



Building cooperative stability: Strategic responses to financial digitalization in East Java

Mulyaningtyas¹, Ditya Wardana², Nasriyah Adnan³

^{1,2}Faculty of Economics and Business, Institut Teknologi dan Bisnis ASIA Malang, Indonesia

³Commerce Department, Politeknik Melaka, Malaysia

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ABSTRACT

This study examines the impact of financial digitization on cooperative stability in East Java and identifies strategic responses to strengthen cooperatives during digital transformation. A mixed-method approach was applied to four medium- to large-scale cooperatives involving 60 informants, including members, administrators, regulators, digital startup actors, and academics. Quantitative data were analyzed using multiple linear regression to assess the effects of cyber readiness, member trust, resource constraints, and government support on cooperative stability, while qualitative interviews were used to contextualize the statistical findings. The results show that only cyber readiness has a significant negative effect on cooperative stability, whereas member trust, resource constraints, and government support are not statistically significant. These findings indicate that digital transformation may introduce operational vulnerabilities when cybersecurity capabilities are not sufficiently developed. Strategically, the study recommends phased digital adoption, stronger institutional capacity, and fintech-based partnerships to improve cooperative resilience. Theoretically, this study extends the RBV–VRIO perspective by conceptualizing cooperative stability as an integrated outcome of operational continuity, member confidence, governance effectiveness, and adaptive capacity. Its novelty lies in showing that a valuable digital capability such as cybersecurity readiness may simultaneously create vulnerabilities when it is not effectively organized and institutionalized.

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Corresponding Author:

Mulyaningtyas,
Accounting Department, Faculty of Economics and Business,
Institut Teknologi dan Bisnis ASIA Malang,
Jl. Soekarno-Hatta Rembeksari No. 1A Malang, East Java, 65113, Indonesia
Email: mulyaningtyas@asia.ac.id

1. INTRODUCTION

Cooperatives play an important role in the people's economy through shared ownership, member participation, and democratic governance. Financial digitization offers opportunities to improve service speed, transparency, accessibility, and efficiency. However, it also creates new challenges, including cybersecurity threats, technological dependence, unequal digital literacy, limited infrastructure, and regulatory uncertainty. These risks are particularly critical for cooperatives serving MSMEs and rural communities, where organizational resources and digital readiness are often limited.

Previous studies have mainly emphasized the positive contribution of digitalization to efficiency, service quality, competitiveness, and financial performance (Zhou & Sun, 2024) (Affandi et al., 2024) (Fiordelisi et al., 2023); (Nurul Fadhilah & Darmawati, 2023). Other studies show that digital

transformation is increasingly important for institutional competitiveness and younger member engagement (Hamdani, 2023); (Zheng et al., 2024). Nevertheless, digital readiness remains uneven, particularly among organizations facing financial, technological, and human-resource constraints (Abbasi et al., 2021); (Ulrich-Diener et al., 2025). Cybersecurity has also become a critical concern because digital vulnerabilities may disrupt operations and reduce institutional credibility and member trust. These findings indicate that digitalization does not automatically strengthen cooperatives; its effects depend on the capabilities and resources available to manage digital risks (Kallmuenzer et al., 2025) (Ferri et al., 2025).

In this context, stability is more fundamental than short-term performance. Performance generally reflects outcomes such as profitability, efficiency, productivity, or growth, whereas stability concerns the ability of cooperatives to maintain service continuity, member confidence, effective governance, and adaptive capacity during disruption (Khurana et al., 2022). A cooperative may improve efficiency through digitalization while simultaneously becoming more vulnerable to cyber incidents, external platform dependence, or declining member trust. Therefore, stability determines whether improved performance can be sustained over time (Copestake et al., 2024); (Lou et al., 2025).

This study adopts the Resource-Based View (RBV), which explains organizational outcomes through valuable, rare, inimitable, and well-organized resources (Soluk et al., 2023) ; (Barney, 2021). However, conventional RBV has primarily been applied to explain competitive advantage and organizational performance, while providing limited explanation of situations in which the same resources may simultaneously generate capabilities and vulnerabilities (Saeedikiya et al., 2024) . In digitally transforming cooperatives, technological resources can enhance efficiency but also increase cybersecurity exposure and dependence on external infrastructure. This limitation suggests the need to extend RBV toward explaining how internal capabilities, resource constraints, and external institutional support influence organizational stability under digital uncertainty.

