PROMOTING DIGITAL TRANSFORMATION IN THE COOPERATIVE AND COOPERATIVE ECONOMY SECTOR

PhD. Le Thi Hong Thuy*

Abstract: ***This paper assesses the level of digital transformation in Vietnam's collective economic sector, with a focus on cooperatives. The assessment is based on an analysis of the policy framework, the current state of digital technology adoption, and major barriers to implementation. Using the latest secondary data, the study finds that digital transformation among cooperatives remains at an early stage, with marked disparities between a small group of pioneering cooperatives and the majority that face significant constraints in digital infrastructure, digital skills, financial resources, and linkages with technology enterprises. Based on these findings, the paper proposes a set of policy solutions aimed at improving the institutional framework, developing digital infrastructure, strengthening the digital capacity of cooperative personnel, and enhancing linkages within the digital ecosystem. These measures are expected to contribute to improved operational efficiency and enhanced competitiveness of cooperatives in the digital economy.***

• Keywords: *digital transformation; cooperatives; collective economy; digital infrastructure; digital economy.*

JEL codes: P32, O12, O33, Q13

Date of receipt: 17th Feb., 2026
Date of delivery revision: 06th Mar., 2026
Date of receipt revision: 18th Mar., 2026
Date of approval: 28th Apr., 2026
DOI: https://doi.org/10.71374/jfar.v26.i3.45

1. Context of digital transformation in the cooperative and collective economy sector

In recent years, digital transformation has become a global trend, fundamentally reshaping economic structures, production systems, and governance models across countries. The adoption of digital technologies not only enhances productivity and efficiency but also creates new opportunities for inclusive growth and sustainable development. In this context, the cooperative and collective economy sector plays an important role, particularly in agriculture and rural development, by supporting small producers, improving livelihoods, and contributing to the achievement of sustainable development goals (SDGs). However, compared to other sectors, cooperatives often face greater challenges in accessing and adopting digital technologies due to their limited scale and resources.

In the context where digital transformation is becoming an inevitable trend in socio-economic development, the cooperative and collective economy sector faces an urgent need to innovate its organizational models, governance practices, and service provision based on digital platforms in order to improve operational efficiency.

In recent years, the Party and the State have issued a number of important policies, such as Resolution No. 20-NQ/TW (2022) on continuing to innovate, develop, and enhance the effectiveness of the collective economy; Decision No. 749/QĐ-TTg (2020) approving the National Digital Transformation Program; Decision No. 131/QD-TTg (2023) on the Program to support digital transformation for cooperatives in the period 2023-2030; along with various directives and strategies on the development of the digital economy, digital infrastructure, and digital data.

These policy documents emphasize the need to promote the application of digital technologies and to develop a digital ecosystem for cooperatives in order to enhance governance capacity, expand markets, increase value added for members, and at the same time strengthen the connectivity of cooperatives with supply chains and the national digital economy.

However, there remains a significant gap between policy objectives and practical outcomes. Most cooperatives are still small in scale, with limited technological capacity, a lack of financial resources and digital human resources, and a fragmented level of technology adoption, which

* *Academy of Finance; email: lehongthuy@hvtc.edu.vn*

is mainly concentrated in isolated solutions such as electronic accounting, online sales, or the use of social media.

Highly integrated technologies, such as full-chain traceability systems, enterprise resource planning (ERP) systems, professional e-commerce platforms, data connectivity platforms, or the application of the Internet of Things (IoT) in production, have only been adopted by a small number of leading cooperatives or cooperatives receiving support from programs and projects.

In addition to internal constraints, external factors such as uneven digital infrastructure in rural areas, the lack of a legal framework for data sharing, and the absence of long-term financial support mechanisms also slow down the pace of digital transformation in this sector.

In this context, research on digital transformation in the cooperative and collective economy sector becomes necessary in order to clarify the role of digital transformation in improving the operational efficiency and competitiveness of cooperatives, while identifying institutional, infrastructural, technological, and resource-related conditions that affect the capacity to adopt and apply digital technologies.

The theoretical framework of the study is based on widely used approaches to innovation and organizational transformation, including the absorptive capacity model, which explains the ability to acquire and exploit new technologies; the technology acceptance and use models (TAM/UTAUT) for analyzing the behavior of cooperative managers and members; the resource-based view (RBV) to explain the role of internal resources and capabilities; and organizational transformation theory to clarify the process of changing operating models based on digital technologies.

