

“Information technology capability as a mediator between leadership, culture, and innovation in driving organizational agility”

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INFORMATION TECHNOLOGY CAPABILITY AS A MEDIATOR BETWEEN LEADERSHIP, CULTURE, AND INNOVATION IN DRIVING ORGANIZATIONAL AGILITY

Abstract

The banking industry faces rapid transformation, making organizational agility critical for competitiveness. Digitalization enhances IT capability to drive efficiency and resilience, yet evidence in Indonesian state-owned banks remains inconsistent. This study aims to examine IT capability as a mediator between leadership, culture, and innovation in shaping organizational agility at Bank BTN. This paper uses a quantitative approach. The analysis was conducted at Bank Tabungan Negara in Indonesia from May to July 2025. It involved 319 BTN bank employees selected using a proportionate stratified random sampling technique, consisting of 219 people who served as managers, 41 as senior managers, 33 as assistant vice presidents, and 26 as vice presidents. Data analysis was conducted through a confirmatory factor analysis (CFA) and model fit assessment prior to hypothesis testing using the structural equation modeling (SEM) approach. Descriptive and correlational analyses were performed with SPSS version 26, while hypothesis testing was carried out using LisRel 8.80. The findings demonstrate that leadership behavior, organizational culture, and organizational innovation significantly enhance organizational agility, both directly and through the mediating role of information technology capability. Leadership shows the strongest direct effect on agility, while innovation exerts the strongest influence on IT capability. Overall, the findings confirm IT capability as a key mediator linking leadership, culture, and innovation to higher organizational agility, though generalizability is limited by the single-organization context of Bank BTN.

Keywords

leadership behavior, organizational culture,
organizational innovation, information technology
capability, organizational agility

JEL Classification

M14, M15, O32, O33

INTRODUCTION

The banking industry is undergoing profound transformation driven by regulatory changes, technological advancements, and evolving customer preferences (Gomber et al., 2018; Yoganandham, 2024; Gaviyau & Godi, 2025). These dynamics challenge traditional business models and demand rapid organizational responses. In this context, organizational agility has emerged as a critical capability, enabling banks to achieve efficiency, enhance customer satisfaction, and sustain employee motivation. Organizational agility integrates strategic objectives such as responsiveness, flexibility, innovation, and adaptability, ensuring that institutions can continuously generate new ideas, develop viable products, and maintain long-term competitiveness (Govuzela & Mafini, 2019; Voegtlin & Greenwood, 2016).

Digitalization has become a central driver of agility in the financial sector. By strengthening information technology capability, digitalization transforms service delivery, streamlines operations, and re-

duces costs. It enables banks to provide personalized experiences through online and mobile platforms, while enhancing security and leveraging data analytics for improved decision-making (Bousrih, 2023; Hakizimana et al., 2023). Consequently, digitalization is not merely a technological upgrade but a strategic enabler of competitiveness and resilience in the modern financial landscape (Turhan, 2023; Yaqub & Alsabban, 2023).

The convergence of technological disruption, regulatory pressures, and heightened customer expectations has lowered barriers to entry and intensified competition in retail banking. Agile organizations are better positioned to withstand shocks and adapt to volatile environments (Kovynyov et al., 2021). Importantly, agility requires not only structural transformation but also the adaptability of human resources, whose synergy with organizational processes enables sustainable change.

In banking institutions, leadership behavior, organizational culture, and innovation reinforce agility. Leadership provides strategic vision and commitment, culture fosters collaboration and openness, and innovation drives continuous improvement in products and services (Probojakti et al., 2024; Shah, 2025). Together, these elements embed agility into both strategic and operational practices, ensuring resilience amid digital transformation and regulatory challenges.

In Indonesia, PT Bank Tabungan Negara (Persero) Tbk (Bank BTN), as a specialist in public housing credit (PHR), faces anomalies that raise concerns about its organizational agility. Compared to other state-owned banks, BTN records higher PHR interest rates and a smaller PHR portfolio. These anomalies suggest potential limitations in adapting to market demands and sustaining competitiveness in the housing finance sector. Previous studies highlight the influence of leadership, culture, innovation, and IT capability on organizational agility (Goncalves et al., 2020; Astuti et al., 2023; Bhatnagr, 2026; Su et al., 2026). However, findings remain inconsistent. Some evidence reports no significant effect of leadership (Qader, 2021), while others indicate negative impacts of culture, innovation, and IT capability (Atkinson et al., 2022; Panda & Rath, 2021).

These inconsistencies indicate the presence of a research gap that warrants further empirical investigation. The gap is not simply a generic observation of digitalization trends but lies in the absence of empirical evidence within Indonesian state-owned banking, particularly in BTN's unique role as a PHR-focused institution. Furthermore, the mediating role of IT capability in shaping organizational agility remains underexplored, and contradictory findings in prior literature demand clarification. Addressing these issues is important to advance theoretical understanding and provide practical insights for enhancing agility in state-owned banks operating under dynamic regulatory and technological pressures.

