Sustain. Cities*, vol. 1, no. 1, p. 15, 2023.

[2] S. Azhar, "Building information modeling (BIM): Trends, benefits, risks, and challenges for the AEC industry," *Leadersh. Manag. Eng.*, vol. 11, no. 3, pp. 241–252, 2011.

[3] L. Li, F. Su, W. Zhang, and J. Mao, "Digital transformation by SME entrepreneurs: A capability perspective," *Inf. Syst. J.*, vol. 28, no. 6, pp. 1129–1157, 2018.

[4] J. Ukko, M. Nasiri, M. Saunila, and T. Rantala, "Sustainability strategy as a moderator in the relationship between digital business strategy and financial performance," *J. Clean. Prod.*, vol. 236, p. 117626, 2019.

[5] J. Cenamor, V. Parida, and J. Wincent, "How entrepreneurial SMEs compete through digital platforms: The roles of digital platform capability, network capability and ambidexterity," *J. Bus. Res.*, vol. 100, pp. 196–206, 2019.

[6] W. Fengchen, "The present and future of the digital transformation of real estate: A systematic review of smart real estate," *Бизнес-информатика*, vol. 17, no. 2, pp. 85–97, 2023.

[7] B. Arianto, "Pandemi Covid-19 dan transformasi budaya digital di Indonesia," *Titian J. Ilmu Hum.*, vol. 5, no. 2, pp. 233-â, 2021.

[8] R. Wujarso, B. S. Pitoyo, and R. Prakoso, "Peran kepemimpinan digital dalam era digital," *J. Inf. Syst. Applied, Manag. Account. Res.*, vol. 7, no. 1, pp. 1–9, 2023.

[9] A. J. A. M. Van Deursen and J. A. G. M. Van Dijk, *Digital skills: Unlocking the information society*. Springer, 2014.

[10] A. I. Sudrajad, D. Tricahyono, E. B. Yulianti, and W. Rosmawati, "The Role of Digitalization Performance on Digital Business Strategy in Indonesia MSEMs," *Int. J. Prof. Bus. Rev.*, vol. 8, no. 6, pp. e02260–e02260, 2023.

[11] F. R. David, "Forest. R. David. 2017," *Strateg. Manag. A Compet. Advant. Approach, Concepts Cases*, 2017.

[12] W. Fikadu, "Assessment of strategic management practices: The case of private commercial banks in Ethiopia," *Addis Ababa Univ. Coll. Bus. Econ.*, 2018.

[13] G. C. Kane, D. Palmer, A. N. Phillips, D. Kiron, and N. Buckley, "Strategy, not technology, drives digital transformation," *MIT Sloan Manag. Rev.*, 2015.

[14] C. Westermann, A. Kozak, M. Harling, and A. Nienhaus, "Burnout intervention studies for inpatient elderly care nursing staff: Systematic literature review," *Int. J. Nurs. Stud.*, vol. 51, no. 1, pp. 63–71, 2014.

[15] E. H. Schein, *Organizational culture and leadership*, vol. 2. John Wiley & Sons, 2010.

[16] G. Deep, "Digital transformation's impact on organizational culture," *Int. J. Sci. Res. Arch.*, vol. 10, no. 2, pp. 396–401, 2023.

[17] D. Denison, R. Hooijberg, N. Lane, and C. Lief, *Leading culture change in global organizations: Aligning culture and strategy*. John Wiley & Sons, 2012.

[18] M. Arifuddin, I. N. Qamari, and A. Surwanti, "Digital literacy, digital culture and business performance: A comprehensive conceptual framework," *J. Mark. Emerg. Econ.*, vol. 2, no. 10, pp. 59–67, 2022.

[19] T. Hautala-Kankaanpää, "The impact of digitalization on firm performance: examining the role of digital culture and the effect of supply chain capability," *Bus. Process Manag. J.*, vol. 28, no. 8, pp. 90–109, 2022.

[20] A. T. Junaedi, N. Renaldo, I. Yovita, and K. Veronica, "Jahrizal.(2024). Digital Culture Revolution in Improving Firm Performance in Indonesia," *J. Syst. Manag. Sci.*, vol. 14, no. 1, pp. 452–470, 2024.

