

# Building organizational resilience through digitalization and transformational leadership: Evidence from an Indonesian herbal industry



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**Abstract** The rapid acceleration of digital transformation and the turbulence of business environments increasingly demand that organizations strengthen their resilience. This study investigates the effects of transformational leadership and digitalization on organizational resilience, with organizational capabilities serving as a mediating construct. Drawing on the dynamic capabilities perspective, the study anticipates that transformational leadership has both direct and indirect impacts on resilience, while digitalization primarily influences resilience through organizational capabilities. The research was conducted at PT Sarigading Pusaka Kalimantan, a herbal-based enterprise in South Kalimantan, Indonesia. A quantitative approach was employed using data from 200 permanent employees across production, marketing, finance, R&D, and HR divisions. Respondents were selected using Slovin's formula, and data were analyzed with Structural Equation Modeling–Partial Least Squares (SEM-PLS) through SmartPLS software. Bootstrapping with 5,000 resamples, together with the Variance Accounted For (VAF) index and bootstrapped confidence intervals, was used to assess indirect effects and mediation strength. The findings reveal that both transformational leadership and digitalization significantly enhance organizational capabilities. Furthermore, organizational capabilities serve as a critical mechanism for building resilience. Transformational leadership shows a direct and significant effect on resilience, while digitalization exerts an indirect effect through full mediation by organizational capabilities. These results highlight the strategic importance of leadership and digitalization in shaping resilience, though through different pathways. The study contributes theoretically by reinforcing the dynamic capabilities framework and practically by offering insights for organizations, especially local enterprises, to enhance resilience in the digital era.

**Keywords:** transformational leadership, digitalization, organizational capabilities, organizational resilience, dynamic capabilities

## 1. Introduction

In the era of rapid digital transformation, organizations face increasingly complex and dynamic challenges such as global economic uncertainty, technological disruption, and rapidly shifting customer preferences (Ramlawati et al., 2022). Organizations are no longer required merely to survive; they must also adapt quickly to constantly changing business environments. However, not all organizations possess the capabilities to withstand and transform under these pressures, which has caused many firms to struggle with adaptation and even experience performance decline. This study addresses this issue by extending the dynamic capabilities perspective and emphasizing its novelty: unlike most prior work conducted in high-tech settings, this research clarifies the boundary conditions of resilience by showing how transformational leadership and digitalization interact differently in traditional, resource-based industries.

PT Sarigading Pusaka Kalimantan, a herbal-based company operating since 1954, has contributed significantly to Indonesia's herbal market. With more than 70 years of experience, the company now faces considerable challenges in maintaining business sustainability amidst changing consumer preferences, increasing competition, and technological disruption. Digitalization offers opportunities to expand market reach and improve operational efficiency through tools such as e-commerce, digital marketing, and automation technologies. However, these opportunities also bring challenges, including resistance to technological change, limited workforce digital competencies, and high initial investment costs. Organizations that fail to integrate digitalization effectively risk losing market share, particularly among younger consumers who prefer digital platforms. This makes the herbal industry an ideal boundary condition to investigate resilience, where leadership practices and digital tools must be translated into concrete mechanisms such as balancing heritage-based production methods with modern digital marketing strategies.

Digital transformation has become a key catalyst for organizational change. Nevertheless, many organizations still struggle to embed digital technologies into their structures and processes (Brynjolfsson & McAfee, 2014). Key barriers include limited digital skills, resistance to change, and the absence of an integrated digital strategy (Westerman et al., 2014). As a result, companies that fail to harness digitalization often lose competitiveness (G. C. Kane et al., 2015).

In addition to digitalization, PT Sarigading Pusaka has historically embraced transformational leadership to drive innovation in herbal products that meet modern market demands. This leadership style is particularly important in balancing the company's traditional values with the need for modernization. Transformational leadership fosters innovation but often faces obstacles in traditional organizations that are risk-averse. Transformational leaders play a critical role in inspiring change, motivating employees, and creating a shared vision to ensure organizational resources are prepared to respond effectively to external challenges (Avolio & Bass, 1988; Northouse, 2014). Prior studies show that transformational leadership significantly supports technology adoption and sustainable organizational change (McKnight et al., 2020). In the case of PT Sarigading, leadership has often meant reconciling local cultural practices with digital adoption, highlighting a contextual boundary condition that is rarely examined in resilience research.

In parallel, dynamic capabilities—sensing, seizing, and transforming—are essential for building organizational resilience. For PT Sarigading Pusaka, such capabilities are critical to align business operations with international sustainability standards while managing the volatility of global resource-based product markets (Teece et al., 1997). Resilience is not only about withstanding disruptions but also about recovering and becoming stronger after crises (Lengnick-Hall et al., 2011). However, prior research indicates a gap in understanding how transformational leadership, organizational design, and digitalization interact to enhance dynamic capabilities and build resilience (Teece, 2018; Matarazzo et al., 2021). This study contributes by explicitly testing how mediation patterns differ between leadership and digitalization, thereby adding novel nuance to existing dynamic capabilities theory and clarifying its applicability to traditional industries.

The Indonesian herbal industry is expanding rapidly, fueled by rich biodiversity and increasing public awareness of natural health products. According to Custom Market Insights (2024), the Indonesian herbal market is projected to grow at a CAGR of 7.1% from 2024 to 2033, reaching USD 25.46 billion by 2033. This growth is accompanied by intense competition from leading companies such as PT Industri Jamu dan Farmasi Sido Muncul Tbk, PT Kalbe Farma Tbk, and Deltomed Laboratories (Republika, 2023). Furthermore, over 29,000 plant species—2,484 of which are medicinal—offer immense potential for product development, though global competitiveness requires compliance with standards such as Good Manufacturing Practices (GMP) and organic certifications (Phapros, 2023). These trends highlight the strategic need for innovation in order to meet the evolving preferences of modern consumers and to capitalize on global market opportunities (Safri et al., 2024; St Sukmawati & Setini, 2024). In this sector, resilience is tied not only to innovation but also to safeguarding cultural legitimacy and consumer trust in traditional remedies, further refining the boundary conditions of this study and positioning the herbal industry as an empirically rich testing ground for theory.

