

# FACTORS AFFECTING DIGITAL TRANSFORMATION IN THE COOPERATIVE SECTOR: A STUDY OF BINH DUONG PROVINCE

PhD. Nguyen Hong Thu\* - PhD. Dao Quyet Thang\* - PhD. Do Thi Thanh Nhan\*\*  
MSc. Nguyen Thi Thanh Ha\*

**Abstract:** *Digital transformation in the collective economy and cooperatives is a key policy of the Party and the State, aimed at enhancing efficiency, flexibility, and resource optimization. Despite its potential to improve production methods, increase product value, and integrate cooperatives into value chains, significant barriers remain. This study uses factor exploration with a Likert scale to identify six key factors influencing digital transformation: leadership awareness, financial resources, labor force, technical expertise, and stakeholder influence. The findings lead to proposed solutions to improve digital transformation effectiveness in cooperatives.*

• Keywords: *digital transformation, corporation economy, and cooperatives.*

JEL codes: L30, O10, O20

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## 1. Introduction

According to the Ministry of Planning and Investment (2023), the total number of cooperatives in the country reached 29,378 as of December 31, 2022, reflecting a 5.4% increase from the previous year. All six economic regions experienced growth in cooperative numbers compared to December 31, 2021. The Central Highlands saw the highest increase at 7.1%, followed by the Northern Midlands and Mountainous region at 7.0%, the Mekong Delta at 6.4%, the Southeast at 6.0%, the North Central and Central Coastal region at 5.4%, and the Red River Delta with the lowest increase at 2.8%. The cooperative economic model directly contributes 4.8% to the national gross domestic product (GDP) and indirectly contributes over 30% of GDP through value added by the household economy. Despite the growth in the number of cooperatives, only 60% are operating effectively and meeting market economy requirements. Key factors contributing to this issue include insufficient capital, labor, technical infrastructure, and market access. Research indicates that fewer than 20% of cooperatives possess the capability for self-capitalization, and only 0.5% have access to financing from credit institutions, with agricultural cooperatives experiencing even lower rates. Consequently, over 80% of cooperatives rely on informal market borrowing.

Directive No. 19/CT-TTg, issued by the Government on June 3, 2023, emphasizes the ongoing concern and support for the cooperative economy, including cooperatives, from the Party, the State, and development partners. Recent advancements in the cooperative economy have been noted, such as heightened awareness of its importance and improvements in institutional and policy mechanisms. Despite these positive changes, the development of the cooperative economy and cooperatives has not met established goals and expectations. There are challenges remain, including weak internal capacities, limited effectiveness, inadequate organizational models, insufficient managerial skills, and particularly slow progress in digital transformation. There is a notable lack of specific strategies and actions for digital transformation within cooperatives (Vu, 2023).

Digital transformation seeks to modernize production and business management models within the cooperative economy, aiming to create a more flexible, efficient, cost-effective, and resource-optimized approach. This transformation involves adopting new business models that leverage digital technologies extensively. In an increasingly competitive environment, digital transformation is essential for enhancing efficiency, productivity, and market access. It serves as a crucial lever for advancing the development of collective economic

\* Thu Dau Mot University, Binh Duong

\*\* Ton Duc Thang University, HCMC

sectors and cooperatives. A survey by the Vietnam Cooperative Alliance (2023) indicates that 83.5% of cooperatives recognize the necessity of digital transformation, 18.9% have specific implementation plans, and 68% utilize at least one method for online product introduction and sales (Hoang Giang, 2024). This study aims to explore and identify the factors influencing digital transformation in the cooperative sector in Binh Duong and to propose recommendations to accelerate these activities in the current phase.

## 2. Literature review

McKinsey (2019) defines digital transformation as the strategic reconfiguration of technology, business models, and operational processes to consistently deliver novel value to customers and employees, fostering growth in the digital economy. Fitzgerald et al. (2013) further elaborate digital transformation as the adoption of innovative digital technologies to enhance operational efficiencies and refine managerial practices. In today's dynamic business landscape, the imperative for digital transformation mandates swift adaptation and evolution of business strategies to sustain competitiveness and relevance in the market. This imperative extends to cooperatives, entities that not only operate as business entities but also contribute to economic and societal well-being. Through the integration of these technologies, digital transformation catalyzes advancements by significantly enhancing operational efficiency, productivity, and competitive positioning for organizations. Conceptually, digital transformation unfolds in a tripartite process (Ancín et al., 2022). Firstly, the "digitization" phase involves the conversion of analog data into digital formats, encoding information into data structures. Information technology and communication tools, alongside innovative digital solutions, expedite this transformation by facilitating the storage and transmission of digital data. Secondly, the "digitalization" stage encompasses the incorporation of specific digital tools into core business processes like production, distribution, and customer engagement. Finally, the "digital transformation" phase transcends the preceding stages by heralding the adoption of new business models driven by widespread digital technology utilization, fundamentally reshaping the operational paradigms and value creation mechanisms of enterprises (Ancín et al., 2022).

