

Adaptation of ITB Employee Family Cooperatives in Facing Global Challenges: Digital and Sustainable Transformation

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Abstract.

This study investigates strategies on cooperative digitalization in facing global challenges through digitalization and sustainability initiatives. This study aims to explore the process of transitioning the Employee Family Cooperative of ITB (*Koperasi Keluarga Pegawai ITB / KKP ITB*) from conventional systems to digital technology, in order to improve the overall performance and sustainability of the organization. The methods used include literature review and primary data analysis through interviews. The findings show that digitalization has significantly improved efficiency, transparency, and competitiveness. The cooperative introduced the SAKTI (Integrated Cooperative Administration System) application, covering member registration, deposit recording, loan management, canteen services, and QRIS-based payments. These innovations streamline transactions, enable real-time reporting, and encourage member participation by strengthening communication between members and the cooperative board. Challenges remain, particularly limited digital competence and cultural resistance to organizational change. Success depends on management commitment, continuous training, and adaptive policies. Overall, the case of KKP ITB demonstrates that sustainable digital transformation can reinforce cooperative resilience and support inclusive growth in today's dynamic global environment.

Keywords: Digital Transformation, Technology, Cooperative Strategy, Cooperative Digitalization.

1. Introduction

Cooperatives worldwide are increasingly confronted with complex and fast-moving global challenges driven by economic change, advances in digital technology, and growing demands for environmental sustainability. Globalization and the Fourth Industrial Revolution have created significant pressure for cooperatives to adapt in order to remain competitive (Core et al., 2024).

International studies show that digitization and sustainable transformation are now essential elements of cooperative strategies. For example, Mahraz et al. (2023) highlight that sustainability initiatives strengthen the success of cooperative digitalization, while Richter & Hanf et al. (2021) emphasize the role of digital technology in improving performance and achieving sustainability goals. At the same time, cooperatives face barriers such as limited infrastructure, low digital literacy, and cultural resistance (Samsiyah et al., 2025). Nonetheless, digitalization also creates opportunities for innovation and broader socio-economic transformation (Purbasari & Raharja, 2022).

Against this background, the Employee Family Cooperative of ITB (*Koperasi Keluarga Pegawai ITB / KKP ITB*) has initiated digital transformation while applying sustainability principles in its management. However, few studies have provided an in-depth analysis of how Indonesian cooperatives practically implement digital systems and integrate sustainability into their operations. This study addresses that gap by examining the strategies, challenges, and outcomes of KKP ITB's transformation. The novelty of this research lies in combining digitalization and sustainability perspectives to evaluate cooperative adaptation, offering practical insights for strengthening resilience and competitiveness in the digital era.

2. Literature Review

2.1 Digital Transformation in Cooperatives

Digital technology is increasingly recognized as a strategic enabler for cooperative modernization. Richter & Hanf al. (2021) emphasize that digital tools enhance operational efficiency, enable real-time decision-making, and support the achievement of sustainability goals. However, barriers such as limited infrastructure, low digital literacy, and cultural resistance often slow adoption (Samsiyah et al., 2025). Despite these challenges, digitalization opens opportunities for innovation and improved member engagement (Purbasari & Raharja, 2022).

2.2 Sustainability and Cooperative Performance

The integration of sustainability principles into cooperative management strengthens long-term competitiveness. Mahraz-López et al. (2023) found that effective sustainability strategies significantly improve the success of cooperative digitalization. Setyaningsih and Marsudi (2024) further demonstrate that in Indonesia, digital and sustainable practices contribute to cooperative resilience and transparency. These findings underline the interconnectedness of digital transformation and sustainability in shaping cooperative performance.

2.3 SWOT Analysis in Organisational Change

SWOT analysis has been widely applied to assess organizational adaptation in dynamic environments. Ribeiro-Navarrete, Martín, and Guaita (2023) suggest that integrated digital systems can be effectively evaluated using SWOT to measure maturity and identify gaps. Jaenudin et al. (2025) highlight that cooperatives must adopt continuous innovation and human resource development to mitigate weaknesses and threats, while leveraging strengths and opportunities to remain competitive in the era of Industry 4.0.