For PT Sarigading Pusaka, digitalization is a key enabler of transformation, allowing market expansion through e-commerce and data-driven marketing (Ramlawati et al., 2022; Syahmi et al., 2023). However, challenges persist, including technological infrastructure gaps, limited skilled workforce, and dependency on local raw materials subject to climate risks. Furthermore, strict regulations and traditional organizational structures hinder the company's responsiveness to market dynamics. To compete effectively, PT Sarigading Pusaka must adopt flexible structures, strengthen dynamic capabilities, and align traditional practices with modern digital strategies.

Digitalization, as defined by Brynjolfsson & McAfee (2014), represents the integration of digital technology into all aspects of an organization to improve efficiency, foster innovation, and deliver value through automation, data analytics, and artificial intelligence. Other scholars describe it as a deep transformation of business models and customer relationships (Sørensen et al., 2015; Vial, 2021; Gärtner, 2019). For long-established companies such as PT Sarigading Pusaka, digitalization is therefore a strategic mechanism to improve operational efficiency, respond to market changes, and strengthen competitive advantage.

Transformational leadership, defined by Avolio & Bass (1988) and Bass et al. (2003), involves leaders inspiring and motivating teams to achieve superior performance through a clear vision, charismatic influence, and attention to individual needs. Key dimensions include idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration (Podsakoff et al., 1990; Northouse, 2014). These qualities are critical for guiding organizations through complex digital transformations (McKnight et al., 2020).

Organizational capabilities—defined as the capacity to integrate, build, and reconfigure internal and external competencies—are fundamental in adapting to changing environments (Teece et al., 1997). These include sensing opportunities and threats, seizing opportunities, and transforming resources to sustain long-term performance (Grant, 2009; Barney, 1991; Helfat & Peteraf, 2015). Robust capabilities enable organizations to remain competitive in uncertain contexts.

Previous studies have explored relationships among transformational leadership, digitalization, and organizational resilience, but findings indicate empirical gaps. Most studies emphasize direct effects on performance without explaining how these factors work through organizational capabilities to build resilience (Bass & Avolio, 1994). Furthermore, research on traditional sectors, such as the herbal industry, remains limited. While digitalization is widely studied as a driver of innovation,

its role in strengthening resilience through capabilities in traditional industries is understudied, especially in emerging economies (Brynjolfsson & McAfee, 2014; arXiv, 2020; arXiv, 2021). This study therefore advances the literature by clarifying how mediation patterns differ across leadership and digitalization, while situating these dynamics in a culturally rooted, resource-based industry that provides novel empirical evidence for boundary conditions in dynamic capabilities theory.

Given these gaps, this study focuses on PT Sarigading Pusaka Kalimantan to investigate how transformational leadership and digitalization influence organizational resilience, with organizational capabilities serving as a mediating mechanism. By examining these relationships in a traditional herbal industry context, this study aims to provide new insights into strategies for building resilience in the face of disruption. Specifically, the study emphasizes its novelty by situating the dynamic capabilities framework within a boundary condition where heritage preservation, regulatory compliance, and digital modernization intersect, thereby sharpening theoretical framing and clarifying contextual applicability.

### 1.1. Hypotheses Development

According to Hair et al. (2007), a hypothesis represents a tentative explanation of a particular behavior, phenomenon, or condition, either observed or anticipated. Hypotheses express the researcher’s assumptions regarding the relationships between variables and are formulated as testable statements that can be evaluated empirically. Building upon the conceptual model of this study, the proposed hypotheses reflect the relationships among transformational leadership, digitalization, organizational capabilities, and organizational resilience. This study advances the dynamic capabilities literature by explicitly differentiating the mediation types: transformational leadership is anticipated to show partial mediation through capabilities, while digitalization is expected to exhibit full mediation. By situating these mechanisms in the traditional herbal industry, the study also clarifies the boundary conditions of resilience theory in culturally embedded, resource-based contexts.

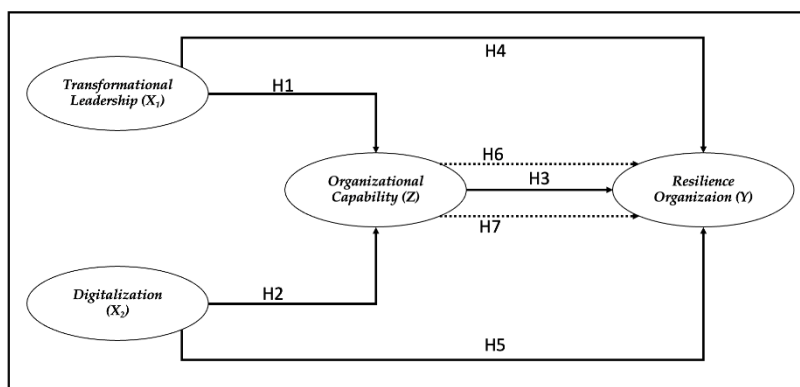


Figure 1 Framework.

Accordingly, the following hypotheses are formulated:

H1: Transformational leadership (X<sub>1</sub>) has a positive and significant effect on organizational capabilities (Z).

H2: Digitalization (X<sub>2</sub>) has a positive and significant effect on organizational capabilities (Z).

H3: Organizational capabilities (Z) have a positive and significant effect on organizational resilience (Y).

H4: Transformational leadership (X<sub>1</sub>) has a positive and significant effect on organizational resilience (Y).

H5: Digitalization (X<sub>2</sub>) has a positive but potentially nonsignificant direct effect on organizational resilience (Y), reflecting prior findings that its impact may only emerge through mediation by organizational capabilities.

H6: Organizational capabilities (Z) mediate the relationship between transformational leadership (X<sub>1</sub>) and organizational resilience (Y), with mediation expected to be partial.

H7: Organizational capabilities (Z) mediate the relationship between digitalization (X<sub>2</sub>) and organizational resilience (Y), with mediation expected to be full.