Despite growing research on cooperative digitalization, three gaps remain. First, previous studies largely focus on performance-related outcomes rather than long-term organizational stability. Second, limited research jointly examines cyber readiness, member trust, resource constraints, and government support as determinants of stability (Billiet et al., 2021). Third, cooperative stability has rarely been operationalized as an integrated construct combining operational continuity, member confidence, governance effectiveness, and adaptive capacity (Sharma et al., 2024) . Thus, the novelty of this study lies not in claiming stability as an entirely new organizational concept, but in conceptualizing it specifically for digitally transforming cooperatives (Verma et al., 2023) .

Accordingly, this study examines the effects of cyber readiness, member trust, resource constraints, and government support on cooperative stability in East Java using multiple linear regression. Accordingly, this study examines the effects of cyber readiness, member trust, resource constraints, and government support on cooperative stability in East Java using multiple linear regression. East Java provides a relevant context for theory development because its cooperative sector is characterized by substantial organizational diversity, varying levels of digital readiness, and differing institutional capacities, allowing the RBV–VRIO framework to be examined under heterogeneous resource conditions and digital transformation pressures. The empirical findings are subsequently integrated with SWOT analysis to formulate strategic responses linking internal capabilities with external opportunities and threats. The empirical findings are subsequently integrated with SWOT analysis to formulate strategic responses linking internal capabilities with external opportunities and threats (Suciati et al., 2021); (Mulya et al., 2026).

Member trust is an important intangible resource in cooperatives because cooperative sustainability depends on member participation, loyalty, and confidence in institutional governance. In digital financial services, trust becomes more critical because members must believe that transactions are secure, transparent, and reliable. Higher member trust can reduce resistance to digital adoption and strengthen member commitment to the cooperative.

H₁: Member trust positively influences cooperative stability.

Resource constraints reflect limitations in finance, human resources, technological infrastructure, managerial capability, and digital literacy (Siddik et al., 2023). From the RBV perspective, such limitations weaken the cooperative's ability to build strategic capabilities and respond to digital transformation. Cooperatives with stronger resource constraints may face greater difficulty in maintaining service quality, adopting technology, and managing digital risks.

H2: Resource constraints positively influence cooperative stability.

Support from the government and partners can strengthen cooperative stability by providing access to regulation, training, infrastructure, funding, technology, and knowledge transfer. Although RBV emphasizes internal resources, external support can complement the cooperative's resource base and help overcome internal limitations. Stronger institutional and partnership support can improve digital adoption and reduce uncertainty during transformation.

H3: Support from the government and partners positively influences cooperative stability.

Cybersecurity preparedness refers to the cooperative's capability to prevent, detect, respond to, and recover from cyber threats. In financial digitization, this capability is essential because digital transactions, member data, and financial records must be protected from fraud, breaches, and system disruption. Strong cybersecurity preparedness supports service continuity, protects institutional credibility, and maintains member confidence.

H4: Cybersecurity preparedness positively influences cooperative stability.

2. RESEARCH METHOD

This study employed a sequential explanatory mixed-method design to examine factors influencing cooperative stability and formulate strategic responses to financial digitalization in East Java. Quantitative data were collected through structured questionnaires and analyzed using multiple linear regression, followed by interviews to explain the statistical findings; SWOT analysis was then used as a strategic interpretation tool. The study involved four medium-to-large-scale cooperatives in East Java, namely Koperasi Karep Bojonegoro, Koperasi SAE Pujon, Koperasi Setia Budi Wanita Malang, and Koperasi Pelita Sejahtera PLN APJ Malang. These cooperatives were purposively selected based on their active financial services, established institutional structures, and experience with digitalization. The study involved 60 respondents, comprising 40 cooperative members and administrators and 20 external informants from regulatory, digital startup, and academic backgrounds. Although limited, the sample was appropriate for an exploratory and context-specific mixed-method study. Questionnaire items used a five-point Likert scale. Cooperative stability was measured through service continuity, member participation, institutional credibility, financial resilience, and adaptability, while the predictors were member trust, resource constraints, government and partner support, and cybersecurity preparedness.

The quantitative data were analyzed using multiple linear regression with the following model:

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon \quad \dots\dots\dots (1)$$

where Y represents cooperative stability, X_1 represents member trust, X_2 represents resource constraints, X_3 represents government and partner support, X_4 represents cybersecurity preparedness, α is the constant, β_1 – β_4 are the regression coefficients, and ε is the error term. Prior to hypothesis testing, the regression assumptions were assessed through residual normality, multicollinearity, and heteroscedasticity tests. Multicollinearity was evaluated using tolerance and Variance Inflation Factor (VIF) values, while heteroscedasticity testing was conducted to verify the consistency of residual variance across observations. The overall explanatory power of the model was assessed using the coefficient of determination (R^2), which indicates the proportion of variation in cooperative stability explained by the independent variables. The F-test was used to examine whether the independent variables jointly had a statistically significant effect on cooperative stability, while individual effects were evaluated using the t-test. Statistical significance was determined at the 0.05 level.