2.4 Research Gap and Contribution

Although prior studies highlight the importance of digital transformation and sustainability, there is limited empirical evidence on how Indonesian cooperatives manage both dimensions simultaneously. Most research remains at the conceptual or macro level, without exploring

practical strategies at the organizational level. This study contributes by providing a case-based analysis of KKP ITB, showing how digital applications, sustainability principles, and SWOT-based strategies are implemented in practice.

3. Method

This study uses a qualitative approach with descriptive methods to examine the adjustment process of the Employee Family Cooperative of ITB (*Koperasi Keluarga Pegawai ITB / KKP ITB*) in applying sustainability principles and facing global challenges through digital transformation. This qualitative approach uses descriptive methods. The assessment of internal and external elements is based on information obtained from in-depth interviews with cooperative administrators regarding the digital transformation process that has been carried out. SWOT analysis (Strengths, Weaknesses, Opportunities, and Threats) is used to analyze the interview data. The interview results are combined directly and form the basis of this SWOT analysis. SWOT analysis is an idea that can be used to explain the local business situation, problems, and opportunities for implementing digitalization. Therefore, SWOT factors are a reflection of the experiences and perceptions of cooperative administrators regarding digitalization.

The participants in this study consisted of selected cooperative administrators who were directly involved in the design and implementation of the digital transformation. The selection was purposive, focusing on those with managerial responsibility and first-hand knowledge of the process. Data were collected during a defined period through semi-structured, in-depth interviews that allowed participants to explain their experiences and provide contextual details. The interview protocol was organized around key themes such as motivation for digitalization, operational challenges, sustainability strategies, and perceptions of strengths and weaknesses.

Interview transcripts were reviewed and coded manually to identify recurring themes. These codes were then classified into SWOT categories to provide a systematic representation of strengths, weaknesses, opportunities, and threats. To ensure validity and reliability, findings were cross-checked with relevant literature and triangulated with direct observations of cooperative operations. Member checking was also conducted by sharing preliminary interpretations with the administrators to confirm accuracy and avoid misrepresentation.

From the data collected, based on the context of the relationship between international and national cooperative digital transformation. The analysis of the data obtained focuses on the opportunities and problems in implementing digitization and strengthening sustainable governance. The research method used is a thematic approach. This approach is consistent with previous research that digital transformation and innovation are very important for the sustainability of cooperatives globally (Mahraz-López et al., 2023).

4. Results and Discussion

Result

In response to the dynamics of challenges and transformations taking place at the global and national levels, this study focuses on examining the implementation of digitalization and sustainability adaptation efforts carried out by the Employee Family Cooperative of ITB

(*Koperasi Keluarga Pegawai ITB / KKP ITB*). Through observation and in-depth interviews with the cooperative's management, a comprehensive understanding was gained of how the digital transformation process is being strategically managed by this cooperative.

Findings from observations and interviews show that the Employee Family Cooperative of ITB (*Koperasi Keluarga Pegawai ITB / KKP ITB*) has implemented comprehensive digitization across almost all of its operational lines. The scope of digitization includes administrative processes such as member registration, recording of basic and mandatory savings, loan applications and management, to commercial transactions including canteen services and vehicle rentals. All these processes are carried out through an internal application called SAKTI (Integrated Cooperative Administration System), which simultaneously supports QRIS-based digital payment systems, reporting of Net Operating Surplus (NOS), and real-time monitoring of members' financial transactions. To illustrate, one manager emphasized during the interview that "*SAKTI helps us monitor savings and loans more efficiently, and members now access their balances directly without coming to the office.*"

Digitalization improves efficiency and transparency in cooperative management. Members can actively participate in cooperative activities and obtain financial information quickly and accurately thanks to online access to various services. This digital data integration also helps optimize operational processes and decision-making based on relevant, up-to-date information. In practice, the adoption of QRIS has facilitated a significant proportion of daily transactions, particularly in canteen services and cooperative stores, showing that digital usage is not only implemented but also operationally embedded.