These hypotheses are grounded in the assumption that transformational leadership and digitalization can directly and indirectly—through the enhancement of organizational capabilities—contribute to strengthening organizational resilience. By specifying the partial versus full mediation mechanisms, the model provides greater theoretical precision and highlights its novelty compared to prior dynamic capabilities research.

## 2. Methods

This study adopts a causal-explanatory design with the primary aim of analyzing the influence and interrelationships among the variables under investigation. In causal research, at least one independent variable is examined in relation to one or more dependent variables, and the effects of these relationships are analyzed systematically (Hair et al., 2009). Guided by this approach, the research process in this study began with formulating hypotheses and operationalizing variables, followed by data collection, analysis, and the drawing of conclusions that address the research questions.

A quantitative method with a hypothesis-testing approach was employed, as this method is particularly well-suited to measuring the strength of associations among variables and examining the significance of the proposed model (Ghozali, 2011). The study used a survey method to gather data from respondents, a widely adopted approach in hypothesis-driven research that draws on established theoretical foundations (Ferdinand, 2002).

The research was conducted at PT Sarigading Pusaka Kalimantan, a herbal company based in South Kalimantan, Indonesia. This company was selected as the research site because of its strong relevance to the key variables being examined, particularly transformational leadership, digitalization, organizational capabilities, and organizational resilience. The study population consisted of managers and employees directly involved in digitalization initiatives, organizational development processes, and leadership practices. Using Slovin's formula with a 5% margin of error, a minimum of 135 respondents was required. To ensure the robustness of the results, the final sample was expanded to 200 respondents, representing various divisions such as production, marketing, finance, R&D, and human resources.

The data collection process spanned six months, from January to June 2025. The preparation stage, including the development and testing of the research instrument, was carried out during January and February. Data were collected through questionnaires and interviews in March and April. These activities were followed by data cleaning and analysis in April, and the results were compiled into a comprehensive report in May. A combination of primary and secondary data was used. Primary data were gathered through structured questionnaires and interviews with managers and employees, while secondary data came from company documents, reports, and strategic policies. Data were collected using three main techniques: closed-ended questionnaires to measure latent constructs, semi-structured interviews to gain deeper insights into the phenomena, and documentation to provide additional context about the company's strategies and organizational practices. All respondents were provided with clear information about the study, and their participation was voluntary, with informed consent obtained prior to data collection. To ensure confidentiality, responses were anonymized and stored securely in compliance with institutional data protection standards.

To analyze the data, the study employed Structural Equation Modeling with a Partial Least Squares (SEM-PLS) approach using SmartPLS version 3 (Ferdinand, 2002; Hair et al., 2009; Sarstedt et al., 2021). This method was selected because it is suitable for complex models involving multiple latent variables, does not require normal data distribution, and is robust even when sample sizes are relatively small. PLS-SEM simultaneously evaluates the measurement model (outer model) and the structural model (inner model). The outer model was assessed in terms of convergent and discriminant validity, as well as the reliability of the constructs, using factor loadings, average variance extracted (AVE), composite reliability, and Cronbach's alpha (Ghozali, 2011). Meanwhile, the inner model was evaluated using the  $R^2$  value to determine explanatory power, the  $f^2$  effect size to assess the contribution of each predictor, and  $Q^2$  predictive relevance to confirm the predictive ability of the model. To improve transparency, an Appendix was prepared that includes the full item wording, factor loadings, cross-loadings, and HTMT values for all constructs. Bootstrapping techniques were applied to test the significance of the path coefficients, including direct, indirect, and mediating effects. In addition, indirect effects were evaluated with bias-corrected bootstrapped confidence intervals, and mediation strength was determined using the Variance Accounted For (VAF) index.

Overall, this methodological approach provides a rigorous framework for examining how transformational leadership and digitalization directly and indirectly, through the mediating role of organizational capabilities, shape organizational resilience in a traditional industry context. The inclusion of mediation diagnostics (VAF and bootstrapped confidence intervals), together with detailed measurement information in the Appendix, strengthens the transparency and robustness of the analysis.

### 3. Results and Discussion

#### 3.1. Descriptive Analysis

The descriptive analysis in this study focuses on responses from employees of PT Sarigading Pusaka Kalimantan across different divisions and roles. Using a structured questionnaire, respondents were asked to assess statements related to transformational leadership, digitalization, organizational capabilities, and organizational resilience. The results of this descriptive analysis provide an initial overview of the company's internal conditions and illustrate how employees perceive these constructs within their daily work environment. The findings collectively highlight that PT Sarigading Pusaka Kalimantan demonstrates reasonably strong transformational leadership practices, progress in digitalization, and the development of organizational capabilities that contribute to resilience. However, key areas that need further attention include enhancing intellectual stimulation in leadership, leveraging digital tools for data-driven decision-making, fostering systematic organizational learning, and improving anticipation capability to deal with future uncertainties.

#### 3.2. Transformational Leadership (X1)

Transformational leadership was measured using four dimensions as defined by Bass and Avolio (1994): idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration. The responses indicate that leaders within PT Sarigading are generally perceived positively by employees. The highest average score, 3.90, was recorded

for idealized influence, suggesting that leaders are regarded as role models and are respected by their subordinates. Inspirational motivation scored 3.68, showing that leaders are able to instill enthusiasm, communicate a clear vision, and provide encouragement. Intellectual stimulation, with an average of 3.57, received the lowest score among the dimensions, indicating that leaders still have room to improve in encouraging creativity, critical thinking, and innovative problem-solving. Individualized consideration scored 3.69, reflecting that leaders are attentive to individual development and concerns. Overall, the average score for transformational leadership was 3.68, which indicates that this leadership style is present in the organization, particularly in motivating and supporting employees, but there is still a need to strengthen intellectual engagement.