1. LITERATURE REVIEW AND HYPOTHESES

1.1. Organizational agility

Organizational agility comprises two components: agility and organization. To gain a comprehensive understanding, it is necessary to define agility and organization separately. Agility is the ability to identify innovation opportunities, respond to them, and rapidly redesign processes to capitalize on market conditions

(Darvishmotevali et al., 2020). It represents the capacity to respond quickly to emerging market opportunities. Armanious and Padgett (2021) argue that agility is a state in which individuals are open to seeking knowledge and self-development, possess problem-solving skills, are comfortable with new experiences, technologies, and ideas, and are always ready to accept new responsibilities. Organizational agility is a multidimensional capability that integrates physical, technological, and human resources to respond effectively to rapid market changes (Siddique & Asif khan, 2022). It reflects an organization's

ability to foster collaboration, innovation, and growth through strong managerial relationships and technology-based environments (Wanasida et al., 2021), as well as openness to new knowledge, problem-solving, and responsibilities (Armanious & Padgett, 2021). Empirical evidence confirms that organizational agility contributes significantly to performance outcomes (Muthuveloo & Koay, 2023) and can be assessed through indicators such as agile strategy, perception, testing, and implementation (Worley et al., 2014; Gagel, 2018).

1.2. Leadership behavior

Leadership behavior refers to the actions and attitudes demonstrated by a leader in guiding, motivating, and influencing team members toward shared goals. Effective leadership behaviors such as providing direction, support, motivation, and feedback, as well as setting a good example, can foster strong relationships, enhance individual and group performance, and create a productive work environment (Ergin, 2023; Tyaningsih & Nurachadijat, 2023). Positive leadership behavior also impacts organizational culture favorably and facilitates sustainable change within the organization (Gomathy et al., 2023). Leadership behavior has consistently been shown to influence organizational agility across diverse contexts (Syamsir & Saputra, 2025). Leaders who are task-oriented, relationship-oriented, change-oriented, and externally oriented (Yukl, 2012; Mayer et al., 2023) provide vision, motivation, and support that enable organizations to adapt quickly.

1.3. Organizational culture

Organizational culture consists of the values, beliefs, customs, and attitudes that shape the behavior of an organization's members. It encompasses the shared activities, values, and beliefs that constitute the organization's culture and guide member behavior (Schermerhorn et al., 2010). These definitions illustrate that organizational culture is a set of common behaviors, attitudes, and values formed within an organization that directs the conduct of its members; in a business context, this framework is often referred to as corporate culture. Just as no two individuals possess the exact same personality, no two organizational cultures

are identical. Similarly, organizational culture, defined as shared values, beliefs, and practices, creates a collaborative and adaptive environment that strengthens agility (Carvalho et al., 2023; Boikanyo, 2024). Indicators such as trust, competence, loyalty, and adaptability (Gavrić et al., 2016) embed agility into daily organizational life.

1.4. Organizational innovation

Organizational innovation can be understood by examining the definitions of innovation and organization. Fundamentally, innovation is the process of transforming an original concept into a practical product or operational procedure (Robbins & Coulter, 2016). Bocken and Geradts (2020) view the adoption of innovation as innovation itself, defining it to encompass the creation, development, and implementation of new ideas and actions. Organizational innovation is defined as creating or acquiring new devices, systems, policies, programs, processes, products, and services within an organization. Rajapathirana and Hui (2018) define organizational innovation as developing or adopting ideas or behaviors within organizational operations that are new to the entire organization. The implementation of new technologies or management practices is realized through new products or processes. New products encompass both tangible goods and intangible services, while new processes include both direct operational processes and support activities within the organization. These new technologies or management practices may have existed previously or emerged recently (Abbas et al., 2020). Organizational innovation, whether incremental or radical, enhances responsiveness and flexibility through new products, processes, and strategies (Yildiz & Aykanat, 2022). Digital transformation, as discussed by Zhang and Chen (2024), significantly shapes organizational innovation performance, thereby enhancing responsiveness and flexibility.

1.5. Information technology capability (ITC)

ITC is the organizational ability to acquire, integrate, and deploy IT resources to create business value and competitive advantage (Chen et al., 2021; Suoniemi et al., 2020). Various studies have shown

that information technological capability mediates the relationships among leadership, culture, innovation, and agility. Information technology capabilities (ITC) enhance organizational agility by serving as an organizational conduit through which ITC can positively shape agility outcomes (Cepeda & Arias-Pérez, 2019). Information technology capabilities (ITC) and knowledge management capabilities (KMC) are pivotal in strengthening organizational agility. As core organizational competencies, ITC and KMC enable firms to leverage both tangible IT resources and intangible knowledge assets, thereby achieving superior levels of agility (Panda, 2025). Moreover, Ilmudeen (2022) stated that IT governance mechanisms exert a positive influence on the development of IT-enabled dynamic capabilities. These dynamic capabilities, in turn, enhance organizational agility and innovative capacity, thereby contributing to improved firm performance.