However, this digital transformation faces many challenges. One of the main obstacles is the lack of digital competence among human resources, both administrators and members, who are not yet fully accustomed to and familiar with digital applications. For example, several store clerks and finance staff still rely on semi-manual records even though the system is available, which reduces efficiency. In addition, unstable network infrastructure is a problem in some locations, which also poses a challenge to maximizing the use of digital systems.

On the other hand, the implementation of digital systems provides cooperatives with greater development opportunities. Strategic partnerships with SMEs, financial institutions, and government agencies can be established through these digital platforms. The systematically collected data also provides a foundation for long-term analysis of cooperative performance and drives innovation in services based on member needs. This is consistent with the identified opportunities in the SWOT analysis, such as the possibility of integrating with digital shopping platforms and enhancing financial transparency for all members.

The sustainability of this digital system must continue to take into account external dynamics, such as rapid technological changes and global risks, including pandemics. The development of internal applications requires significant investment, both financial and in strengthening internal capacity, so that cooperatives can manage digital systems sustainably. This finding aligns with the "Threats" component in the SWOT analysis, where high technology investment costs and competition from fintech services are recognized as significant external risks.

In response to these challenges, the Employee Family Cooperative of ITB (*Koperasi Keluarga Pegawai ITB / KKP ITB*) Cooperative has taken strategic action by creating and maintaining internal applications independently, conducting regular digital training for administrators and

members, and collaborating with external partners. The goal of this collaboration is to improve service quality and strengthen the cooperative's digital ecosystem. To ensure the sustainability of the cooperative's transformation, one of the main focuses is to build the organization's ability to adapt to digital technology. The cooperative also continues capacity-building efforts, as reflected in the SWOT analysis recommendation to strengthen information systems and improve the quality of human resources through continuous training.

SWOT Analysis

The development of digitalization has brought about strengths, weaknesses, and threats for the ITB Employee Family Cooperative (KKP ITB). Each of these aspects has been listed in the SWOT Analysis as follows:

Table 1. SWOT Analysis Results

Strengths

- **Integrated Digital System**
The ITB KKP Cooperative already uses the SAKTI application to carry out all of its business activities, such as registering members, recording savings data, and managing loans, which can be done online.
- **Productive Business Units**
KKP ITB manages several business units in the ITB campus area.
- **Digital-Based Transactions**
Basic deposits, mandatory deposits, and spending payments covering all transaction activities have shifted to a digital system.

Weaknesses

- **Limited Human Resources in Application Utilization**
Although digital applications are available, the level of adoption remains low, especially among operational staff such as store clerks, cashiers, and finance departments.
- **Work Culture Not Yet Well Established**
Work patterns and operational discipline within cooperatives still lack optimal structure and efficiency.
- **Internet Connectivity Issues**
Although the technological infrastructure around KKP ITB is quite supportive, there are still internet network disruptions that impact the smooth running of the cooperative's digital operations.

Opportunities

- **Integration with Digital Shopping Platforms**

The use of online shopping applications such as Shopee can be used as a model for integrating cooperative services that improve service, modernize work systems, and increase labor efficiency.

- **Improved Performance Transparency**

Digitization enables more open reporting of cooperative performance, thereby increasing member participation and trust in cooperative management.

- **Transparency in Finance**

Through the digital application, both active and inactive members can access financial transaction information, including SHU distribution, thereby increasing the accountability of the management.

Treats

- **Continued Use of Semi-Manual Systems**

The recording and documentation processes at cooperatives, including at KKP ITB, are still largely carried out semi-manually, which reduces efficiency and increases the potential for data errors.

- **Competition with External Services**

The rise of commercial digital services such as marketplaces and fintech poses an external threat that could reduce the competitiveness of cooperatives if they do not adapt quickly.

- **High Technology Investment Costs**

Developing state-of-the-art digital application systems requires significant investment, including research and technological innovation, which poses a challenge for cooperatives in terms of funding.