After the quantitative phase, interviews explored internal and external factors affecting financial digitalization, including trust, resources, digital readiness, regulation, partnerships, and cybersecurity risks. The findings were integrated with regression results at the interpretation stage and organized using SWOT analysis to explain statistical patterns and formulate strategies for strengthening cooperative stability. Triangulation was conducted by comparing regression results with interview evidence from the four cooperatives and external informants. Each quantitative finding was matched with qualitative evidence and classified as convergent, complementary, or divergent to identify supporting explanations, additional contextual mechanisms, or case-specific differences. The integrated findings were then summarized in a joint interpretation matrix linking statistical results, interview evidence, organizational conditions, and strategic implications. This matrix formed the basis for SWOT analysis, where internal capabilities and constraints were categorized as strengths or weaknesses, while regulatory, technological, and partnership factors were classified as opportunities or threats. This process enabled the study to combine statistical evidence with contextual explanation and translate the results into strategic recommendations.

3. RESULTS AND DISCUSSIONS

Results

1. Identification to get the weight and rating values of IFAS (Internal Factor Analysis Strategy) and EFAS (External Factor Analysis Strategy).

a. Internal Factor Weights

Table 1. Results of the calculation of internal factor weights

No	Question Strenght	Total	Avarage	Rating	Assasment weight	Score
1	Member trust	255	4,25	4	0,2	0,8
2	Adoption of Cooperative Principles	228	3,8	4	0,15	0,6
3	Security and transparency	228	3,8	4	0,15	0,6
	Total Strenght				0,5	2
	WEAKNESS					
1	Limited human resources skilled in digital technology.	277	4,62	5	0,15	0,75
2	Low digital literacy of members	265	4,42	4	0,15	0,6
3	Limited capital for technology investment.	252	4,20	4	0,1	0,4
4	Unstable internet infrastructure disrupts the cooperative's digital operations	239	3,98	4	0,1	0,4
	Total weakness				0,5	2,15
	TOTAL				1	4,15

Source: authors data processing, 2026

IFAS(Internal Factor Analysis Summary)

S-O

- 1) The existing internal experience of cooperative staff is directed toward strengthening digital skills through practical and structured training, such as digital literacy, basic accounting systems, and data management. This helps cooperatives make better use of digital transformation opportunities in a more realistic and applicable way (S₁, S₂, S₃; O₁, O₂, O₄).
- 2) Strong relationships with members are used as a bridge to introduce digital financial systems. This is done gradually through socialization, simple trials of digital applications, and direct assistance so members can adapt more comfortably to the new system (S₁, S₂; O₁, O₂, O₃).
- 3) Regulatory support increases the value of internal capabilities by creating access to funding and digital transformation programs. In RBV terms, it strengthens how existing resources are used more productively (S₃; O₂, O₃, O₄).
- 4) Partnerships with fintech firms provide access to external strategic resources such as digital platforms and technical systems that the cooperative does not currently own. This helps accelerate efficiency and service expansion (S₂, S₃; O₃, O₄).

W-O

- 1) Limited digital literacy is a key internal weakness because human capital is a core strategic resource in RBV. Without it, other resources cannot be used effectively. This is addressed through targeted training supported by universities or fintech partners (W₁, W₂, W₃; O₂, O₃, O₄).
- 2) Limited capital is another resource constraint. However, government funding and subsidies act as complementary external resources that help strengthen internal capabilities and support basic digital system adoption (W₁, W₂, W₃; O₂, O₃, O₄).
- 3) Technology limitations can be reduced through fintech partnerships that provide ready-to-use digital systems. In RBV terms, this is a way to access missing resources without heavy investment, enabling faster digital transformation (W₁, W₂, W₃; O₁, O₂, O₃).

