

Research Article

Transformation of Cooperative Organizational Systems in the Digital Era: Challenges, Opportunities and Impact on Management Effectiveness

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Abstract: *Cooperatives are economic institutions that have a strategic and important role in improving the welfare of their members and are able to support economic equality. In an increasingly complex and dynamic economic development, cooperatives are required to be able to adapt, so they remain relevant and have high competitiveness. This study aims to analyze the economic role of cooperatives and identify the problems faced in their management. The research method used is a qualitative descriptive approach. Data collection was conducted through literature and documentation studies related to the cooperative economy. The analysis results indicate that cooperatives have a real contribution to strengthening the economy of members through the principles of togetherness, participation, and economic democracy. However, various external and internal problems remain, including weak managerial quality, low Human Resources (HR) competency, and the suboptimal implementation of support systems in cooperative business management. These conditions affect the effectiveness of cooperative performance and the sustainability of its business. Therefore, efforts are needed to strengthen governance, increase management capacity, and adjust cooperative development strategies to be able to contribute optimally to sustainable economic development.*

Keywords: *Cooperatives, Cooperative Economics, Cooperative Management.*

1. INTRODUCTION

Digital change is a global phenomenon linked to various aspects of today's social and economic life. The emergence of the Industrial Revolution 4.0 and the development of information technology, big data, cloud computing, automation, and digital adoption have created momentum for institutions to adapt to ensure the resilience of their competitive advantages, which are truly necessary for empowering future potential. Traditional libraries and social systems of organizations that are currently secretive have been exchanged for digital systems that have the potential for greater speed and transparency. Even in this arena, cooperatives, as one of the structures of the people's economy, are undergoing digital change to remain relevant and able to provide optimal benefits to their members and the wider community (Priyo Cahyono & Zamzam Al-Asfahani, 2023).

Cooperatives have been built from the outset on the principles of democracy, economics, collectivism, and sharing to support the well-being of their members. However, the organizational and management systems of cooperatives, which previously relied heavily on manual processes, have been challenged by changes in the behavior of increasingly tech-

savvy members and the demand for efficient services. Digitalization not only impacts technical operational aspects but also impacts management, organizational communication, decision-making processes, and the relationship between cooperative management and members (Iwan Mulyana, 2023).

Several more recent studies have shown that the impact of digitalizing cooperatives can improve operational efficiency and transparency in their financial administration, resulting in faster and more specific resolution of member requests. For example, this study observed that cooperatives undergoing digitalization experienced increased work effectiveness and potentially increased market access, despite still facing obstacles such as limited digital literacy and human resource readiness (Mubarak et al., 2025).

In the real world, credit unions and consumer cooperatives are undergoing digital transformations, including digital payment systems, information system-based financial accounting, and online marketing. However, many cooperatives also rely on manual processes, paper-based record-keeping, and traditional face-to-face interactions. In Indonesia, scientific articles published in the SINTA journal and publications in several other local journals document cooperative initiatives in digital transformation, from institutional modernization training programs to the implementation of cashless payment systems in Islamic cooperatives. However, they also highlight significant obstacles related to the availability of human resources (HR), low digitalization skills among members, and the availability of IT infrastructure in small and medium-sized cooperatives. This heterogeneous situation creates a gap between cooperatives that have "advanced digitally" and those that have not yet begun the transformation process, resulting in inconsistencies in managerial effectiveness and service delivery to members.

The urgency of this research arises from both practical and theoretical needs. Practically, cooperatives that fail to adapt to the digital landscape risk losing economic relevance, declining member participation, and operational inefficiency. Theoretically, although there is a wealth of literature on organizational digital transformation, studies focusing on the specific characteristics of cooperatives that balance social and economic orientations and collective governance principles are still relatively limited. Systematic research is needed to: (1) map the challenges and opportunities of digital transformation in the cooperative context; (2) identify enablers and barriers at the technical, managerial, and cultural levels; and (3) measure the impact of digital transformation on cooperative management effectiveness, process efficiency, accountability, member service quality, and financial performance. Given the close link between digital transformation and organizational sustainability, this research is also relevant for formulating supporting policies and evidence-based intervention programs. The literature on digital maturity provides an adaptable analytical framework for comprehensively assessing the condition of cooperatives (Muhammad Whisnu Ade Mulia, 2024).