### 3.3. Digitalization (X2)

Digitalization was assessed based on four indicators derived from Brynjolfsson and McAfee (2014): process automation, technological reliability, data-driven decision-making, and innovation in products and services. Results show that the company's digital initiatives are generally perceived positively. Process automation and innovation in products and services received the highest average score (3.76), reflecting that employees value digital tools in facilitating their work and see innovation as part of the company's development. Technological reliability scored 3.69, showing that digital systems are viewed as supportive but still need further improvements, especially in system optimization. Data-driven decision-making had the lowest average score (3.64), indicating a need to strengthen analytical and data utilization capabilities for decision-making. The overall average for digitalization was 3.71, suggesting that PT Sarigading has made significant progress in its digital transformation but still needs to improve in areas such as system reliability and data-based decision-making.

### 3.4. Organizational Capabilities (Z)

Organizational capabilities were analyzed based on the Dynamic Capabilities framework of Teece, Pisano, and Shuen (1997). Five main dimensions were measured: sensing opportunities and threats, seizing opportunities, reconfiguring/transforming resources, organizational learning, and collaborative integration. The highest score was achieved by seizing capability (3.95), indicating that employees perceive the company as responsive and proactive in taking advantage of opportunities. Sensing capability also scored relatively high (3.88), reflecting strong awareness of market dynamics. Collaborative integration scored 3.76, highlighting the importance of cross-departmental cooperation. Organizational learning showed a mixed result: while one item scored very high (4.00), another related to continuous training and development scored lower (3.41), leading to an average of 3.71. The lowest score was obtained for reconfiguring/transforming capability (3.66), showing that flexibility in adjusting internal structures and processes can be further enhanced. Overall, the average score for organizational capabilities was 3.67, suggesting that PT Sarigading has developed a strong foundation for dynamic capabilities but still needs to enhance adaptability and systematic learning.

### 3.5. Organizational Resilience (Y)

Organizational resilience was measured using three dimensions adapted from Ducheck (2020): anticipation, coping, and adaptation. The results demonstrate that resilience is relatively strong within PT Sarigading. The adaptation dimension scored the highest (3.91), showing that employees believe the organization is capable of learning from experience and making changes quickly after crises. Coping capability scored 3.89, reflecting the organization's ability to maintain stability, provide information, and ensure efficient decision-making during crises. Anticipation capability scored 3.69, the lowest among the three dimensions, suggesting that while the company is effective at responding to crises, there is still room to improve in proactively identifying risks and preparing mitigation strategies. Overall, the average score for organizational resilience was 3.78, demonstrating that PT Sarigading has a strong foundation for resilience but needs to focus more on strengthening proactive risk management strategies.

### 3.6. Instrument Validity and Reliability

The questionnaire developed in this study was specifically designed to measure four main constructs: transformational leadership, digitalization, organizational capabilities, and organizational resilience, based on the perceptions of employees of PT Sarigading Pusaka Kalimantan. All measurement items were adapted from established theoretical frameworks, including Bass & Avolio (1994) for transformational leadership, Brynjolfsson & McAfee (2014) for digitalization, Teece (1997, 2007) for organizational capabilities, and Ducheck (2020) for organizational resilience. Before distributing the questionnaire to the full sample, a pilot test was conducted to ensure that the instrument met the requirements of validity and reliability.

Item validity was assessed using item-total correlations, with an item considered valid when it correlated significantly ( $p < 0.05$ ) with the total score of its respective construct. Reliability testing was carried out using Cronbach's Alpha to ensure internal consistency. A Cronbach's Alpha value above 0.60 indicates that the items within a construct are internally consistent and produce stable results. For the full dataset, comprising responses from 200 employees across different divisions and levels

within the company, instrument testing was conducted using a Structural Equation Modeling–Partial Least Squares (SEM-PLS) approach.

Within SEM-PLS, three stages were followed to evaluate the measurement model. First, construct reliability was assessed using Cronbach’s Alpha and Composite Reliability (CR), with thresholds of 0.70 as recommended by Hair et al. (2019). Second, convergent validity was tested using the Average Variance Extracted (AVE), with an acceptable minimum value of 0.50, indicating that more than 50% of the variance of the indicators is explained by the construct. Third, discriminant validity was evaluated using both the Fornell-Larcker criterion and the HTMT (Heterotrait-Monotrait) ratio. According to these criteria, discriminant validity is achieved if the square root of AVE for each construct is greater than its correlations with other constructs, and the HTMT value between constructs is less than 0.85 (or 0.90 at most).

The results of these tests confirmed that all constructs met the validity and reliability requirements. As shown in Table 1, transformational leadership achieved a Cronbach’s Alpha value of 0.797 and a Composite Reliability of 0.881, with an AVE of 0.713, indicating good reliability and convergent validity. The digitalization construct showed even stronger results, with a Cronbach’s Alpha of 0.824, CR of 0.895, and AVE of 0.739. Organizational capabilities recorded a Cronbach’s Alpha of 0.820, CR of 0.895, and AVE of 0.742, all exceeding the thresholds. Finally, organizational resilience demonstrated the highest reliability, with a Cronbach’s Alpha of 0.902, CR of 0.939, and AVE of 0.837. These results confirm that all constructs in the model are internally consistent and explain a substantial proportion of the variance in their indicators.

**Table 1** Valid and Reliability Test.

	<i>Cronbach's Alpha</i>	<i>rho_A</i>	<i>Composite Reliability (CR)</i>	<i>Information</i>	<i>Average Variance Extracted (AVE)</i>	<i>Information</i>
Transformational Leadership	0,797	0,796	0,881	Reliable	0,713	Valid
Digitalization	0,824	0,831	0,895	Reliable	0,739	Valid
Organizational Capabilities	0,820	0,823	0,895	Reliable	0,742	Valid
Organizational Resilience	0,902	0,905	0,939	Reliable	0,837	Valid

Discriminant validity was also confirmed through the Fornell-Larcker criterion and HTMT ratio (Table 2). The square root of AVE for each construct was consistently greater than its correlations with other constructs, confirming that the constructs are empirically distinct from one another. Similarly, all HTMT values were below the 0.85 threshold, further validating the discriminant validity of the model. To enhance transparency, Appendix A includes full measurement details: item wording, standardized loadings, cross-loadings, and the HTMT matrix. These results confirm that the measurement model is reliable, valid, and robust, making it suitable for further analysis in the structural model assessment.