b. External Factor Weights

Table 2. Results of calculation of external factor weights

No	Question	Total	Avarage	Rating	Assasment weight	Score
Opportunity						
1	Growth of Internet Users and E-commerce	245	4,08	4	0,15	0,6
2	Positive Government Attention to Cooperative Digitalization in Cooperative Development efforts.	240	4,00	4	0,1	0,4
3	Partnerships with startups and fintechs.	187	3,12	3	0,125	0,375
4	Network Establishment and Development through Associations.	256	4,27	4	0,125	0,5
	Total Opportunity				0,5	1,875
TREATH						
1	Competition with Digital Financial Institutions.	266	4,43	4	0,15	0,6
2	Cyber Security Risks	259	4,32	4	0,15	0,6
3	Dependence on technology	260	4,33	4	0,1	0,4
4	Unstable regulatory policies.	245	4,08	4	0,1	0,4
	Total Treath				0,5	2
	TOTAL				1	3,875

Source: authors data processing, 2026

EFAS(External Factor Analysis Summary)**S-T**

- 1) The strong member community is treated as a strategic relational resource (social capital) that can be leveraged to develop a secure and trusted digital cooperative platform. This strengthens collective trust and reduces resistance to digital system risks (S₁, S₂; T₁, T₂, T₃).
- 2) Internal capability in cooperative management and early digital exposure is directed toward improving digital literacy and data security awareness among staff and members. This reflects a capability-building process to reduce cybersecurity risks and improve system resilience (S₂, S₃; T₃, T₄).
- 3) Adaptive managerial capability is used to continuously align cooperative operations with changing digital regulations. This regulatory responsiveness is considered a dynamic capability that helps the cooperative remain stable amid policy uncertainty (S₂, S₃; T₂, T₃, T₄).

W-T

- 1) Limited digital literacy is addressed through structured training and collaboration with educational institutions or training providers. This represents an effort to transform human resource limitations into an emerging learning capability (W₁; T₁).
- 2) Weak digital infrastructure is mitigated by investing in more reliable and secure technology systems to ensure operational continuity and reduce technological vulnerability (W₂; T₁, T₂).

- 3) Financial limitations are managed through exploration of external funding sources and strategic partnerships, particularly with technology providers and financial institutions, to access critical digital resources (W₃; T₂).

2. Matriks SWOT.

Based on the scores of these internal and external factors, the resulting combination of SWOT matrix and SWOT analysis diagram is formulated as follows:

Internal analysis coordinates(X) = $(S-W)/2 = (2-2,15)/2 = -0,075$

External analysis coordinates(Y) = $(O-T)/2 = (1,875-2)/2 = -0,062$

Thus, the coordinate point is located at $(-0,075 ; -0,062)$

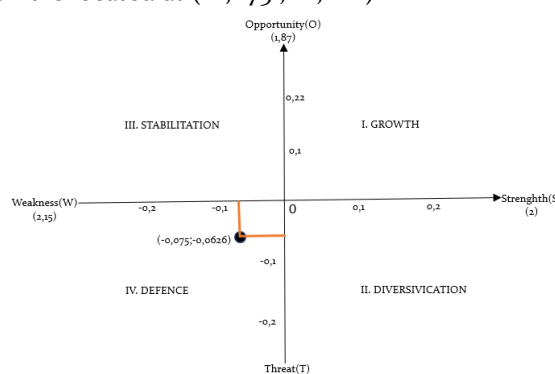


Figure 2. Cartesius SWOT diagram

Relationship with Cartesian Graph Coordinates $(-0,075, -0,062)$:

The coordinates $(-0,075, -0,062)$ represent a position that shows a slightly negative situation on the Strengths and Threats axis in the SWOT analysis.

X axis (Strengths): This position $(-0,075)$ indicates that the cooperative may not have much strength in dealing with it. This means that the cooperative has limited strengths to make optimal use of financial digitalization.

Y-axis (Threats): This position $(-0,062)$ depicts a threat that is also marginally significant, which means that even though there is a threat, the impact is not too great or not yet apparent, but it is still worth being aware of.

3. Strategy Formulation.

By maximizing strength factors and minimizing weaknesses and paying attention to opportunities and threats of financial digitalization in building cooperative stability at the same time, it is important to identify them as internal factors and external factors, so that a strategy can be formulated for proper decision making, planning and development in maintaining cooperative stability.

Table 3. Strategy formulation quantitative model

IFAS \ EFAS	Strength (S)		Weakness(W)	
	Strength (S)		Weakness(W)	
Opportunities (O)	S-O strategy: using strengths to take advantage of opportunities $= 2 + 1,875 = 3,875$		W-O strategy: minimize weaknesses by taking advantage of opportunities $= 2,15 + 1,875 = 4$	
Threats (T)	S-T strategy: using strengths to overcome threats $= 2 + 2 = 4$		W-T strategy: minimize weaknesses and avoid threats $= 2,15 + 2 = 4,15$	

Based on the analysis of the strategy formulation quantitaf model in the table above, the highest value is obtained in the W-T strategy of 4.15, namely minimizing weaknesses to deal with threats.