Accordingly, the study examines the digital transformation process of cooperatives through three groups of factors: (i) internal capacity (financial resources, governance capacity, digital human resource skills, and innovation culture); (ii) the institutional and policy support environment (digital infrastructure, financial incentives, and the legal framework for data and digital services); and (iii) the level of linkages with markets, enterprises, and supporting organizations, which determines the ability to access technological solutions and integrate into value chains.

The paper contributes to the body of domestic research on digital transformation in the cooperative and collective economy sector. Specifically, it (i) assesses the context, level of readiness, and major barriers in the digital transformation process of cooperatives; (ii) clarifies the gap between policy objectives and practical implementation; and (iii) proposes a system of solutions, emphasizing institutional improvement, digital infrastructure development, enhancement of the digital capacity of managers, and strengthened linkages with enterprises, digital platforms, and value chain actors in order to promote sustainable digital transformation in the cooperative and collective economy sector.

2. Research methodology

This study employs a qualitative and descriptive research approach based on secondary data. The data are collected from official reports, including the Vietnam Cooperative Alliance (2024) annual report, national digital transformation reports, and relevant studies related to cooperatives and digital transformation.

The analytical approach focuses on descriptive statistics to reflect the current level of digital transformation in the cooperative sector, combined with comparative analysis to identify differences in implementation levels among cooperatives. In addition, the study applies a synthesis method to identify key barriers and patterns in the digital transformation process.

To enhance the analytical depth, the study integrates theoretical frameworks such as the Resource-Based View (RBV), the Technology Acceptance Model (TAM), and absorptive capacity to interpret the findings and explain the constraints faced by cooperatives in adopting digital technologies.

3. Current situation of digital transformation in the cooperative and collective economy sector

3.1. *Current situation of digital transformation*

In recent years, digital transformation has become an inevitable trend, reshaping the organization of production, distribution, and governance across the entire economy. Vietnam's cooperative and collective economy sector, with

its important role in supporting agricultural development, rural areas, and the community economy, has also begun to engage in this process with a number of initial efforts.

According to the 2024 Annual Report of the Vietnam Cooperative Alliance, the country has 33,335 cooperatives, an increase of 4.74% compared to 2023; 152 cooperative unions, an increase of 11%; and 63,650 cooperative groups, although this figure decreased slightly by 10% compared to the previous year, it still maintains a widespread organizational network.

This sector currently attracts more than 5.8 million members, with 66.5% of cooperatives operating in agriculture, highlighting the pivotal role of cooperatives in the structure of Vietnam's agricultural economy and agricultural value chains (Vietnam Cooperative Alliance, 2024).

Table 1: Selected basic indicators of Vietnam's cooperative and collective economy sector, 2023-2024

Indicators	2023	2024	Change
Total number of cooperatives	31.823	33.335	+ 4,74%
Cooperative unions	137	152	+11%
Cooperative groups	71.500	63.650	-11%
Cooperative members	5.823.000	5.801.900	-0,49%
Share of agricultural cooperatives	66,1%	66,5%	+0,4 %
Regular employees	861.400	897.109	+4,19%
Average revenue per cooperative	3,535 billion VND	3,55 billion VND	+0,42%
Average profit per cooperative	324 million VND	352 million VND	+8,64%
Average labor income	59 million VND	59 million VND	0
Cooperative management staff - Primary and intermediate qualifications - College and university qualifications	125.980 58.299 (46,2%) 31.000 (24,6%)	127.400 59.400 (46,6%) 31.500 (24,7%)	+1,13% + 1,2% +1,6%
High-tech cooperatives	1.850	2.000	+ 8,1%
Cooperatives applying ≥ one digital solution	2.300	2.600	+13%
Cooperatives engaged in agricultural product procurement	3.900	4.300	+24,5% the total number of agricultural cooperatives

Source: Vietnam Cooperative Alliance - 2024 Summary Report, 2024 Annual Report

These foundational factors have created important prerequisites for cooperatives to gradually access digital technologies. The 2024 report shows that average revenue reached 3.55 billion VND, average profit reached 352 million VND, and average labor income was approximately 59 million VND per year. At the same time, the proportion of management staff holding college and university degrees increased to nearly 25%, reflecting an improvement in human resource quality - an essential factor for more effective implementation of digital transformation (Vietnam Cooperative Alliance, 2024).