Capacity Building and Adaptive Strategies

- **Strengthening Information Technology Systems**

Cooperatives need to improve their digital infrastructure capabilities, both for membership information systems and to support business services such as shopping and transportation.

- **Improving Human Resource Quality**

Cooperative administrators and employees must be equipped with training and capacity building so that they are able to adapt to the changing times, economic growth, and partnerships with various parties.

Discussion

In-depth interviews indicate that the digitization process has been implemented comprehensively and systematically at the Employee Family Cooperative of ITB

(Koperasi Keluarga Pegawai ITB / KKP ITB), as illustrated in the SWOT analysis results. The holistic implementation of digital systems from start to finish has become a strategic advantage that significantly contributes to improving operational efficiency and member convenience in accessing cooperative services quickly, transparently, and efficiently. These findings align with previous studies emphasizing the importance of integrated digital systems and the development of synthetic indicators to measure the digital maturity of cooperatives (Ribeiro-Navarrete, Martín, dan Guaita, 2023). In this context, the strength of an integrated digital system through SAKTI reflects a strong internal capacity that supports efficiency, confirming the argument that digital maturity directly influences the sustainability of cooperative institutions.

However, limitations in network infrastructure and human resources are major obstacles to optimizing the use of digital technology. These weaknesses appear because digital competence among staff and members is still uneven, and semi-manual processes are sometimes maintained despite the availability of systems. This resonates with Uneze, Chijioke Uchechukwu et al. (2024), who found that the success of digital adaptation in cooperatives often depends not only on technology provision but also on human resource readiness and cultural acceptance. Thus, the identified weaknesses in the SWOT analysis such as limited application utilization and insufficiently structured work culture are consistent with global challenges in digitalizing cooperatives, where HRD strategies become decisive in sustaining innovation.

Digitalization provides a great opportunity for cooperatives to develop their businesses and strengthen their position in an increasingly dynamic digital ecosystem. It allows them to collaborate with SMEs, financial institutions, and other external sectors. In Indonesia, it is evident that digital transformation as a method of cooperative development can improve the sustainability and competitiveness of cooperatives (Setyaningsih dan Marsudi, 2024). This opportunity dimension in the SWOT analysis highlights the potential of platform integration and transparency improvement, which in turn can increase trust and participation of cooperative members. These opportunities are consistent with empirical evidence that digitization can expand cooperative networks and diversify services while strengthening accountability.

On the contrary, rapid technological changes can pose a threat that must be anticipated with the best possible innovative and adaptive strategies. For instance, the threats identified in the SWOT analysis such as high investment costs and competition with fintech services underline the vulnerability of cooperatives if they fail to innovate quickly. Therefore, in order to remain relevant and competitive, cooperatives must continue to keep up with the times. Cooperatives must survive and thrive in the era of the 4th Industrial Revolution through continuous innovation and human resource development (HRD) (Jaenudin et al., 2025). This finding strengthens the view that cooperative resilience in the digital era requires not only technology adoption but also systematic capacity building to adapt to external risks.

Digital transformation can make cooperatives more relevant, flexible, and competitive in the context of global digital transformation. Overall, digitalization is a tool to improve efficiency and a strategic foundation to strengthen cooperative institutions. By explicitly linking the SWOT factors to broader theories and empirical studies, it can be concluded that KKP ITB's digitalization strategy illustrates the dual nature of technological change. It offers efficiency and opportunities while simultaneously demanding ongoing adaptation and investment in human resource capacity.

4. Conclusion

This study found that the digital transformation implemented by the Employee Family Cooperative of ITB (*Koperasi Keluarga Pegawai ITB / KKP ITB*) can improve operational efficiency, increase management transparency, and enhance member participation. Internal applications are used by the cooperative to make operational activities more competitive, modern, and adaptable to changes in the world. Challenges such as limited digital infrastructure and uneven technological literacy still exist, but strong management and systematic efforts to enhance internal capacity can address these issues. This digital transformation marks a shift in how the cooperative serves its members and operates. By integrating technology implementation and sustainability principles into every transformation process, the cooperative's resilience and organizational sustainability in the digital era are significantly strengthened.

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