4. Statistic Analysis

The research variables in this study consists of independent variables: Member trust (Strong/ X₁), resource limitation (Weakness/ X₂), government and partner support (Opportunity/ X₃), cybersecurity readiness (Threats/ X₄) and dependent variable Cooperative stability (Y) measured by Financial resilience. Through statistical testing, the following results were obtained for normality testing and multiple linear regression testing:

Table 4. Nomality test		
One-Sample Kolmogorov-Smirnov Test		
		Unstandardized Residual
N		60
Normal Parameters ^{a,b}	Mean	.0000000
	Std. Deviation	1.50824869
Most Extreme Differences	Absolute	.102
	Positive	.059
	Negative	-.102
	Test Statistic	.102
	Asymp. Sig. (2-tailed)	.196 ^c
a. Test distribution is Normal.		
b. Calculated from data.		
c. Lilliefors Significance Correction.		

Source: Output SPSS, 2026

The asymptotic Sig. (2-tailed) value obtained is 0.196 > 0.05, so we conclude that the data is normally distributed.

Table 5. Multicollinearity test		
Collinearity Statistics		
Model	Tolerance	VIF
1 (Constant)		
X ₁	.938	1.066
X ₂	.961	1.041
X ₃	.973	1.027
X ₄	.956	1.046

Source: Output SPSS, 2026

The VIF values for these four variables are < 10, so it can be concluded that there is no multicollinearity among these three variables in the regression model used.

Table 6. Multiple linear regression T test					
Coefficients ^a					
Model		Unstandardized Coefficients	Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1	(Constant)	17.694	4.259	4.154	.000
	X ₁	.004	.150	.003	.980
	X ₂	.110	.149	.097	.463
	X ₃	.061	.123	.064	.626
	X ₄	-.292	.140	-.276	.041

a. Dependent Variable: Y

Source: Output SPSS, 2026

The resulting multiple linear regression equation is as follows:

$$Y = 17.694 + 0.004X_1 + 0.110X_2 + 0.061X_3 - 0.292X_4 + \varepsilon_i$$

Independent variables have a significance value of Member Trust (X_1) = 0.980, Resource Limitation (X_2) = 0.463, and Government & Partner Support (X_3) = 0.626, so it can be concluded that these three variables do not have a significant effect on the cooperative stability variable (Y). The cybersecurity readiness variable (X_4) has a significance value of $0.041 < 0.05$, so it can be concluded that variable X_4 has a significant negative effect on cooperative stability.

Discussion

The Effect of Members' Trust on Cooperative Stability.

Member trust has no statistically significant effect on cooperative stability, indicating that trust alone may be insufficient to sustain stability during digital transformation. Changes in leadership, governance, and managerial priorities may weaken the translation of trust into long-term organizational continuity. From an RBV–VRIO perspective, trust is a valuable and potentially difficult-to-imitate intangible resource, but its strategic contribution depends on effective organization and complementary capabilities such as consistent governance, managerial competence, digital literacy, and a long-term institutional vision (Miswanto & Kusumasari, 2024); (Dafri & Al-Qaruty, 2023). Thus, trust contributes to stability only when it is effectively converted into participation, governance quality, and support for digital transformation.

The Effect of Resource Constraints on Cooperative Stability

Resource constraints have no statistically significant effect on cooperative stability, suggesting that limited financial or technological resources do not necessarily threaten stability when alternative resources and adaptive mechanisms are available. Incremental digital adoption, affordable technologies, and shared platforms can reduce the need for large initial investments. From an RBV–VRIO perspective, resource scarcity can be offset when human capital, digital literacy, organizational learning, innovation, and networks are valuable and effectively organized (Chen & Shen, 2023); (D'Oria et al., 2021). Thus, cooperative stability depends less on the quantity of resources owned and more on the ability to configure and deploy available resources effectively.

The Effect of Government and Partner Support on Cooperative Stability

Government and partner support has no statistically significant direct effect on cooperative stability, suggesting that external assistance only becomes effective when it is absorbed and converted into internal organizational capability. Although training, funding, infrastructure, regulatory guidance, and partnerships may be available, their impact depends on managerial openness, organizational readiness, and the cooperative's ability to utilize them effectively (Irawan et al., 2026). From an RBV–VRIO perspective, such support functions as an enabling resource rather than a direct source of stability because its strategic value depends on how well it is internalized and organized. Practically, policy interventions should therefore strengthen absorptive capacity, managerial capability, digital governance, and follow-up mechanisms, rather than focusing solely on providing infrastructure or training.