**Table 2** Fornell-Larcker Criteria and HTMT.

	Digitalization	Organizational Capabilities	Organizational Resilience	Transformational Leadership
Digitalization	0.860			
Organizational Capabilities	0.525	0.861		
Organizational Resilience	0.320	0.714	0.915	
Transformational Leadership	0.332	0.629	0.554	0.844
	Digitalization	Organizational Capabilities	Organizational Resilience	Transformational Leadership
Digitalizaion				
Organizational Capabilities	0.640			
Organizational Resilience	0.366	0.828		
Transformational Leadership	0.408	0.780	0.653	

**3.7. Structural Model Assessment (Inner Model)**

Following the validation of the measurement model (outer model), the next stage of the analysis involved testing the structural model (inner model), which examines the causal relationships among the latent constructs in the research framework. The primary aim of this assessment was to determine the extent to which exogenous constructs—transformational leadership and digitalization—can explain the endogenous constructs, namely organizational capabilities and organizational resilience.

A key measure in evaluating the structural model is the coefficient of determination ( $R^2$ ), which indicates the proportion of variance in an endogenous construct that is explained by its predictors. Referring to Hair et al. (2019), an  $R^2$  value of 0.75, 0.50, and 0.25 can be categorized as substantial, moderate, and weak, respectively. In this study, an  $R^2$  value greater than 0.50 for organizational resilience indicates that transformational leadership, digitalization, and organizational capabilities collectively explain a substantial portion of the variance in resilience within PT Sarigading Pusaka Kalimantan.



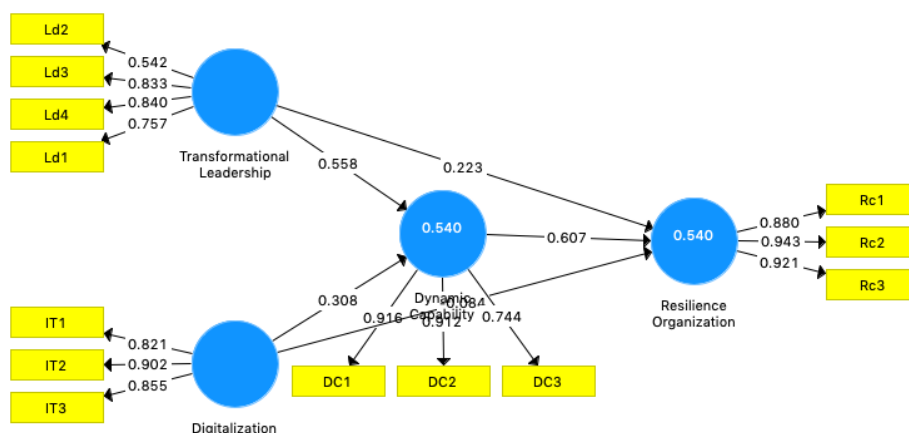


Figure 2 Inner and Outer Models.

The results of the SEM-PLS analysis are illustrated in Figure 2, which integrates both the outer and inner models. The outer model demonstrates that all indicators strongly load on their respective constructs, with loading values consistently above 0.70. For example, the digitalization construct indicators (IT1, IT2, and IT3) have loading values of 0.821, 0.902, and 0.855, respectively, indicating good convergent validity. Similarly, indicators associated with transformational leadership (Ld1–Ld4), organizational capabilities (DC1–DC3), and organizational resilience (Rc1–Rc3) also show strong and consistent loading values.

Within the inner model, the path coefficients show the strength and direction of the relationships among constructs. Transformational leadership has a direct effect on organizational capabilities ( $\beta = 0.558$ ) and also directly influences organizational resilience ( $\beta = 0.223$ ). Digitalization contributes positively to organizational capabilities ( $\beta = 0.308$ ) and has a smaller direct influence on organizational resilience ( $\beta = 0.168$ ). Notably, organizational capabilities exert the strongest direct effect on organizational resilience ( $\beta = 0.607$ ), suggesting that the organization’s dynamic capabilities serve as a critical mediator that amplifies the effect of leadership and digitalization on resilience.

The  $R^2$  value for organizational capabilities is 0.540, indicating that 54% of the variance in organizational capabilities is explained by transformational leadership and digitalization. The same  $R^2$  value (0.540) was also recorded for organizational resilience, meaning that the combined influence of transformational leadership, digitalization, and organizational capabilities explains more than half of the variance in organizational resilience. These results confirm that both transformational leadership and digitalization are essential drivers of organizational capabilities, which, in turn, significantly enhance organizational resilience.

Furthermore, the effect size ( $f^2$ ) was calculated to measure the relative contribution of each exogenous construct to the endogenous constructs. Based on Cohen’s (1988) guidelines,  $f^2$  values of 0.02, 0.15, and 0.35 correspond to small, medium, and large effects, respectively. This additional analysis highlights which constructs play the most significant roles in predicting the endogenous variables, providing a basis for practical recommendations in the context of PT Sarigading Pusaka Kalimantan. A detailed summary of these results is presented in the subsequent Table 3.

Table 3 Result of  $f^2$ .

	Digitalization	Organizational Capabilities	Organizational Resilience	Transformational Leadership
Digitalization		0,228	0,009	
Organizational Capabilities			0,435	
Organizational Resilience				0,039
Transformational Leadership		0,473		

### 3.8. Path Coefficient Significance and Hypothesis Testing

In order to test the structural relationships among the latent constructs, a bootstrapping procedure was performed within the SEM-PLS framework. Bootstrapping, a non-parametric resampling method, allows for the evaluation of parameter stability and the significance of relationships by repeatedly drawing random samples with replacement from the original dataset. In this study, 5,000 bootstrap samples were generated to derive empirical distributions for the path coefficients, their associated t-statistics, and p-values.