In practice, digital transformation has begun to emerge more clearly among cooperatives. According to the synthesis of the Vietnam Cooperative Alliance, in 2024 there were approximately 2,000 agricultural cooperatives applying high technology and digital technologies, and about 2,600 cooperatives had applied at least one digital solution in their production and business activities.

The most common technologies include digital management systems, internal management software, traceability solutions, e-commerce platforms, the application of IoT in monitoring production environments, and smart production models.

Pioneering models such as Toan Thang Cooperative (Bac Lieu), Hao Dat Cooperative (Thai Nguyen), and Binh Quy Cooperative (Tien Giang) have demonstrated clear effectiveness, including reduced operating costs, improved labor productivity, tighter quality control, and significant expansion of consumption markets through digital platforms (Vietnam Cooperative Alliance, 2024).

Table 2: Level of digital transformation of cooperatives in 2024

Digital transformation level	Share of cooperatives (%)	Key characteristics
Relatively completed digital transformation	13.6%	Having digital management systems, digitized data, application of e-commerce, and traceability
At the initial implementation stage	50%	Using some management software and beginning data digitization
Not yet implementing digital transformation	36.4%	Manual management, no use of software, and no digital transformation strategy
Average level of digital transformation across the system	32%	Still far from the targets set in the Strategy for Collective Economy Development

Source: Vietnam Cooperative Alliance - 2024 Annual Report

However, from an overall perspective, the level of digital transformation among cooperatives remains at a relatively early stage. According to assessments from the 2024 Report on Digital Transformation in the Cooperative Sector, only 13.6% of cooperatives were evaluated as having "relatively completed" the digital transformation process; 50% were at the initial stage, and 36.4% had not yet begun implementation. The average level of digital transformation across the sector has reached only about 32%, indicating a large gap between pioneering cooperatives and the majority of others. This provides clear evidence of strong disparities in digital transformation

implementation capacity among cooperatives (Vietnam Cooperative Alliance, 2024).

3.2. These barriers stem from multiple causes.

First, information technology infrastructure remains limited, especially in remote and disadvantaged areas where many cooperatives operate. Poor Internet quality, inadequate data infrastructure, and limited access to equipment prevent many cooperatives from implementing even basic digital solutions. From an institutional perspective, digital infrastructure plays a foundational role in enabling technology adoption; therefore, weak infrastructure directly constrains the digital transformation process.

Second, limitations in the digital capacity of managers and members persist, as many are still accustomed to manual management practices and lack skills in operating software or analyzing data. According to the Technology Acceptance Model (TAM), the adoption of new technologies depends significantly on users' perceived usefulness and ease of use. When cooperative members lack digital skills, their willingness and ability to adopt digital solutions are significantly reduced.

Third, limited financial resources constitute a major barrier, as surveys indicate that 68% of cooperatives face financial difficulties in implementing digital technologies. From the perspective of the Resource-Based View (RBV), financial capital is a critical resource that enables firms to invest in innovation and technology. Therefore, financial constraints directly limit the ability of cooperatives to adopt and scale digital solutions.

Table 3: Barriers to digital transformation of cooperatives in 2024

Barrier	Share of cooperatives facing difficulties (%)
Lack of financial resources	68%
Weak technological infrastructure and unstable Internet	63%
Lack of personnel with digital skills	57%
Lack of a clear digital transformation strategy	50%
Lack of linkages with technology enterprises	45%
High costs of maintaining software and equipment	41%

Source: Compiled from the survey of the Vietnam Cooperative Alliance, 2024

Fourth, linkages between cooperatives and technology enterprises remain weak, leading to limited access to appropriate digital solutions. This can be explained by the concept of absorptive capacity, which suggests that organizations need external interactions to acquire and utilize new knowledge. Weak linkages reduce opportunities for cooperatives to learn, adapt, and implement technological innovations.

Another notable issue is the incomplete understanding of digital transformation among cooperatives. Many cooperatives perceive digital transformation as the adoption of complex technologies such as artificial intelligence or blockchain, while overlooking foundational steps such as data digitization and process standardization. From the perspective of the Technology Acceptance Model (TAM), misperceptions about the complexity and usefulness of technology can significantly reduce the willingness to adopt it. As a result, investment decisions become fragmented and ineffective, leading to hesitation toward digital transformation.