The purpose of this study is to examine changes in organizational systems in the digital era by prioritizing the value of digital technology, management, organizational structure, and

organizational culture. More specifically, the purpose of this study is to identify various challenges and opportunities faced by cooperatives related to digital technology, and to analyze how changes in organizational systems in the digital era affect the effectiveness of cooperative management, operational efficiency, governance quality, transparency, and improving member services. In addition to the above objectives, this study also aims to formulate strategic recommendations that can be used as a reference by cooperative administrators and stakeholders in designing digital transformation policies and strategies that are sustainable, inclusive, and aligned with cooperative principles (Sasmito & Syihabuddin, 2025).

The results of this study are expected to provide theoretical and practical benefits. Theoretically, this research can contribute to the development of digital transformation of organizations by broadening the perspective on cooperatives, which have different characteristics compared to other business organizations, thereby enriching the literature related to the effectiveness of cooperative management in the digital era. Practically, this research is expected to serve as a reference for cooperative administrators, policymakers, and cooperative facilitators in understanding the key success factors of digital transformation and in designing programs to improve management and digital transformation literacy for members. Furthermore, this research is also expected to encourage improved performance, competitiveness, and sustainability of cooperatives through the implementation of a more adaptive, effective, transparent, and efficient organizational system based on digital technology (Nashoha & Karima, 2024).

2. LITERATURE REVIEW

Digital Transformation

Digital transformation is the process of integrating digital technology into organizational systems to improve efficiency, transparency, and competitiveness. In the context of cooperatives, digital transformation encompasses not only the use of information technology but also changes in organizational structure, work culture, and management patterns that are more adaptive to the digital environment. Cooperatives, as member-based organizations, face the challenge of remaining relevant in the digital economy and the Fourth Industrial Revolution (Nur Hajjah et al., 2025).

Various studies have shown that the main challenges facing cooperative digital transformation include limited human resources, low digital literacy among administrators and members, limited technological infrastructure, and resistance to organizational change. Furthermore, limited funding for technology investment and data security risks are also significant barriers to implementing digital systems in cooperatives (Prayusniar & Tul Jannah, 2025).

The literature also highlights the significant opportunities digital transformation presents for cooperatives. Digitalization can improve operational efficiency, accelerate administrative processes, expand market access, and enhance management transparency and accountability. The implementation of digital-based management information systems enables cooperatives

to provide faster and more accurate services to members, while strengthening trust in organizational management.

In the context of organizational performance, several empirical studies have shown that digital transformation positively impacts cooperative management effectiveness and financial performance. Research by Syamsiah et al. (2024) on cooperatives in Surabaya demonstrated that service digitalization, such as technology-based financial systems and digital services for members, had a positive and significant impact on financial performance indicators, including return on assets (ROA), return on equity (ROE), and net interest margin (NIM). These findings indicate that digital transformation can improve resource management efficiency and strengthen cooperatives' managerial functions in managing operational and financial activities.

Some of the challenges faced by cooperatives in the digital transformation process. Sukardi et al. (2024) highlighted that the main obstacles to cooperative digitalization in developing countries, including Indonesia, include low digital literacy among administrators and members, limited technological infrastructure, and a suboptimal regulatory framework supporting digital-based cooperative operations. These conditions have prevented many cooperatives from optimally adopting technology, thus preventing the full benefits of digitalization on management effectiveness.

Recent research emphasizes that the transformation of cooperative organizational systems must be gradual and contextual. Top-down digitalization without member involvement has the potential to generate resistance and undermine trust in management. Therefore, an inclusive, participatory transformation approach oriented toward enhancing managerial capabilities is key to successful digital implementation in cooperatives (Core et al., 2024; Ribeiro-Navarrete et al., 2023).