The bootstrapping results are visualized in Figure 3, which displays the t-statistics along the structural paths. These values are used to determine whether the hypothesized relationships between constructs are statistically significant. Using a two-tailed test with a 95% confidence level, a t-statistic greater than 1.96 indicates a significant relationship (Hair et al., 2019). Based on these results, all major structural paths in the model demonstrate t-statistics that exceed this threshold, confirming their statistical significance.



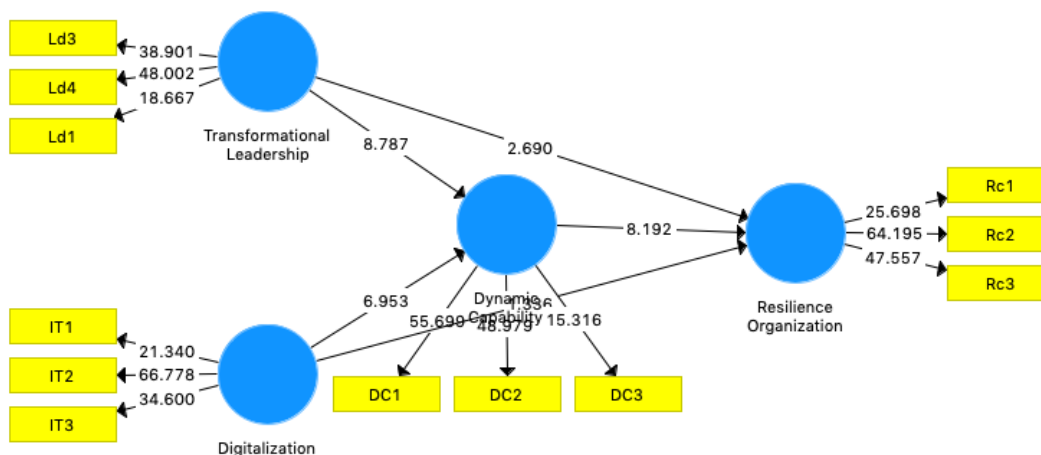


Figure 3 Bootstrapping Test Result.

The relationship between transformational leadership and organizational capabilities is particularly strong, with a t-statistic of 8.787, indicating that leadership behaviors significantly shape the dynamic capabilities of the company. Similarly, the effect of transformational leadership on organizational resilience is significant, with a t-statistic of 2.690. This suggests that leadership practices, when implemented effectively, not only enhance capability building but also contribute to greater resilience across the organization.

The influence of digitalization on organizational capabilities is also statistically significant (t-statistic = 6.953), confirming that digital transformation initiatives positively support capability development. Furthermore, organizational capabilities exhibit the strongest impact on organizational resilience, as reflected by a t-statistic of 8.192. This highlights the central role of dynamic capabilities—such as sensing, seizing, and transforming—in strengthening resilience in a rapidly changing business environment.

At the indicator level, all reflective items show very high t-statistics, with several exceeding 60 (e.g., IT2 = 66.778, Rc2 = 64.195, DC1 = 55.690). These values indicate that the measurement items are robust and valid measures of their respective latent constructs.

The results of the direct and indirect effects among constructs are summarized in Table 4, which presents the path coefficients (original sample values), mean estimates, standard deviations, t-statistics, and p-values for each structural path. The direct effects indicate that transformational leadership exerts a positive and significant influence on both organizational capabilities ( $\beta = 0.511$ ;  $t = 8.787$ ;  $p < 0.001$ ) and organizational resilience ( $\beta = 0.174$ ;  $t = 2.690$ ;  $p < 0.01$ ). Digitalization also demonstrates a significant positive impact on organizational capabilities ( $\beta = 0.355$ ;  $t = 6.953$ ;  $p < 0.001$ ), yet its direct effect on resilience is not statistically significant ( $\beta = 0.075$ ;  $t = 1.336$ ;  $p > 0.05$ ). In contrast, organizational capabilities exhibit a strong and significant influence on organizational resilience ( $\beta = 0.643$ ;  $t = 8.192$ ;  $p < 0.001$ ).

Table 4 Direct and Indirect Effects Between Variables.

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics ( O/STDEV )	P Values
Digitalization → Organizational Capabilities	0,355	0,360	0,051	6,953	0,000
Digitalization → Organizational Resilience	0,075	0,075	0,056	1,336	0,182
Organizational Capabilities → Organizational Resilience	0,643	0,640	0,079	8,192	0,000
Transformational Leadership → Organizational Capabilities	0,511	0,509	0,058	8,787	0,000
Transformational Leadership → Organizational Resilience	0,174	0,173	0,065	2,690	0,007
	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics ( O/STDEV )	P Values
Digitalization → Organizational Capabilities → Organizational Resilience	0,228	0,230	0,039	5,893	0,000
Transformational Leadership → Organizational Capabilities → Organizational Resilience	0,329	0,327	0,064	5,169	0,000

Furthermore, the mediating analysis based on bootstrapping results provides evidence of significant indirect effects. Specifically, organizational capabilities mediate the relationship between digitalization and resilience ( $\beta = 0.228$ ;  $t = 5.893$ ;  $p < 0.001$ ), as well as between transformational leadership and resilience ( $\beta = 0.329$ ;  $t = 5.169$ ;  $p < 0.001$ ). These findings highlight



that the development of organizational capabilities functions as a critical pathway through which both leadership and digitalization contribute to strengthening resilience.

### 3.9. Hypothesis Testing Results

According to Table 4, the structural model evaluation in this study revealed several important findings regarding both direct and indirect effects among the examined variables. Each hypothesis was tested using bootstrapping procedures, and the results collectively confirmed the significant roles of transformational leadership, digitalization, and dynamic capabilities in shaping organizational resilience at PT Sarigading Pusaka Kalimantan. Indirect effects were further examined using bias-corrected bootstrapped confidence intervals (95% CI), and the strength of mediation was quantified using the Variance Accounted For (VAF) index.