The Effect of Cybersecurity Readiness on Cooperative Stability

Cybersecurity readiness has a statistically significant negative effect on cooperative stability, indicating that stronger readiness does not necessarily produce immediate stability benefits. Cybersecurity initiatives may initially increase costs, procedural complexity, and adjustment burdens, particularly in cooperatives with limited digital capabilities. This negative relationship should therefore be interpreted as a transitional effect rather than evidence that cybersecurity is harmful. From an RBV–VRIO perspective, cybersecurity is a valuable capability, but its strategic benefits depend on how well it is organized and integrated into governance, employee competencies, operational

routines, and risk management (Chen & Shen, 2023). When cybersecurity remains fragmented, costly, or dependent on external providers, its contribution to stability may be delayed. Theoretically, this finding extends RBV by showing that digital resources can simultaneously create value and vulnerability, so their impact depends not only on resource possession but also on organizational integration and transition costs.

Integration of SWOT, RBV, and VRIO in Strategy Formulation

The SWOT analysis places the cooperatives in the Weakness–Threat (W–T) quadrant, indicating that internal limitations coexist with external pressures. This study integrates SWOT with RBV and VRIO so that SWOT identifies the strategic position, RBV explains the underlying resource limitations, and VRIO evaluates whether those resources can generate sustained organizational benefits. In W–T₁, regulatory change requires cooperatives to strengthen organizational learning and adaptive capabilities so that regulatory uncertainty can be managed through accumulated knowledge and embedded routines (Barney, 2021); (Zheng et al., 2024). In W–T₂, limited technological capital can be addressed through low-cost or government-supported digital applications, but their strategic value depends on the cooperative's ability to integrate them with business processes, transparency, and digital trust (Mediaty et al., 2025). In W–T₃, partnerships with fintech companies or financial institutions provide complementary external resources, but sustainable benefits arise only when these resources are integrated through knowledge transfer, capability development, and appropriate governance (Bartolacci et al., 2022). Thus, W–T strategies should focus not merely on defensive responses, but on transforming weak resources into valuable and well-organized capabilities. Overall, the integration of SWOT, RBV, and VRIO provides a more comprehensive strategic framework. SWOT identifies where the cooperative is positioned in relation to internal weaknesses and external threats; RBV explains which resources and capabilities underlie those conditions; and VRIO evaluates whether these resources can generate sustainable organizational benefits. This integration shows that cooperative stability depends not simply on acquiring more resources, but on developing valuable capabilities and organizing them effectively.

Theoretical Implications

This study extends RBV by positioning cooperative stability as an outcome beyond financial performance, encompassing operational continuity, member confidence, governance effectiveness, and adaptive capacity. The findings also show that strategic resources may create both value and vulnerability when they are not fully integrated. The RBV–VRIO perspective further emphasizes that resource value depends on how effectively resources are organized and embedded within the cooperative.

Practical Implications

Cooperatives should integrate cybersecurity into governance, staff capability, risk management, and service continuity, while strengthening member participation through transparent communication and digital education. Resource constraints can be addressed through phased digital adoption and strategic partnerships. Government support should focus not only on funding and infrastructure, but also on strengthening managerial and absorptive capacity so that external assistance can become sustainable internal capability. In this section, it is explained the results of research and at the same time is given the comprehensive discussion. Results can be presented in figures, graphs, tables and others that make the reader understand easily. The discussion can be made in several sub-chapters.

4. CONCLUSION

This study extends RBV by positioning cooperative stability as a multidimensional outcome shaped by how strategic resources are organized and integrated during digital transformation. Methodologically, it combines multiple linear regression, qualitative interviews, and SWOT analysis within an RBV–

VRIO framework, linking empirical findings with strategic formulation. Practically, cooperatives should strengthen cybersecurity governance, digital capability, phased technology adoption, and strategic partnerships, while policymakers should support managerial and absorptive capacity in addition to providing infrastructure and funding. The study is limited by its small sample, focus on four cooperatives in East Java, cross-sectional design, and reliance on perceptual measures. Future research should use a larger national sample, apply longitudinal designs, and develop a broader conceptual model incorporating digital maturity, leadership, governance quality, organizational learning, and absorptive capacity.

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