The impact of digital transformation in the contemporary era has been instrumental in shaping our society amidst rapid globalization (Miah & Omar, 2012). Digitization serves as the foundation for potential innovations in the technological sphere,

fostering significant value creation. The emergence of the digital economy presents a novel economic paradigm aimed at fostering growth in traditional sectors and propelling the rapid expansion of new industries, profoundly influencing the digital transformation journeys of businesses (Deng et al., 2020).

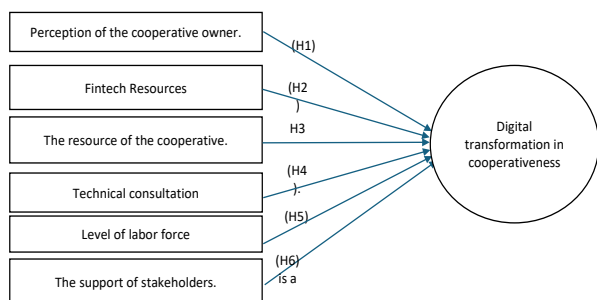
Digital transformation significantly influences small and medium-sized enterprises (SMEs) and cooperative sectors. Notably, cooperatives encounter challenges in formulating, implementing, and realizing comprehensive digitalization strategies and restructuring operational frameworks due to constraints such as limited resources, insufficient awareness, and organizational capacity (Li et al., 2018; Garzoni et al., 2020; Vu Phuong Nhi, 2023). The digital transformation within cooperative sectors holds paramount importance, given their pivotal role in national economies, addressing poverty, fostering employment opportunities, driving economic progress, and instigating social transformations (Hambani & Harefa, 2019; Purbasari & Raharja, 2021). Leveraging digital technologies empowers cooperatives to access markets at cost-effective rates (Ulas, 2019).

In Vietnam, research conducted by Duong Hoài An and colleagues (2023) reveals that variables associated with cooperative directors' characteristics, such as age, educational attainment, number of social media accounts, and e-wallet usage, significantly influence the preparedness for digital transformation within cooperatives. Moreover, the surveyed cooperatives' characteristics, including age, social media presence, information technology proficiency of members and staff, banking relationships, and engagement in e-commerce platforms, have a substantial bearing on their digital transformation.

Furthermore, essential objective factors for digital transformation in cooperatives encompass external service support, digital transformation training, availability of digital hardware, technical consultation for conversion, and financial assistance. To expedite the digital transformation process in cooperatives, comprehensive oversight by governmental bodies, cooperative associations, and pertinent stakeholders is imperative to meet their requirements. Simultaneously, cooperatives must proactively harness all available resources to train their workforce for the digital transformation journey.

Following a synthesis of the analyzed insights, the study proposes the establishment of a model that includes:

**Proposed research model by the research team**



**3. Research Methodology**

The study employed the exploratory factor analysis method, utilizing a set of Likert scale inquiries to examine the impact of various factors on the digital transformation process within cooperative sectors. A structured questionnaire was administered to 158 cooperatives in Binh Duong. The research model delineated independent variables guided by the research framework, encompassing:

H1: Cooperative leaders’ perceptions (educational background, knowledge, managerial proficiency, IT competencies).

H2: Technological and financial resources (possession of bank accounts, adeptness in financial tech usage, engagement in e-commerce, application of IT in financial operations).

H3: Cooperative resources (internal capital, social connections, market competitiveness, skilled workforce).

H4: Technical guidance from relevant entities (technical advisory assistance, technological transfer prerequisites, standardization, and readiness for digital transformation).

H5: Workforce skills and tech acumen (skilled employees, IT-literate staff, trained personnel, awareness of digital transformation initiatives).

H6: Support from pertinent departments (local assistance, governmental regulations, incentives, technical team support).

The dependent variable focused on the state of digital transformation within Binh Duong cooperatives (preparedness, digital transformation roadmap, utilization of online sales methods). Statistical examination criteria comprised:

Cronbach’s Alpha coefficient significance level:  $0.6 < \alpha < 0.95$  (acceptable range is 0.7 to 0.9;  $> 0.95$  implies question duplication).