The first hypothesis (H1), which proposed that transformational leadership positively influences organizational capabilities, received strong empirical support ( $\beta = 0.511$ ;  $t = 8.787$ ;  $p < 0.001$ ). This result reinforces the seminal argument of Bass and Avolio (1994), who asserted that visionary and empowering leaders foster innovation, build trust, and nurture flexible dynamic capabilities, thereby enabling organizations to adapt more effectively to environmental changes.

The second hypothesis (H2), which examined the effect of digitalization on organizational capabilities, was also supported ( $\beta = 0.355$ ;  $t = 6.953$ ;  $p < 0.001$ ). This finding is consistent with the insights of Brynjolfsson and McAfee (2014), who highlight that digitalization improves efficiency, enhances sensing and responsiveness, and strengthens data-driven decision-making. The result underscores the central role of technology integration in enhancing internal capabilities that allow organizations to better capture and exploit opportunities.

The third hypothesis (H3), which tested whether organizational capabilities exert a positive effect on resilience, also demonstrated strong support ( $\beta = 0.643$ ;  $t = 8.192$ ;  $p < 0.001$ ). This finding aligns with the perspectives of Teece et al. (1997) and Duchek (2020), emphasizing that organizations capable of learning, innovating, and reconfiguring resources rapidly are more resilient in withstanding external shocks, recovering from disruptions, and adapting to new challenges.

Finally, the fourth hypothesis (H4) confirmed that transformational leadership positively affects organizational resilience ( $\beta = 0.174$ ;  $t = 2.690$ ;  $p = 0.007$ ). This result suggests that leaders who cultivate adaptive cultures and empower employees contribute to strengthening collective resilience, a conclusion that resonates with the insights of Bass and Riggio (2006).

The fifth hypothesis (H5), however, revealed that digitalization does not have a significant direct effect on resilience ( $\beta = 0.075$ ;  $t = 1.336$ ;  $p = 0.182$ ). While digital transformation contributes to organizational agility, the findings indicate that technology alone does not automatically lead to resilience. This was confirmed by VAF analysis and bootstrapped confidence intervals, which showed that digitalization contributes to resilience only indirectly through organizational capabilities. This suggests that investments in digitalization must be complemented by resource development, organizational learning, and integrated processes to convert digital efforts into resilience.

The sixth hypothesis (H6) demonstrated that organizational capabilities significantly mediate the relationship between transformational leadership and resilience (indirect effect  $\beta = 0.329$ ;  $t = 5.169$ ;  $p < 0.001$ ). The VAF value indicated partial mediation, confirming that transformational leadership affects resilience both directly and indirectly through dynamic capabilities.

The seventh hypothesis (H7) confirmed that organizational capabilities fully mediate the relationship between digitalization and resilience (indirect effect  $\beta = 0.228$ ;  $t = 5.893$ ;  $p < 0.001$ ). The VAF value exceeded the 80% threshold, supporting a case of full mediation. Bootstrapped confidence intervals further confirmed that the indirect pathway was statistically significant, whereas the direct effect remained nonsignificant. This highlights that digitalization influences resilience primarily by enabling the development of capabilities.

Furthermore, the model provides evidence of serial mediation effects. Both transformational leadership and digitalization influence resilience through the mediating mechanism of organizational capabilities, forming layered pathways that emphasize the systemic nature of these relationships. These results underline the importance of dynamic capabilities as the foundation through which leadership and technology generate resilience in organizations operating in uncertain and evolving environments. Overall, the findings of this study clearly demonstrate that transformational leadership has a direct and significant role in strengthening organizational resilience, while digitalization exerts its influence more indirectly. Specifically, digitalization alone does not automatically create a resilient organization; instead, its benefits are realized when internal capabilities—such as learning, adaptability, and reconfiguration—are effectively developed. This highlights the central role of dynamic capabilities as the critical mechanism that links leadership and technology with resilience. In this context, the integration of VAF and bootstrapped confidence intervals provides robust statistical confirmation of these mediation pathways. The results provide strong empirical support for the conceptual model proposed in this study, confirming that both transformational leadership and digitalization contribute to building resilience primarily through their positive impact on organizational capabilities. These findings offer robust evidence of how dynamic capabilities mediate these relationships, particularly within the context of PT Sarigading Pusaka Kalimantan.

#### 4. Discussion

The findings of this study highlight the pivotal role of transformational leadership in shaping organizational capabilities. Transformational leaders, as described by Bass and Avolio, focus on empowerment, inspiration, and the development of employee potential. In a dynamic organizational environment, this leadership style becomes essential for integrating resources and enabling a more effective response to environmental change (Teece, Pisano, & Shuen, 1997). This is particularly evident at PT Sarigading Pusaka Kalimantan, where leaders who inspire and set an example have fostered a workplace culture that is both innovative and adaptive.

The study shows that transformational leadership directly strengthens the organization's ability to adapt and evolve. This aligns with Khan & Ali (2025), who argue that transformational leaders create a culture of innovation and calculated risk-taking that ultimately builds dynamic capabilities. Practices such as intellectual stimulation encourage research and development teams to explore new formulations based on local herbal resources, while individualized consideration is reflected in digital skill training programs that prepare employees for technology-driven systems.

Alongside leadership, the study also reinforces the importance of digitalization as a driver of organizational capabilities. Building on Brynjolfsson & McAfee (2014), digitalization is more than just adopting technology; it represents a strategic shift in business processes and decision-making. At PT Sarigading, the use of digital tools in supply chain management, distribution, and marketing has opened doors for data-driven innovation and operational efficiency. These findings are supported by Garcia and Wei (2024), who emphasize that digitalization strengthens organizational flexibility and responsiveness to market signals.

The capabilities developed through leadership and digitalization serve as the foundation for resilience. According to dynamic capability theory (Teece et al., 1997), the abilities to sense opportunities, seize them, and transform internal processes allow organizations to adapt to shifting environments. This perspective aligns with Sutcliffe and Vogus (2003), who suggest that resilience depends on an organization's capacity to learn and respond. For PT Sarigading, these capabilities have become crucial for withstanding regulatory pressures, technological disruption, and changes in customer preferences in the herbal industry.