Based on this literature review, this study investigates how information technology capability mediates the effects of leadership behavior, organizational culture, and organizational innovation on organizational agility in Indonesian state-owned banks, with Bank BTN as the focal case, with the following hypotheses:

- H_1 : *Leadership behavior affects organizational agility.*
- H_2 : *Organizational culture affects organizational agility.*
- H_3 : *Organizational innovation affects organizational agility.*
- H_4 : *ITC affects organizational agility.*
- H_5 : *Leadership behavior affects ITC.*
- H_6 : *Organizational culture affects ITC.*
- H_7 : *Organizational innovation affects ITC.*
- H_8 : *Leadership behavior affects organizational agility through ITC.*
- H_9 : *Organizational culture affects organizational agility through ITC.*

- H_{10} : *Organizational innovation affects organizational agility through ITC.*

2. METHODS

This study employs a quantitative approach. The paper utilizes a causal research design, which aims to explain cause-and-effect relationships or the influence exerted and received among the concepts or variables under investigation (Leavy, 2022). The study focuses on causal relationships involving exogenous variables, specifically leadership behavior, organizational culture, and organizational innovation, while information technology capability serves as a mediating variable. The endogenous variable is organizational agility.

The research was conducted at Bank Tabungan Negara in Indonesia. PT Bank Tabungan Negara (BTN) is one of the biggest banks in Indonesia, owned by the Indonesian government. The study population was 1,566 permanent employees at the middle management level at PT Bank Tabungan Negara (Persero) Tbk, covering positions ranging from assistant manager to executive vice president. We conducted the randomization process using a random number generator function in statistical software, ensuring that every individual in the population had an equal chance of being selected. From this list, 319 employees were selected as the study sample. The sample included 219 managers, 41 senior managers, 33 assistant vice presidents, and 26 vice presidents.

This study employed the proportionate stratified random sampling technique following Iliyasu and Etikan (2021). In this approach, the number of elements selected from each stratum is proportional to the stratum's share in the overall population. In other words, the sample drawn from each stratum reflects its relative size within the target population. Each stratum is assigned the same sampling fraction, ensuring that every individual in the population has an equal probability of selection. The outcome of this procedure is a self-weighting sample, meaning that the sample automatically mirrors the composition of the population. Brito et al. (2010) stated that the sample calculation formula is:

$$nh = \frac{n \cdot Nh}{N}, \quad (1)$$

where nh – number of samples; n – total sample size; N – total population; Nh – population size.

This method was chosen because the research population included several job categories, such as manager, senior manager, assistant vice president, and vice president. Thus, each category received a sample allocation proportional to its size in the population.

Invitations to participate were issued online via a Google Forms link sent directly to the individuals selected during the randomization process, rather than through open distribution. A response rate of 319 was achieved from the total invitations sent. Consequently, there was no replacement for non-responding individuals. Distribution via WhatsApp served solely as a technical means to convey the questionnaire link to the pre-selected respondents, rather than as a method for general dissemination. Thus, the procedure was maintained in accordance with methodological principles, and the data reflect the representativeness of the study population.

Data collection was conducted from May to July 2025. The questionnaire was a closed-ended survey with pre-defined answer options, and respondents simply ticked the answer they deemed appropriate. Thus, the primary data came from questionnaires completed by participants. Secondary data came from scientific articles and books. This study used a Likert-scale survey with five response options, ranging from strongly disagree/never (score 1) to strongly agree/always (score 5), as explained by Ceylan (2019). This approach also supports quantitative analysis using structural equation modeling (SEM), because the resulting data can be generalized to the entire population.

Of the 319 participants, most were male (65.8%), aged 31–40 years (33.9%), married (80.6%), had over 15 years of work experience (37%), and were managers (80.3%). Table 1 presents Demographic profile of research participants, while Table 2 shows the amount of the population and sample of the research participants

Table 1. Demographic profile of research participants

Characteristics		Frequency	Percentage %
Gender	Male	210	65.8
	Female	109	34.2
Age	≤ 20 years	0	0
	21 – 30 years	54	16.9
	31 – 40 years	108	33.9
	41 – 50 years	71	22.3
	> 50 years	86	27
Education	Senior high school	3	0.94
	Diploma	13	4.08
	Bachelor	235	73.7
	Master	61	19.1
	Doctor	7	2.19
Marital status	Married	257	80.6
	Unmarried	62	19.4
Experience	< 5 years	44	13.8
	5 – 10 years	79	24.8
	10 – 15 years	78	24.5
	> 15 years	118	37
Job	Vice President	26	8.15
	Assistant Vice President	33	10.35
	Senior Manager	41	12.85
	Manager	219	68.65

Table 2. The amount of the population and sample of the research participants

Position	Population	Sample
Vice President	127	319/1,566x127 = 26
Assistant Vice President	160	319/1,566x160 = 33
Senior Manager	203	319/1,566x203 = 41
Manager	1076	319/1,566x1076 = 219
Total	1,566	319

3. RESULTS

The data analysis began with a descriptive analysis that included the mean and standard deviation, and a correlational analysis to examine the relationship between the variables. It was followed by a confirmatory factor analysis (CFA) test and a model feasibility test before hypothesis testing using the structural equation modeling (SEM) approach. Descriptive and correlational analyses were conducted using SPSS version 26, while the hypothesis test was conducted using LisRel 8.80.