Item-total correlation coefficient  $> 0.3$  to determine variable relevance; coefficients below 0.3 warrant removal from the scale due to insignificance. The

research results are presented in the next section of the article.

**4. Research results and discussion**

**4.1. Research model results**

First, the study conducted a test of the scales, requiring the scales to achieve the test indexes of the significance level of the Cronbach’s Alpha coefficient to be greater than 0.6. The value of the Cronbach’s Alpha coefficient from 0.7 to 0.95 is considered good quality.

At the same time, the Corrected Item-Total Correlation coefficient must be greater than 0.3. The research results show that all scales have a Corrected Item-Total Correlation level greater than 0.3. This indicates that there is a high correlation between the variables with other variables in the group.

**Table 1. Cronbach’s Alpha test**

Scale	Cronbach’s Alpha	Corrected Item-Total Correlation	Quality Assessment
NT	0.857	>0.3	Good quality
NL	0.750	>0.3	Good quality
LD	0.811	>0.3	Good quality
LQ	0.823	>0.3	Good quality
TC	0.831	>0.3	Good quality
KT	0.889	>0.3	Good quality
CDS	0.844	>0.3	Good quality

Performing Variance Explained test shows that the value of Cumulative % is 68.238 (greater than 0.5), which means that 68.238% of the variation of factors is explained by observed variables. Besides, the value of Eigenvalues must meet the requirement of being greater than 1.

**Table 2. Total Variance Explained**

Component	Initial Eigenvalues			Rotation Sums of Squared Loadings			
	Total	% of Variance	Cumulative %	Total	Total	% of Variance	Cumulative %
1	5.424	22.601	22.601	5.424	3.064	12.765	12.765
2	2.920	12.167	34.767	2.920	2.889	12.039	24.804
3	2.623	10.931	45.698	2.623	2.779	11.580	36.384
4	2.481	10.337	56.035	2.481	2.760	11.500	47.884
5	1.729	7.205	63.240	1.729	2.603	10.846	58.730
6	1.199	4.997	68.238	1.199	2.282	9.507	68.238

Checking the value of Rotated Component Matrix, we see that the identified factors have 6 groups of factors affecting the digital transformation of cooperatives, the value of Kaiser-Meyer-Olkin Measure of Sampling Adequacy is greater than 0.5 and less than 1, with a significance level of sig.0.000. From here, the study discovered that there are 6 groups of factors of the independent variable that have affected the dependent variable (digital transformation variable) in the study.

Finally, a regression analysis was conducted to examine the influence of independent variables on the dependent variable. For this analysis, the Adjusted R Square value was determined to be

0.609. This indicates that 60.9% of the variation in the transformation of numbers in cooperatives is explained by the six independent variables, namely the perception of cooperative owners, technological and financial resources, cooperative resources, skill level and technological knowledge of workers, technical support and advice from relevant parties, and support from relevant government agencies. Additionally, the examination of VIF values revealed that all independent variables had VIF values less than 10, indicating no issue of multicollinearity among the independent variables. Furthermore, the sig values for all independent variables were found to be less than 0.5, demonstrating the statistical significance of the independent variables in the study.

**Table 3. Rotated Component Matrix<sup>a</sup>**

	Component					
	1	2	3	4	5	6
KT1	0.892					
KT2	0.868					
KT4	0.825					
KT3	0.809					
NT4		0.906				
NT1		0.815				
NT3		0.806				
NT2		0.723				
LQ4			0.907			
LQ2			0.822			
LQ1			0.775			
LQ3			0.706			
TC3				0.811		
TC1				0.789		
TC2				0.778		
TC4				0.756		
LD4					0.822	
LD3					0.797	
LD2					0.779	
LD1					0.748	
NL4						0.750
NL1						0.718
NL3						0.653
NL2						0.632
KMO: 0.758						
Sig. 0.000						

**Table 4. Results of the regression analysis in the research model**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	-0.927	0.317		-2.927	0.004		
NT	0.325	0.055	0.333	5.901	0.000	0.785	1.274
NL	0.240	0.062	0.243	3.884	0.000	0.634	1.576
LD	0.200	0.052	0.200	3.824	0.000	0.912	1.097
LQ	0.129	0.054	0.126	2.407	0.017	0.909	1.100
TC	0.250	0.052	0.273	4.847	0.000	0.787	1.271
KT	0.134	0.052	0.138	2.583	0.011	0.868	1.151
Adjusted R Square: 0.609							
Anova (F: 41.703; Sig. 0.000)							

**4.2. Discussion of the research**

According to the Cooperative Alliance of Binh Duong Province (2023), as of the end of 2023, there are approximately 242 cooperatives with 47,647 members

in the entire province of Binh Duong. Among them, 46 cooperatives are inactive. The cooperatives are divided into different sectors: transportation (66 cooperatives), agriculture (83 cooperatives), handicraft industry (13 cooperatives), construction (11 cooperatives), trade and services (34 cooperatives), environment (25 cooperatives), and people’s credit funds (10 funds).