[21] A. Bharadwaj, O. A. El Sawy, P. A. Pavlou, and N. v Venkatraman, "Digital business strategy: toward a next generation of insights," *MIS Q.*, pp. 471–482, 2013.

[22] P. Weill and J. W. Ross, *IT savvy: What top executives must know to go from pain to gain*. Harvard Business Press, 2009.

[23] J. W. Ross, C. M. Beath, and M. Mocker, *Designed for digital: How to architect your business for sustained success*. Mit Press, 2019.

[24] J. K. Nwankpa and Y. Roumani, "IT capability and digital transformation: A firm performance perspective," 2016.

[25] G. Vial, "Understanding digital transformation: A review and a research agenda," *Manag. Digit. Transform.*, pp. 13–66,

2021.
[26] J. P. Kotter, "Leadership and leading change," 2012, *Harvard Business Press*.
[27] J. W. Westerman, "A sustainable plan to rescue hr from itself," *Sustainability*, vol. 13, no. 14, p. 7587, 2021.
[28] G. D. Bhatt, "Exploring the relationship between information technology, infrastructure and business process re-engineering," *Bus. Process Manag. J.*, vol. 6, no. 2, pp. 139–163, 2000.
[29] S.-H. Chung, A. H. I. Lee, and W.-L. Pearn, "Analytic network process (ANP) approach for product mix planning in semiconductor fabricator," *Int. J. Prod. Econ.*, vol. 96, no. 1, pp. 15–36, 2005.
[30] N. I. Jabbouri, R. Siron, I. Zahari, and M. Khalid, "Impact of information technology infrastructure on innovation performance: An empirical study on private universities in Iraq," *Procedia Econ. Financ.*, vol. 39, pp. 861–869, 2016.
[31] P. Weill and M. Broadbent, *Leveraging the new infrastructure: how market leaders capitalize on information technology*. Harvard Business Press, 1998.
[32] G. Kane, "The technology fallacy: people are the real key to digital transformation," *Res. Manag.*, vol. 62, no. 6, pp. 44–49, 2019.
[33] C. A. Merlano, "Digital Leadership and Transformation in Contemporary Times," *Int. J. Digit. Strateg. Governance, Bus. Transform.*, vol. 13, no. 1, pp. 1–20, 2024.
[34] Z. M. Aljuboori, H. Singh, H. Haddad, N. M. Al-Ramahi, and M. A. Ali, "Intellectual capital and firm performance correlation: the mediation role of innovation capability in Malaysian manufacturing SMEs perspective," *Sustainability*, vol. 14, no. 1, p. 154, 2021.
[35] J. Farmer *et al.*, "Using micro-geography to understand the realisation of wellbeing: A qualitative GIS study of three social enterprises," *Health Place*, vol. 62, p. 102293, 2020.
[36] I. Turyadi, Z. Zulkifli, M. R. Tawil, H. Ali, and A. Sadikin, "The role of digital leadership in organizations to improve employee performance and business success," *J. Ekon.*, vol. 12, no. 02, pp. 1671–1677, 2023.
[37] S. D. Artüz and O. Bayraktar, "The effect of relation between digital leadership practice and learning organization on the perception of individual performance," *İstanbul Ticaret Üniversitesi Sos. Bilim. Derg.*, vol. 20, no. 40, pp. 97–120, 2021.
[38] A. Arabiun, M. Tajpour, and M. R. Zahedi, "The effect of digital leadership on the performance of businesses: the mediating role of organizational entrepreneurship," *Int. J. Hum. Cap. Urban Manag.*, vol. 9, no. 1, pp. 17–28, 2024.
[39] E. Van Laar, A. J. A. M. Van Deursen, J. A. G. M. Van Dijk, and J. De Haan, "The relation between 21st-century skills and digital skills: A systematic literature review," *Comput. Human Behav.*, vol. 72, pp. 577–588, 2017.