This misperception leads to dispersed investment costs and disproportionate outcomes, creating hesitation toward digital transformation among many cooperatives.

From an overall perspective, the digital transformation process in the cooperative sector remains at an early stage, with significant disparities between a small group of pioneering cooperatives and the majority of others. This situation reflects differences in internal resources, technological capabilities, and external support conditions. From the perspective of the Resource-Based View (RBV) and absorptive capacity, such disparities can be explained by variations in resource endowment and the ability to acquire and utilize new knowledge. These gaps highlight the need for targeted policies to enhance internal capacity and strengthen external linkages.

Gaps in implementation capacity, uneven infrastructure conditions, financial constraints, and incomplete awareness indicate that digital transformation among cooperatives is still at an early stage and faces many challenges to overcome.

This situation highlights the urgent need to refine targeted support policies, develop a digital ecosystem suitable for cooperatives, strengthen digital capacity training, and promote linkages among cooperatives, technology enterprises, and regulatory authorities.

Only when these key conditions are improved

can digital transformation become a genuine driver for enhancing operational efficiency, competitiveness, and sustainability of the cooperative and collective economy sector in today's digital economy (Vietnam Cooperative Alliance, 2024).

3.3. Causes of the limitations

The limitations in the digital transformation process of the cooperative and collective economy sector stem from both subjective and objective factors, among which structural barriers associated with the specific characteristics of the cooperative model are particularly prominent.

First, the governance capacity and digital competence of cooperative staff remain limited. Most cooperative managers originate from traditional production backgrounds and lack technological skills as well as data-driven thinking. From the perspective of absorptive capacity, this limitation reduces the ability of cooperatives to recognize, assimilate, and apply new technological knowledge, thereby hindering the digital transformation process.

Second, limited financial resources make it difficult for most cooperatives to invest in digital infrastructure such as management software, IoT devices, traceability systems, or e-commerce platforms. Small and unstable revenues, low charter capital, and limited access to credit constrain cooperatives' ability to implement technology projects that require high initial investment costs. In addition, support policies remain fragmented, small in scale, and administratively complex, and have not yet created a sufficiently strong impetus for digital investment.

Third, weak linkages and small-scale production limit the demand and incentives for digital transformation. Many cooperatives function more as administrative organizations rather than genuine business entities, operating in a fragmented manner with low value added, and have not yet formed supply chains of sufficient scale to apply digital solutions such as supply chain management, smart logistics, or big data analytics. When the economic benefits of digital transformation are not clearly evident, cooperatives are reluctant to invest.

Fourth, digital infrastructure in some rural areas remains weak, particularly Internet connectivity, 4G/5G coverage, and the level of access to smart devices among members. This directly affects the application of e-commerce, digital payments, production monitoring using sensors, and process digitization. In many mountainous localities, maintaining stable connectivity remains a challenge.

Fifth, there is a lack of a supportive digital transformation ecosystem for cooperatives. Technology enterprises have not shown strong interest in the cooperative market due to its small scale and limited payment capacity; specialized digital platforms for cooperatives remain scarce; and there is no common set of standards for agricultural data, traceability standards, or reference models that cooperatives can easily follow. Training, consulting, and guidance activities for digitalization are fragmented and lack a systematic approach.

Finally, awareness of digital transformation remains incomplete. A large proportion of cooperatives believe that digital transformation is only for large enterprises, or mistakenly perceive digital transformation merely as the purchase of equipment rather than as a process of restructuring production and business models. This leads to resistance to change, delayed implementation, or superficial adoption of digital transformation.

4. Solutions to promote digital transformation in the cooperative and collective economy sector

To address the limitations in digital infrastructure and financial resources, it is necessary to strengthen investment and diversify support mechanisms for technological development in cooperatives. Empirical evidence indicates that approximately 63% of cooperatives face difficulties related to digital infrastructure and Internet connectivity, particularly in rural and remote areas. This finding suggests that infrastructure constraints are a key barrier to digital transformation. From an institutional perspective, digital infrastructure serves as a foundational condition enabling technology adoption; therefore, inadequate infrastructure significantly constrains the digital transformation process.