The results of the descriptive analysis show standard deviations ranging from 3.967 to 6.652, which are lower than the average of 33.32 to 69.38

Table 3. Descriptive and correlational analysis

Variables	Mean	SD	1	2	3	4	5
Leadership behavior	52.59	6.622	1.00				
Organizational culture	69.38	6.652	0.631	1.00			
Organization innovation	42.13	4.996	0.614	0.719	1.00		
ITC	37.03	4.959	0.674	0.715	0.766	1.00	
Organization agility	33.32	3.967	0.730	0.730	0.760	0.794	1.00

(Table 3). It produces a distinctive data pattern that requires further investigation. In addition, the correlation coefficient lies between 0.614 and 0.794. The significance of the results for all constructs (variables) is greater than the p -value < 0.01, which illustrates the reciprocal dependence between constructs. Although there is reciprocal dependence, the correlation coefficient obtained is less than 0.8, indicating the absence of multicollinearity phenomena (Widodo et al., 2024).

3.1. Measurement model

To evaluate the validity and reliability of the constructs, a confirmatory factor analysis (CFA) was conducted. The measurement models for leadership behavior (Table 4), organizational culture (Table 5), organizational innovation (Table 6), information technology capability (Table 7), and organizational agility (Table 8) which summarize the factor loadings, t -values, average variance extracted (AVE), and Cronbach's alpha coefficients for all indicators.

Table 4 indicates that the loading factor values for all items exceed the specified threshold of 0.5, ranging from 0.75 to 0.94. All loading factor val-

ues are statistically significant, as their calculated t -values (or critical ratios) exceed the critical table value (1.96). These results demonstrate that all items are valid for measuring their respective indicators, thereby indicating good convergent validity. Regarding discriminant validity, the AVE and Alpha values exceed 0.6, confirming that the measures are acceptable and demonstrate good discriminant validity.

Table 5 indicates that the loading factor values for all items exceed 0.5. These loading factor values range from 0.52 to 0.89. All loading factor values are also significant, as the calculated t -values exceed 1.96. These results demonstrate that all items are valid for measuring their respective indicators, thereby indicating good convergent validity. Furthermore, the discriminant validity analysis shows AVE and Alpha values greater than 0.6, confirming that the results are acceptable and meet the criteria for good discriminant validity.

Table 6 indicates that the loading factor values for all items exceed 0.5. These loading factor values range from 0.79 to 0.94. All loading factor values are significant, as the calculated t -values exceed 1.96. These results demonstrate that all items are valid

Table 4. Measurement model: Leadership behavior

Indicators	Item	Loading Factor	Calculated t-value	AVE	Alpha
Task-oriented behavior ($X_{1.1}$)	$X_{1.1.1}$	0.88	—	0.735	0.911
	$X_{1.1.2}$	0.89	13.28		
	$X_{1.1.3}$	0.75	9.84		
	$X_{1.1.4}$	0.90	13.92		
Relationship-oriented behavior ($X_{1.2}$)	$X_{1.2.1}$	0.88	—	0.757	0.900
	$X_{1.2.2}$	0.88	12.76		
	$X_{1.2.3}$	0.85	11.62		
Change-oriented behavior ($X_{1.3}$)	$X_{1.3.1}$	0.83	—	0.794	0.920
	$X_{1.3.2}$	0.94	14.05		
	$X_{1.3.3}$	0.90	13.47		
Externally oriented behavior ($X_{1.4}$)	$X_{1.4.1}$	0.81	—	0.706	0.878
	$X_{1.4.2}$	0.86	11.93		
	$X_{1.4.3}$	0.85	11.52		

Table 5. Measurement model: Organizational culture

Indicator	Item	Loading Factor	Calculated t-value	AVE	Alpha
Trustworthy ($X_{2.1}$)	$X_{2.1.1}$	0.83	—	0.690	0.864
	$X_{2.1.2}$	0.86	13.42		
	$X_{2.1.3}$	0.80	11.56		
Competent ($X_{2.2}$)	$X_{2.2.1}$	0.67	—	0.617	0.603
	$X_{2.2.2}$	0.68	8.24		
	$X_{2.3.1}$	0.75	—		
Harmonious ($X_{2.3}$)	$X_{2.3.2}$	0.58	7.12	0.677	0.735
	$X_{2.3.3}$	0.73	9.68		
	$X_{2.4.1}$	0.57	—		
Loyal ($X_{2.4}$)	$X_{2.4.2}$	0.75	8.02	0.646	0.710
	$X_{2.4.3}$	0.67	7.45		
	$X_{2.5.1}$	0.68	—		
Adaptive ($X_{2.5}$)	$X_{2.5.2}$	0.69	7.83	0.676	0.728
	$X_{2.5.3}$	0.70	8.01		
	$X_{2.6.1}$	0.52	—		
Collaborative ($X_{2.6}$)	$X_{2.6.2}$	0.89	12.56	0.612	0.607