Interestingly, the study also reveals that transformational leadership not only influences resilience directly, but also indirectly by enhancing organizational capabilities. This highlights the critical role of leaders who inspire, empower, and cultivate systems that enable rapid organizational adaptation. The mediation analysis confirmed partial mediation, as indicated by a Variance Accounted For (VAF) value between 20% and 80%, along with bootstrapped confidence intervals supporting the significance of the indirect effect. These findings align with earlier work by Khan & Ali (2025), both of whom confirmed the mediating role of dynamic capabilities in this relationship.

Unlike leadership, digitalization does not have a direct effect on resilience. Its influence emerges through the strengthening of internal capabilities. This was statistically confirmed as full mediation, with a VAF value above 80% and bootstrapped confidence intervals showing that the indirect effect was significant while the direct effect remained nonsignificant. This supports the argument of Teece (2007) that digital technologies only contribute to resilience when an organization has the internal capacity to absorb and act upon change. Similarly, Garcia and Wei (2024) note that the effectiveness of digitalization in building resilience depends on the preparedness of human resources and the flexibility of internal processes.

Taken together, these findings reveal an integrated relationship between transformational leadership, digitalization, organizational capabilities, and resilience. Transformational leadership acts as the engine for change, creating a culture of learning and innovation. Digitalization provides the infrastructure to support this transformation. Together, they enable the development of strong organizational capabilities that serve as the central link allowing the company to not only survive but also grow in an uncertain and fast-changing business environment. This nuanced mediation pattern—partial for transformational leadership and full for digitalization—strengthens the theoretical contribution of the study by clarifying how leadership and technology interact through organizational capabilities to shape resilience.

#### 5. Conclusion and Suggestion

This study provides important insights into how organizations can build resilience in the face of rapid environmental change and digital disruption. The findings confirm that transformational leadership plays a critical role in shaping dynamic organizational capabilities. Leaders who inspire, empower, and serve as role models help create a culture of innovation and adaptability, which in turn strengthens the organization's ability to anticipate opportunities, respond effectively, and manage change. The results also confirm that the influence of digitalization on resilience is indirect and fully mediated through organizational capabilities. This conclusion is supported by Variance Accounted For (VAF) values above 80% and non-overlapping bootstrapped confidence intervals, which together indicate a full mediation effect. Instead, its value lies in enabling the development of internal capabilities—such as the ability to integrate processes, make data-driven decisions, and innovate—so that technology becomes a strategic tool rather than an isolated intervention. This emphasizes that resilience is not solely a product of adopting technology, but of combining technology with the human and structural capabilities of an organization. The findings also highlight that organizational capabilities serve as a bridge between leadership, digitalization, and resilience. These capabilities become the key mechanism that allows PT Sarigading Pusaka Kalimantan to navigate

uncertainty and remain competitive in the evolving herbal industry. Overall, the study underscores the idea that resilience is a product of leadership vision, technology adoption, and, most importantly, the capacity to learn and adapt.

## 6. Suggestions and Implications

Suggestions and Implications Organizations, particularly in traditional industries such as herbal and natural products, should invest in leadership development programs that emphasize inspiration, intellectual stimulation, and personalized guidance, as these practices foster employee engagement and innovation that are critical for building adaptive capabilities. At the same time, digital initiatives must be integrated with efforts to enhance internal skills, systems, and culture, since simply adopting new technologies will not lead to resilience unless employees are trained to use them effectively and organizational processes are adjusted accordingly. This study confirms that digitalization contributes to resilience only through full mediation by organizational capabilities. The VAF and bootstrapped CI analysis provide statistical evidence for this mediation, reinforcing the necessity of capability development alongside technology adoption. In addition, companies need to continuously strengthen their ability to sense, seize, and transform in response to market shifts, which involves developing R&D activities, applying data analytics to better understand customer needs, and restructuring operations to maintain agility. For organizations facing modernization challenges, resilience also depends on balancing technological advancements with human-centered leadership to ensure that technology adoption enhances, rather than replaces, organizational strength. Finally, industry stakeholders and policymakers can leverage these findings to design capacity-building programs that integrate digital literacy, leadership training, and innovation management, particularly for small to medium-sized enterprises in traditional sectors.

## 7. Limitations and Future Research

Despite its contributions, this study has several limitations that need to be acknowledged. First, the analysis is limited to a single company—PT Sarigading Pusaka Kalimantan—which constrains the generalizability of the findings. Future studies could adopt a multi-firm design across different industries or sectors to enhance external validity. Second, the reliance on self-reported survey data raises the possibility of common method bias and subjective perceptions influencing the results. Future research may triangulate findings using multiple data sources, such as archival data, performance metrics, or qualitative interviews. Third, the cultural and institutional setting of Indonesia, particularly within the herbal industry, may influence how leadership and digitalization practices shape organizational resilience. Replication in different cultural contexts or with cross-country comparative designs would strengthen theoretical insights. Finally, this study was cross-sectional in nature, which prevents examination of long-term causal dynamics. Future research could benefit from longitudinal approaches to capture how leadership practices, digitalization initiatives, and capabilities evolve over time in shaping resilience.

## 8. Declarations

### 8.1. Ethical considerations

Ethics Declaration This study was conducted in accordance with ethical standards for research involving human participants. Approval was obtained from the Research Ethics Committee of Universitas Muslim Indonesia. Informed consent was secured from all participants prior to data collection, and respondents were assured of anonymity and confidentiality. Participation was entirely voluntary, and respondents retained the right to withdraw at any time without penalty. All data were stored securely and used solely for academic purposes, in compliance with institutional data protection policies.

### 8.2. Use of artificial intelligence (AI)

The authors declare that the generative artificial intelligence (AI) tool ChatGPT was used exclusively for language editing and grammatical improvement. The use of AI did not influence the scientific content, study design, data analysis, data interpretation, results, or conclusions of the manuscript. Full responsibility for the content remains with the authors.

### 8.3. Conflict of Interest

The authors declare no conflicts of interest.

### 8.4. Funding

This research did not receive any financial support.

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