Recent literature shows that digital transformation has significant implications for the effectiveness of cooperative management, particularly in terms of improving operational efficiency, decision-making quality, and organizational performance. However, the success of this transformation is largely determined by the readiness of the cooperative's organizational system, the quality of managerial leadership, and regulatory support and organizational culture. Therefore, there is still ample research room to examine which model of cooperative organizational system transformation best suits the characteristics of cooperatives in the digital era.

Digital transformation has been proven to have a positive impact on the effectiveness of cooperative management, particularly in data-driven decision-making, improving organizational performance, and developing service innovations. However, the success of this transformation depends heavily on management readiness, leadership commitment, and appropriate change management strategies. Therefore, the transformation of cooperative organizational systems in the digital era requires support from strengthening human resource capacity, developing infrastructure, and implementing sustainability-oriented management policies.

3. METHOD

This study uses a qualitative approach with a descriptive research design. This approach was chosen because the research aims to better understand the process of cooperative system transformation occurring in the digital era, along with the impressions and challenges of this process, and its potential impact on management effectiveness. The exploratory descriptive design allows researchers to comprehensively explore the phenomenon based on the perspectives of cooperative actors and the surrounding socio-organizational context. This research focuses on interpreting the meaning, experiences, and practices of digital transformation occurring within the cooperative environment, thus emphasizing not only the final results but also the process of organizational change (Yudhistira Febryansyah, 2021).

Population and Informants

The population in this study is active cooperatives that have or are currently undertaking digital transformation efforts in their organizational and management systems. Given the vast population of cooperatives in Indonesia, this study limits its scope to actively operating savings and loan cooperatives and consumer cooperatives with formal organizational structures. Research informants were determined using purposive sampling, which involves deliberately selecting informants based on specific criteria relevant to the research objectives. Key informants in this study include cooperative administrators (chairman, secretary, and treasurer), operational managers or IT managers (if available), and cooperative members directly involved in the use of digital services. Informant selection was carried out until data saturation was reached, which is when the information obtained has been repeated and no significant new findings are found.

Data collection technique

The data collection technique was carried out more broadly, using several methods to obtain more comprehensive and valid data. First, in-depth interviews were conducted semi-structured with critical respondents to describe their experiences, perceptions, and strategies implemented in the cooperative's digital transformation process. Second, a non-participatory observation method was used to describe direct observations of organizational management practices, the use of digital systems, and interactions between administrators and members in the context of technology-based services. Third, a documentation study method was used to analyze cooperative organizational documents, such as annual reports, financial statements, standard operating procedures, and internal policies related to digitalization. The combination of these three techniques was carried out to increase the validity of the data through triangulation of sources and methods.

Data Analysis Techniques

The data analysis in this study used thematic analysis techniques. The analysis process began with the transcription of interview results and the collection of observation notes and supporting documents. Next, the researcher performed data reduction by grouping relevant information according to the research focus. The next stage was coding to identify key themes related to the form of digital transformation, challenges and opportunities, and their impact

on the effectiveness of cooperative management. After the key themes were identified, the researcher drew conclusions and verified them by comparing field findings with the theoretical framework and previous research findings. To ensure the validity of the research results, credibility testing was conducted through data triangulation, member checking, and discussions with colleagues (Selly Silviawati, 2025).

4. RESULTS AND DISCUSSION

Adapting Organizational Systems to Digital Technology

The changes in the cooperative system in the face of digital technology advancements can be seen through the implementation of digital-based systems, particularly in the areas of payments and sales. Cooperatives are now beginning to conduct transactions using a digital payment system called QRIS, and bank transactions can also help members make transactions faster and more convenient. Cooperatives now use point-of-sale systems, which function similarly to supermarket cashier systems, to assist in selling goods on-site, specifically processing sales transaction records.

Supporting and Inhibiting Factors of Digital Transformation

However, despite its significant impact, digital transformation in cooperatives still faces various obstacles. One of these is the accounting system, which is not yet fully digital. Many cooperatives still maintain manual accounting records due to the lack of adequate accounting applications and the relatively high costs of using a digital accounting system. The integrated implementation of a digital accounting system requires significant transformation, both in terms of the accounting system and the provisions for deducting Member Savings, which require decisions made at member meetings.