Table 6. Measurement model: Organizational innovation

Indicator	Item	Loading Factor	Calculated t-value	AVE	Alpha
Product innovation ($X_{3.1}$)	$X_{3.1.1}$	0.90	—	0.623	0.896
	$X_{3.1.2}$	0.90	13.42		
Market innovation ($X_{3.2}$)	$X_{3.2.1}$	0.86	—	0.619	0.810
	$X_{3.2.2}$	0.80	10.87		
Process innovation ($X_{3.3}$)	$X_{3.3.1}$	0.79	—	0.614	0.777
	$X_{3.3.2}$	0.81	10.21		
Behavioral innovation ($X_{3.4}$)	$X_{3.4.1}$	0.94	—	0.681	0.884
	$X_{3.4.2}$	0.85	12.68		
Strategic innovation ($X_{3.5}$)	$X_{3.5.1}$	0.82	—	0.617	0.795
	$X_{3.5.2}$	0.83	10.04		

Table 7. Measurement model: Information technology capability

Indicator	Items	Loading Factor	Calculated t-value	AVE	Alpha
IT knowledge ($Z_{.1}$)	$Z_{.1.1}$	0.83	—	0.701	0.874
	$Z_{.1.2}$	0.87	13.68		
	$Z_{.1.3}$	0.81	11.42		
IT operations ($Z_{.2}$)	$Z_{.2.1}$	0.91	—	0.730	0.893
	$Z_{.2.2}$	0.80	11.56		
	$Z_{.2.3}$	0.85	13.02		
IT infrastructure ($Z_{.3}$)	$Z_{.3.1}$	0.84	—	0.719	0.879
	$Z_{.3.2}$	0.91	14.25		
	$Z_{.3.3}$	0.79	11.18		

for measuring their respective indicators, thereby indicating good convergent validity. Regarding discriminant validity, the AVE and Alpha values exceed 0.6; thus, the results are acceptable and satisfy the criteria for good discriminant validity.

Table 7 indicates that all loading factor values exceed 0.5. These values range from 0.79 to 0.91. All

loading factors are significant, as the calculated t -values exceed 1.96. These results demonstrate that all items are valid for measuring their respective indicators, thereby establishing good convergent validity. Furthermore, the discriminant validity assessment shows AVE and Alpha values greater than 0.6, indicating acceptable results and satisfactory discriminant validity.

Table 8. Measurement model: Organizational agility

Indicators	Items	Loading Factor	Calculated t-value	AVE	Alpha
Agile strategy (Y_1)	$Y_{1,1}$	0.79	–	0.625	0.823
	$Y_{1,2}$	0.90	13.42		
Agile perception (Y_2)	$Y_{2,1}$	0.81	–	0.620	0.792
	$Y_{2,2}$	0.81	11.68		
Agile testing (Y_3)	$Y_{3,1}$	0.64	–	0.609	0.657
	$Y_{3,2}$	0.78	8.24		
Agile implementation (Y_4)	$Y_{4,1}$	0.89	–	0.639	0.863
	$Y_{4,2}$	0.86	13.92		

Table 8 indicates that all loading factor values exceed 0.5. These loading factor values range from 0.64 to 0.90. All loading factor values are significant, as evidenced by calculated t -values greater than 1.96. These results demonstrate that all items are valid for measuring their respective indicators, thereby establishing good convergent validity. Regarding discriminant validity, the AVE and Alpha values exceed 0.6, indicating that the measures are acceptable and satisfy the criteria for good discriminant validity.

3.2. Hypothesis testing

Hypothesis testing was conducted using structural equation modeling (SEM) analysis in LISREL software version 8.80. The results comprising path coefficients and t -tests regarding the causal relationships among leadership behavior (X_1), organizational culture (X_2), organizational innovation (X_3), information technology capability (Z), and organizational agility (Y), are summarized in Table 9 and visualized in Figures 1 and 2.

Table 9 shows that all hypothesized associations in the structural model are statistically significant. Each path exhibits a calculated t -value greater than the critical t -table value (1.96), indicating significance at both $\alpha = 0.05$ and $\alpha = 0.01$ levels. Specifically, the relationships between leadership behavior ($X_1 \rightarrow Y$), organizational culture ($X_2 \rightarrow Y$), and organizational innovation ($X_3 \rightarrow Y$) with organizational agility (Y) are significant, with path coefficients of 0.31, 0.15, and 0.26, respectively. Likewise, the associations between these independent variables and information technology capability (Z), namely $X_1 \rightarrow Z$, $X_2 \rightarrow Z$, and $X_3 \rightarrow Z$, are significant, with coefficients ranging from 0.23 to 0.47. The path $Z \rightarrow Y$ (information technology capability and organizational agility) also shows a significant relationship, with a coefficient of 0.28. Furthermore, the indirect (mediating) associations, $X_1 \rightarrow Z \rightarrow Y$, $X_2 \rightarrow Z \rightarrow Y$, and $X_3 \rightarrow Z \rightarrow Y$, display high t -values (13.39, 14.48, and 15.72), suggesting that information technology capability statistically mediates the relationships among leadership behavior, organizational culture, and organizational innovation.