In a gradual progression, cooperatives have enhanced operational efficiency, significantly bolstering local employment opportunities. Nonetheless, amidst the evolving technological landscape, several cooperatives struggle to align with practical demands, leading to operational halts. This transition challenge necessitates a novel business model apt for the current milieu. Executing Decision No. 816/QD-UBND on the Digital Transformation Plan (2021-2025, with a vision to 2030) by the People’s Committee of Binh Duong Province, alongside Plan No. 593/KH-UBND, the local Cooperative Alliance has crafted a digital transformation roadmap for the 2023-2025 period. This initiative equips cooperative entities with shared information systems across the province, heightening owners’ digital transformation awareness.

Within this framework, the cognitive factor of digital transformation awareness among cooperative leaders emerges as statistically significant, exerting a robust influence on cooperative digitalization (sig. value 0.000, beta coefficient 0.333). These findings align closely with digitalization endeavors in Binh Duong province and resonate with prior studies by Li et al. (2018), Garzoni et al. (2020), Vu Phuong Nhi (2023), and Duong Hoai An et al. (2023).

The financial facet underscores the necessity for cooperatives to engage in banking activities, proficiently use financial technologies, partake in e-commerce platforms, and integrate IT into financial transactions. Capital acquisition for production expansion poses a major hurdle, with limited access to credit due to collateral shortages hindering many cooperatives. Furthermore, land scarcity impedes production scaling. The model underscores the pivotal role of financial resources in facilitating digital transformation.

Resource allocation encompasses self-owned capital, social capital, market competitiveness, and skilled labor resources, all impacting cooperative digital transformation. Despite facing operational constraints like capital inadequacy, outdated equipment, and modest production scales, cooperatives generate limited revenues, affecting profitability. Labor policies within cooperatives remain restricted, underscoring the resource factor’s influence on digital

transformation capabilities. These outcomes echo studies by Li et al. (2018), Garzoni et al. (2020), and Vu Phuong Nhi (2023).

Successful digital transformation in cooperatives hinges on labor force support and adept operation of digitalization processes. Insufficient skills and IT acumen among the workforce impede development requisites, underscoring the need for enhanced training and awareness. Cooperation among labor forces emerges as a pivotal factor for successful digital transformation endeavors.

Technical consultations play a vital role in facilitating cooperative digitalization, necessitating technological conditions for seamless technology transfer, training, and infrastructural readiness. Challenges persist, such as inadequate infrastructure, outdated equipment, and manual production methods, impeding digital transformation. Collaborative efforts among relevant stakeholders, with state support, drive effective digital transformation, fostering cooperative resilience, management enhancement, and integration into the international economy effectively.

### 5. Conclusion and Policy Implications

The cooperative sectors are progressively solidifying their foothold in the province's economic landscape. On average, 10% of cooperatives are established annually, strengthening economic and social effectiveness by reducing poverty, addressing employment needs, and stabilizing livelihoods. However, with evolving development trends emphasizing technology applications and cooperative management, the focus on digital transformation activities within cooperatives is crucial. Despite persistent challenges in this process, cooperatives and stakeholders are attentive to several key issues.

**Firstly**, enhancing the utilization of 4.0 technology and advanced science benefits cooperatives by improving operational efficiency and product consumption. Recognizing digital transformation as essential for enhancing competitiveness, production efficiency, and market value chain participation is imperative for cooperative leaders.

**Secondly**, improving access to financial resources remains vital. Capital shortages hinder production and business processes, necessitating strengthened access to financial technology applications. Promoting electronic trading products, digitizing management processes, and expanding product consumption markets are areas cooperative leaders need to prioritize.

**Thirdly**, training a skilled workforce to meet digital labor process requirements is crucial. Understanding

and implementing data digitization in technological processes is essential for labor entities to adapt to cooperative operations effectively during digital transformation.