The Influence of Technology on Structure, Work Methods, and Culture

The implementation of digital technology has impacted the organizational structure, work processes, and organizational culture of cooperatives. While digitalization has the potential to simplify and streamline cooperative management processes, it lacks the capacity to scale up due to a lack of preparedness in both systems and second-rate human resources. Currently, digitalization is only being implemented in a few cooperatives.

The Impact of Digitalization on Management and Service Effectiveness

The implementation of digital technology has significantly improved the process of accessing information for each member. Thus, every cooperative member can access information related to membership activities and cooperative processes through a digital system. Without any transformation, digital-based organizational systems have improved desired outcomes and achieved cooperative operational results. Service processes, such as loan applications, can be completed online without having to visit the cooperative office in person. This helps members located in remote locations access cooperative-related information, resulting in faster, more time-saving, and more efficient service delivery.

Cooperative Management and Members' Views on Benefits and Risks

Implementing a digital system also carries risks, particularly related to data accuracy and consistency, as well as information dissemination. Errors in data entry during digital system

activities can be quickly identified by all cooperative members, necessitating careful handling before data is shared with members. Unlike manual systems, which are easier to repair because they can be replaced quickly and collaboratively, digital systems require greater precision, accuracy, and caution.

Successful Transformation Strategy According to Cooperative Principles

Cooperative digital transformation can also begin by increasing outreach to members about their rights and obligations and providing education to help them understand the digital transformation. Through digital systems, information about membership, benefits, and obligations can be communicated more openly and equitably. Digitalization is also considered to increase transparency and efficiency in information delivery compared to conventional systems, making cooperatives adaptive, informative, while remaining compliant with cooperative principles.

DISCUSSION

The development of digital technology in cooperative organizational systems demonstrates a shift in processes, recognizing the benefits of digital technology in the form of QRIS and point-of-sales (POS) systems. The implementation of digital technology simplifies transactions, improves the integrity of service processes, and assists cooperatives in recording and managing sales data in a more structured manner. This confirms that digitalization positively contributes to the effectiveness of cooperative management.

However, the spread of digital transformation still faces various obstacles, primarily related to accounting systems, which have largely been implemented conventionally to date. Factors such as limited accounting capabilities relevant to various cooperative types and the costs of implementing digital systems and adapting to institutional regulations are key determinants. This demonstrates that the digital transformation process in cooperatives requires adequate system readiness, regulations, and organizational support.

The implementation of digital technology also impacts the organizational structure, work methods, and culture of cooperatives. Digitalization has the potential to increase efficiency and awareness, but due to limited human resources, its implementation is limited. Overall, from a service perspective, digitalization facilitates access to information and enables cooperative services to be delivered online, thereby increasing member satisfaction.

On the other hand, the use of digital systems also carries potential risks related to data accuracy and security, requiring careful and effective system management. Therefore, the success of a cooperative's digital transformation also requires educational and outreach strategies for members, as well as maintaining the cooperative's principles. This ensures that the digital transformation can improve performance without compromising the cooperative's core values.

5. CONCLUSION

Cooperatives play a strategic role in the economy because economic institutions are expected to be based on the principles of togetherness, democracy, and the welfare of their

members. The discussion concluded that cooperatives serve not only as economic vehicles but also as instruments for social empowerment and improving community welfare. Cooperatives provide equitable access to economic resources, particularly for lower-middle-class communities.

Nevertheless, cooperatives still face various challenges in their management, such as inadequate management, low human resources, and underutilized supporting systems and technology. These challenges impact the effectiveness of cooperative business performance and competitiveness in the face of increasingly dynamic economic developments.

The role of cooperatives needs to be strengthened by improving management quality, enhancing the professionalism of managers, and adapting to technological developments and modern economic systems. With the support of appropriate policies and active member participation, cooperatives are expected to become a strong, sustainable pillar of the economy, contributing significantly to national economic development.

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