Table 9. Summary of path coefficients and t -test

Path	Path Coefficients	Calculated t-value/Z-value	t-table/Z-table	Interpretation
$X_1 \rightarrow Y$	0.31	6.12	1.96	Significant
$X_2 \rightarrow Y$	0.15	2.45	1.96	Significant
$X_3 \rightarrow Y$	0.26	3.97	1.96	Significant
$X_1 \rightarrow Z$	0.24	4.65	1.96	Significant
$X_2 \rightarrow Z$	0.23	3.64	1.96	Significant
$X_3 \rightarrow Z$	0.47	7.32	1.96	Significant
$Z \rightarrow Y$	0.28	4.25	1.96	Significant
$X_1 \rightarrow Z \rightarrow Y$	0.07	13.39	1.96	Significant
$X_2 \rightarrow Z \rightarrow Y$	0.06	14.48	1.96	Significant
$X_3 \rightarrow Z \rightarrow Y$	0.14	15.72	1.96	Significant

Note: X_1 = leadership behavior; X_2 = organizational culture; X_3 = organizational innovation; Z = information technology capability; Y = organizational agility.

Table 10. Confidence intervals for mediation effects

Path (Indirect Effect)	Estimate	95% CI Lower	95% CI Upper	Significance
$X_1 \rightarrow Z \rightarrow Y$	0.07	0.04	0.11	Significant
$X_2 \rightarrow Z \rightarrow Y$	0.06	0.03	0.09	Significant
$X_3 \rightarrow Z \rightarrow Y$	0.14	0.09	0.20	Significant

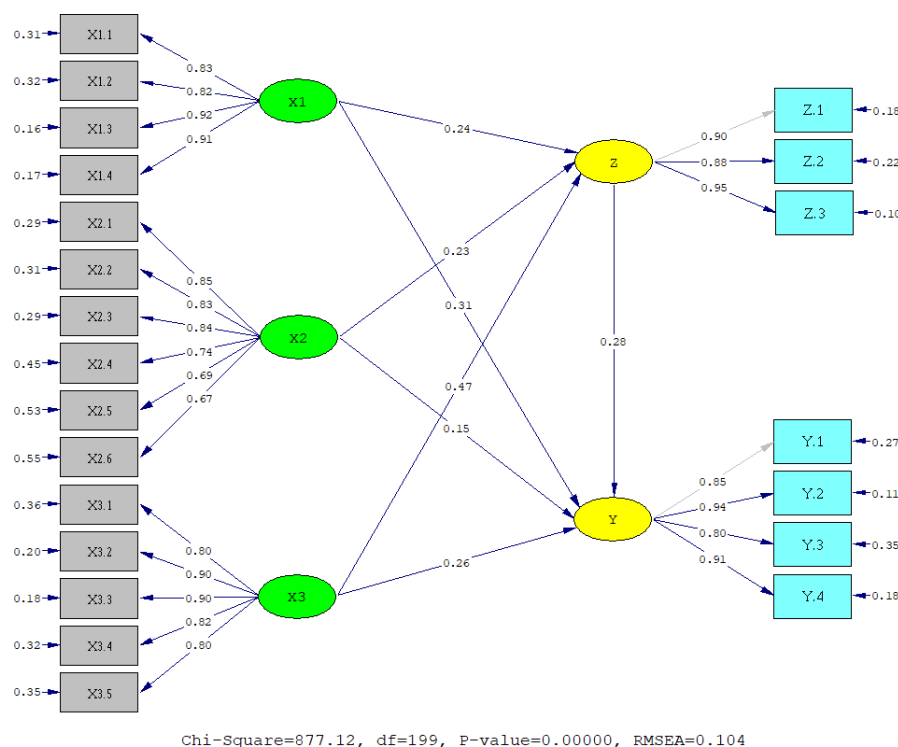
Note: X1 = leadership behavior; X2 = organizational culture; X3 = organizational innovation; Z = information technology capability; Y = organizational agility.