At the same time, financial constraints remain a major barrier, with 68% of cooperatives reporting difficulties in mobilizing resources for

digital investment. From the perspective of the Resource-Based View (RBV), financial capital is a critical resource that determines the ability of organizations to invest in innovation and technology. Therefore, it is essential to promote investment in broadband infrastructure, develop shared digital platforms (e.g., management systems, traceability, e-commerce), and expand financial support programs such as preferential credit, digital transformation funds, and public support schemes to reduce cost barriers and enhance accessibility for cooperatives.

In parallel, enhancing the digital capacity of cooperative managers and members plays a crucial role in the digital transformation process. Survey results indicate that around 57% of cooperatives lack personnel with adequate digital skills, reflecting significant limitations in human capital. This result highlights the critical role of human capital in determining the success of digital transformation. According to the Technology Acceptance Model (TAM), the adoption of new technologies depends on users' perceived usefulness and ease of use; thus, limited digital skills reduce both the willingness and ability to adopt digital solutions.

Therefore, it is necessary to design practical training programs with a hands-on approach, focusing on digital management tools, e-commerce skills, and data utilization. In addition, establishing local support teams or "digital facilitators" can help cooperatives overcome initial barriers and improve their capacity to operate digital systems effectively.

In addition, strengthening linkages between cooperatives and external stakeholders is essential for promoting digital transformation. In practice, about 45% of cooperatives report weak connections with technology enterprises, limiting their access to appropriate digital solutions. This indicates that weak external linkages significantly constrain the diffusion and adoption of digital technologies. From the perspective of absorptive capacity, external linkages play a crucial role in enabling organizations to acquire and apply new knowledge; therefore, weak connections significantly hinder the digital transformation process.

To address this issue, it is necessary to promote cooperation between cooperatives, technology firms, universities, and supporting organizations through public-private partnership (PPP) models. Such collaboration can facilitate technology transfer, reduce implementation costs, and improve the relevance of digital solutions to the specific characteristics of cooperatives.

Finally, promoting the application of digital technologies in production and consumption, together with restructuring governance models, is essential to enhance the competitiveness of cooperatives. The current level of technology application remains limited in many cooperatives, reducing their ability to expand markets and increase value added. This suggests that improving the effective utilization of digital technologies is essential for enhancing competitiveness and productivity. From the perspective of the Resource-Based View (RBV), the effective utilization of technological resources is a key determinant of productivity and competitive advantage.

Therefore, cooperatives should shift from traditional management to data-driven governance, while increasing the adoption of digital solutions such as traceability systems, e-commerce platforms, digital payment, and supply chain management tools. These measures not only improve operational efficiency and transparency but also enable cooperatives to integrate more effectively into digital value chains and expand their market access.

References:

Kartikawati, & Nurhasanah (2025), "Cooperatives in the era of digitalization from the perspective of innovation diffusion theory: A case study of CU Sehati Cooperative in Jakarta", Multidisciplinary Indonesian Center Journal (MICJO), 2(1).

Lestari, A. A. D., & Magfiroh, D. (2025), "Digitalization strategy in improving operational efficiency and service quality in agricultural cooperatives in the digital economy era", Journal of Cooperative Development and Innovation.

Magfiroh, D., & Saebah, N. (2025), "Analysis of the influence of digital innovation on cooperative performance in the era of Industry 4.0: A case study of agricultural cooperatives in Indonesia", Journal of Cooperative Development and Innovation, 1(1).

Ministry of Information and Communications (MIC) (2023), National digital transformation report. Hanoi, Vietnam.

Minzar, M., & Mishra, M. K. (2024), "Digital transformation in cooperatives: Opportunities and challenges", IOSR Journal of Business and Management, 26(10).

Nguyen, H. N., et al. (2022), "Digital transformation in cooperatives worldwide and lessons learned for Vietnam", Journal of Economics and Development, 305(2), 58-68.

Nguyen, T. G., et al. (2025), "Determinants of readiness for digital transformation in cooperatives: A case study in Thai Nguyen Province, Vietnam", Edelweiss Applied Science and Technology, 9(7), 415-433.

Nurdany, A., & Prajasari, A. C. (2020), "Digitalization in Indonesian cooperatives: Is it necessary?", Journal of Developing Economies, 5(2).

Tran, T. C., et al. (2024), "A review of digital transformation in agricultural cooperatives and policy implications", Vietnam Journal of Agricultural Sciences, 22(7), 958-971.

Vietnam Cooperative Alliance (VCA) (2024), Annual report. Hanoi, Vietnam.