[40] J. Barney, "Firm Reources ad Sustained Competitive Advantege," 1991.
[41] D. Y. Lin, K. Rayavarapu, S. N. Tadjeddine, and R. Yeoh, "Beyond financials: Helping small and medium-size enterprises thrive. McKinsey & Company."
[42] G. C. Kane, D. Palmer, A. Nguyen-Phillips, D. Kiron, and N. Buckley, "Achieving digital maturity," *MIT sloan Manag. Rev.*, vol. 59, no. 1, 2017.
[43] S. Hakim, L. N. Laelawati, and R. Mardiana, "The role of digital skills and technological innovation in improving the performance of small and medium industries: Systematic literature review," in *International Conference on Global Innovation and Trends in Economics and Business (ICOBIS 2022)*, Atlantis Press, 2022, pp. 74–102.
[44] M. Sartika, S. D. Astuti, A. N. Chasanah, and F. Riyanto, "Digital skills to improve work performance," *Int. J. Accounting, Manag. Econ. Res.*, vol. 1, no. 2, pp. 33–40, 2023.
[45] L. Rexhepi Mahmutaj and N. Jusufi, "The importance of digital skills in firms' innovation: the case of Western Balkans," *J. Technol. Manag. Innov.*, vol. 18, no. 3, pp. 98–102, 2023.
[46] C. M. Christensen, M. E. Raynor, and R. McDonald, "What is disruptive innovation? harvard business review," *https://hbr. org/2015/12/what-is-disruptive-innovation> Retrieved on*, vol. 5, no. 5, p. 2017, 2015.
[47] K. Schwab, "The fourth industrial revolution," in *World Economic Forum*, 2016.
[48] D. J. Teece, "Dynamic capabilities as (workable) management systems theory," *J. Manag. Organ.*, vol. 24, no. 3, pp. 359–368, 2018.
[49] K. S. R. Warner and M. Wäger, "Building dynamic capabilities for digital transformation: An ongoing process of strategic renewal," *Long Range Plann.*, vol. 52, no. 3, pp. 326–349, 2019.
[50] R. Thakur, D. AlSaleh, and D. Hale, "Digital disruption: a managers' eye view," *J. Bus. Ind. Mark.*, vol. 38, no. 1, pp. 53–70, 2023.
[51] D. Kumar, C. J. Fenn, and S. G. Normala, "Technology disruption and business performance in SMEs," *Reli. Rev. Cienc. Soc. Humanid*, vol. 4, pp. 130–138, 2019.
[52] A. M. Danilet, "Disruptive innovation and digital technologies in the context of business performance," *USV Ann. Econ. Public Adm.*, vol. 22, no. 1 (35), pp. 101–109, 2022.
[53] J. Van Dijk, *The digital divide*. John Wiley & Sons, 2020.
[54] D. A. Skog, H. Wimelius, and J. Sandberg, "Digital disruption," *Bus. Inf. Syst. Eng.*, vol. 60, no. 5, pp. 431–437, 2018.
[55] E.-J. Seo and J.-W. Park, "A study on the effects of social media marketing activities on brand equity and customer response in the airline industry," *J. Air Transp. Manag.*, vol. 66, pp. 36–41, 2018.
[56] G. C. Kane, D. Palmer, A. N. Phillips, D. Kiron, and N. Buckley, "Accelerating digital innovation inside and out," *MIT sloan Manag. Rev.*, pp. 0_1-18, 2019.
[57] J. F. Hair Jr, L. M. Matthews, R. L. Matthews, and M. Sarstedt, "PLS-SEM or CB-SEM: updated guidelines on which method to use," *Int. J. Multivar. Data Anal.*, vol. 1, no. 2, pp. 107–123, 2017.
[58] D. Marpaung, S. Bakti, L. N. Hakim, H. Suriono, and E. Ginting, "Mendorong Inovasi Melalui Budaya Digital: Studi

Literatur tentang Transformasi Budaya Organisasi di Era Pasca-Pandemi," *KALIANDA HALOK GAGAS*, vol. 7, no. 2, pp. 107–120, 2024.