Table 11. The goodness of fit test results

Index	Critical value	Results	Information
Chi-Square	$\leq$ Table Chi-Square	877,12	Poor Fit
Sig. Probability	$\geq$ 0.05	0.00000	Poor Fit
CMIN/DF	$\leq$ 3.00	2.13	Good Fit
GFI	$\geq$ 0.90	0.90	Good Fit
AGFI	$\geq$ 0.80	0.82	Good Fit
TLI	$\geq$ 0.90	0.97	Good Fit
NFI	$\geq$ 0.90	0.96	Good Fit
CFI	$\geq$ 0.90	0.97	Good Fit
RMSEA	$\leq$ 0.08	0.07	Good Fit

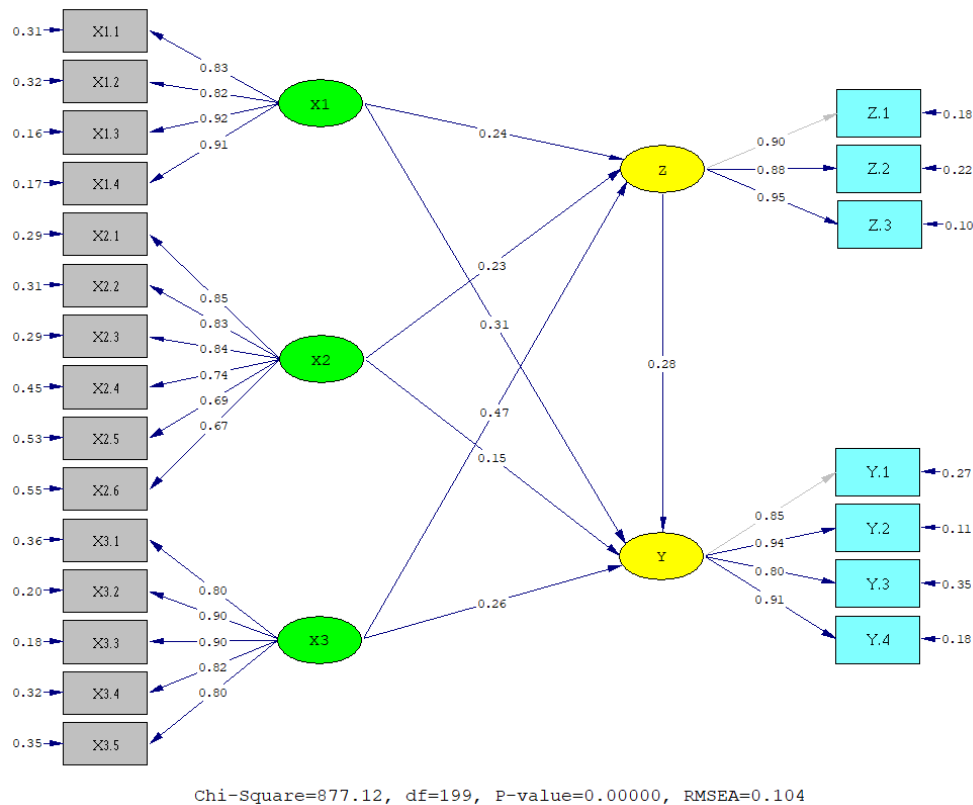
with organizational agility. Overall, these findings indicate that all paths in the model are significant, implying that leadership behavior, organizational culture, organizational innovation, and informa-

tion technology capability are interrelated factors that collectively correspond with higher levels of organizational agility. Confidence intervals for mediation effects are shown in Table 10.



Note: X1 = leadership behavior; X2 = organizational culture; X3 = organizational innovation; Z = information technology capability; Y = organizational agility.

Figure 1. Path coefficients of the influence of leadership behavior, organizational culture, organizational innovation, and information technology capability on organizational agility



Note: X1 = leadership behavior; X2 = organizational culture; X3 = organizational innovation; Z = information technology capability; Y = organizational agility.

Figure 2. T-values for the influence of leadership behavior, organizational culture, organizational innovation, and information technology capability on organizational agility

In addition to path coefficients and *t*-tests, the calculation results also present model fit indices (goodness-of-fit). The goodness-of-fit measures used include chi-square, significance probability, CMIN/DF, GFI, AGFI, TLI, NFI, CFI, and RMSEA. Table 11 presents the calculation results.

Table 11 shows that, out of nine indices, three are Chi-Square and Sig. Probability are categorized as poor fit, indicating that these measures do not meet the recommended thresholds for model adequacy. In contrast, the remaining seven indices, CMIN/DF, GFI, AGFI, TLI, NFI, CFI, and RMSEA, fall within the acceptable range and are categorized as good fit, suggesting that the model performs well in most aspects of fit evaluation. Overall, because most indices indicate a good fit, the empirical model examining the influence of leadership behavior, organizational culture, organizational innovation, and information technology capability on organizational agility is consistent with the theoretical model. This implies that

the proposed structural model adequately represents the observed data and is statistically acceptable for further interpretation. Hair et al. (2022) noted that the chi-square test is sensitive to large sample sizes (over 200) and that alternative testing methods are required. This study involved 319 leaders. Therefore, the chi-square test was ineffective. However, this test is considered satisfactory because the other eight criteria evaluated meet the required level. It means the theoretical model fits the empirical data based on the research sample (Aryani et al., 2025).