**Fourthly**, ensuring resource factors in digital transformation implementation, such as favorable land policy access, capital resources, and a competent management team, are essential for cooperative groups to thrive.

**Fifthly**, technical team support is indispensable for gradually implementing and operating digitalization processes. Skilled technical teams need to provide training throughout the process to swiftly resolve technical difficulties faced by cooperatives.

**Finally**, involving relevant parties is key. Streamlining cooperative legal frameworks, defining management and operational functions clearly, and constructing supportive mechanisms and policies are vital steps. Policies encompassing land, finance, credit, science, technology, marketing support, market expansion, infrastructure investment, and human resource development are crucial. However, consistent and comprehensive education on cooperation at all levels is lacking, aiming to ensure a thorough understanding of cooperatives' nature, role, and position.

These research findings present perspectives on cooperative economic development and factors influencing the digital transformation process. This study aims to contribute evidence to enhance digital transformation initiatives for cooperatives in the current stage.

### References:

- Ministry of Planning and Investment (2023). *White Book on Cooperatives in Vietnam*. Statistical Publishing House, 2023.
- Ancin, M., Pindado, E., Sánchez, M., 2022. New trends in the global digital transformation process of the agri-food sector: an exploratory study based on Twitter. *Agric. Syst.* 203, 103520 <https://doi.org/10.1016/j.agsy.2022.103520>
- Deng, et al. (2020). Analysis on the development of digital economy in Guangdong Province based on improved entropy method and multivariate statistical analysis. *Entropy*, 22(12), 1–21. <https://doi.org/10.3390/e22121441>
- Duong Hoai An (2023). The readiness for digital transformation in cooperatives in the Northeast region of Vietnam. Vol. 28 No. 03 (2023): *Journal of Social Sciences - Humanities - Economics*
- Fitzgerald, et al. (2013). *Embracing Digital Technology: A New Strategic Imperative* | Capgemini Consulting Worldwide. *MIT Sloan Management Review*, 55(1), 1–13.
- Garzoni, et al. (2020). Fostering digital transformation of SMEs: a four levels approach. *Management Decision*, 58(8), 1543–1562. <https://doi.org/10.1108/MD-07-2019-0939>
- Hambani, S., & Harefa, E. (2019). Analisis Kewirausahaan, Permodalan, Partisipasi Anggota Dan Keberhasilan Keuangan Koperasi Pegawai Republik Indonesia. *Jurnal Akumida*, 5(1), 69. <https://doi.org/10.30997/jakd.v5i1.1870>
- Hoang Giang (2024). 'Activating' digital transformation in cooperatives, accessed on the Government Newspaper on July 19, 2024, at <https://baochinhphu.vn/kich-hoat-chuyen-doi-so-trong-hop-tac-xa-102220922193417986.htm>
- Vietnam Cooperative Alliance (2023). Accessed at <https://vca.org.vn/>
- Binh Duong Cooperative Alliance (2023). Report on the situation of the collective economy, cooperatives, and the activities of the Binh Duong Cooperative Alliance in 2023 and the directions and tasks for 2024.
- Li, et al. (2018). Digital transformation by SME entrepreneurs: A capability perspective. *Information Systems Journal*, 28(6), 1129–1157. <https://doi.org/10.1111/isyj.12153>
- Miah, M., & Omar, A. (2012). Technology Advancement in developing countries during Digital Age. *International Journal of Science and Applied Information Technology*, 1(1), 30–38.
- Purbasari, R., & Raharja, J. S. (2021). Analysis of Modern Cooperatives in the Digital Era: From Values To Greatness. *AdBispreneur: Journal of Business Administration and Entrepreneurship Thought and Research*, Vol.6, No.3, pp. 295-310 December 2021.
- Ulas, D. (2019). Digital Transformation Process and SMEs. *Procedia Computer Science*, 158, 662–671.
- VanBoskirk (2016). *The Digital Maturity Model 4.0*. Forrester, 0–17.
- People's Committee of Binh Duong Province (2021). Decision No. 816/QĐ-UBND dated 31/2/2021 on the issuance of the Digital Transformation Plan for the period 2021–2025, with a vision to 2030.
- Vu Phuong Nhi (2023). Promoting digital transformation in the collective economic area, cooperatives, Government Electronic Newspaper, accessed on 19/7/2024. <https://baochinhphu.vn/day-manh-chuyen-doi-so-trong-khu-vuc-kinh-te-hop-tac-hop-tac-xa-102230603153121767.htm>.