4. DISCUSSION

This study found that leadership behavior, organizational culture, and organizational innovation significantly affect organizational agility, both directly and indirectly, through ITC mediation. Since leadership behavior exerts a positive and significant influence on organizational agility, effective leadership prac-

tices manifested in task, relationship, change, and externally oriented behaviors mobilize resources and coordinate actions, thereby enhancing agility (Yukl, 2012; Mayer et al., 2023). Thus, leadership behavior is a crucial antecedent of organizational agility. This finding is consistent with previous studies affirming its significant effect (Syamsir & Saputra, 2025), while also addressing contradictory claims of insignificance (Qader, 2021). Leadership behavior is a crucial antecedent because it provides vision, direction, and motivation that align organizational resources and capabilities, enabling rapid adaptation to environmental changes and fostering a culture of collaboration and innovation.

Because organizational culture positively and significantly affects organizational agility, a culture that fosters trustworthiness, competence, harmony, loyalty, adaptability, and collaboration enhances agility. Consequently, this finding aligns with prior studies (Amirnejad & Milad, 2015; Khalid et al., 2020; Elmi et al., 2024) and refutes earlier claims of negative effects (Atkinson et al., 2022; Panda & Rath, 2021), thereby helping resolve contradictions in the literature.

Because organizational innovation significantly influences organizational agility, innovation across product, market, process, behavioral, and strategic domains strengthens agility by manifesting in agile strategy, perception, testing, and implementation (Worley et al., 2014; Siddique & Asif Khan, 2022; Gagel, 2018). Consequently, this finding is consistent with recent studies (Zhang & Chen, 2024) and counters earlier claims of negative effects (Atkinson et al., 2022; Panda & Rath, 2021).

This study also proves that ITC affects organizational agility. Adequate ITC encompassing IT knowledge, operations, and infrastructure (Turulja & Bajgorić, 2016; Panda & Rath, 2021) serves as an enabler of agility. This finding aligns with Mao et al. (2023), who clarified the causal relationship between ITC and agility. ITC has been proven not only to affect

organizational agility but also to be influenced by leadership behavior. Effective leadership fosters ITC development, reflected in knowledge, operations, and infrastructure (Mayer et al., 2023).

Organizational innovation positively and significantly affects ITC. Innovation initiatives encourage ITC development, making innovation a crucial antecedent of ITC. This finding supports previous studies (Pasaribu et al., 2021; Mishra, 2025). Moreover, ITC plays a significant mediating role in the causal relationships among leadership behavior, organizational culture, and organizational innovation with organizational agility. ITC transmits the potential of these antecedents into agility outcomes, confirming prior partial findings (Horchani, 2025). This provides a novel empirical model that contributes theoretically to management science and practically to corporate management practices.

This study further highlights that the direct path from leadership behavior to organizational agility is the strongest among the direct effects. Leadership behavior directly influences organizational members, enabling faster adaptive responses than other antecedents (Yukl, 2012; Mayer et al., 2023). In contrast, Information technology (IT) capability enhances innovation performance by supporting the development and utilization of knowledge-intensive assets. The positive relationship between IT capability and firm innovation is particularly evident in environments characterized by intense competition (Koo & Lee, 2024). Nevertheless, the findings must be interpreted with caution due to the single-organization context. BTN, as a state-owned bank, operates under specific governance structures, institutional culture, and distinct digitalization pressures that may not be representative of private banks or other sectors. This is in line with Atkinson et al. (2022) and Panda and Rath (2021). The unique regulatory environment and organizational characteristics of state-owned enterprises can amplify or constrain the observed relationships, limiting generalizability.

CONCLUSION

This study investigates how leadership behavior, organizational culture, and organizational innovation shape organizational agility through the mediating role of information technology (IT) capability. The study finds that organizational culture and organizational innovation both positively and significantly affect organizational agility, confirming that a supportive culture and innovative practices enhance

adaptability. Information technology capability (ITC) also plays an important role, directly strengthening agility while simultaneously being shaped by leadership behavior, organizational culture, and organizational innovation. Effective leadership fosters robust ITC, while a supportive culture and innovative environment further drive improvements in technological capability. Moreover, ITC mediates the causal relationships among leadership behavior, organizational culture, and organizational innovation and organizational agility, underscoring its central role as both a determinant and a mediator in the model.

AUTHOR CONTRIBUTIONS

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Formal analysis: Lia Yuliani, Achmad Sudiro, Dodi Wirawan Irawanto.

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Methodology: Lia Yuliani, Achmad Sudiro, Dodi Wirawan Irawanto.

Resources: Lia Yuliani.

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Supervision: Achmad Sudiro, Dodi Wirawan Irawanto, Ainur Rofiq.

Validation: Lia Yuliani, Dodi Wirawan Irawanto, Ainur Rofiq.

Visualization: Lia Yuliani, Ainur Rofiq.

Writing – original draft: Lia Yuliani.

Writing – review & editing: Achmad Sudiro, Dodi Wirawan Irawanto, Ainur Rofiq.

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