DIGITAL TRANSFORMATION IN MALAYSIAN COOPERATIVES: A COMPARATIVE ANALYSIS OF INNOVATION AND SUSTAINABILITY

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Abstract

Abstract : This study analyzes the diverse pathways to digital transformation and innovation within the Malaysian cooperative sector. Through in-depth case studies of four cooperatives which are Koperasi Kerjaya (an agricultural cooperative), KOINSAN (an educational social enterprise), KOPKEDAH (a large credit cooperative), and Lifestyle Coop (a social entrepreneurship incubator), this study explores the drivers, strategies, and challenges shaping their digital transformation journeys. The principal findings indicate that innovation is not a one-size-fits-all solution but is driven by specific sectoral needs, ranging from the adoption of operational technology like agricultural drones to the development of proprietary enterprise software and the creation of new, digitally native business models. The analysis captures critical role of adaptive leadership in overcoming significant challenges, including member mindset, financial constraints and data security risks. Ultimately, this study asserts that while there is no single blueprint for success, a proactive approach to technology adoption, coupled with strong governance and a clear sense of purpose, is essential for the future sustainability and relevance of sustainable cooperatives.

Keywords: transformation, innovation, cooperatives, technology, digital

Introduction

Cooperatives have historically been fundamental to the Malaysian economy and societal structure, functioning as essential catalysts for economic empowerment and social harmony. In a time of swift technology advancement, the conventional cooperative model encounters unparalleled challenges, rendering innovation and digital integration essential for survival and expansion. This study explores the transformation journeys of four distinct Malaysian cooperatives, each embodying a different sector and strategic methodology. The case studies offer a comparative perspective for comprehending these journeys of Koperasi Kerjaya Permatang Nibong Berhad (Koperasi Kerjaya), Koperasi Pembangunan Insan Wilayah Utara Berhad (KOINSAN), Koperasi Pegawai-Pegawai Kerajaan Negeri Kedah Berhad (KopKedah) and Lifestyle Development Cooperative (Lifestyle Coop Penang). This study aims to understand the causes, strategies and challenges of digital transformation in these four cooperatives to extract broader insights relevant to the overall cooperative sector. Accordingly, this study will elucidate the critical aspects that facilitate successful transformation by analyzing their unique journeys.

Literature Review

Digital transformation refers to the strategic integration of digital technologies into organisational processes, business models and governance systems to improve performance and resilience in response to technological and market disruption. Within the context of cooperatives, digital transformation mediates not just operational efficiency, but also member inclusion, transparency and competitive positioning as highlighted in Malaysian Cooperative Transformational Plan 2021-2025 (KUSKOP, 2021; Abas et al. 2023). Empirical and policy literature on Malaysian cooperatives outlines a complex landscape of digital adoption, marked by both thrust and limitations.

A foundational theme in the literature is the growing emphasis on digital engagement as part of national policy frameworks. The Malaysian government's Digital Economy Blueprint and the Cooperative Digitalisation Action Plan 2030 (DigiKOP 2030) are symbolic of this trend, positioning cooperative digitalisation as essential for enhancing organisational capacity, expanding market reach and aligning with broader socio-economic goals (Suruhanjaya Koperasi Malaysia, 2023; Ministry of Economic Affairs, 2021). Policy narratives advocate the integration of digital platforms for e-commerce, member services and data analytics, signalling a commitment to 'digitally enabled cooperatives' within Malaysia's evolving digital economy (Suruhanjaya Koperasi Malaysia, 2023; Ministry of Economic Affairs, 2021). Empirical research provides much of the understanding how cooperatives are adapting to digital pressures. A study on digitalisation adaptation practices demonstrates that cooperative managers increasingly deploy a range of digital tools, from social media marketing and online payment systems to integrated member-management platforms, which together foster operational efficiency and strengthen governance structures (Abdul Jalal et.al, 2025). This research highlights that digital transformation within cooperatives is not merely technological, but also organisational which readiness, staff capabilities and governance competencies function as critical antecedents to effective adoption (Abdul Jalal et.al, 2025).

Abas et al. (2023) show that factors such as trendiness, government support and cost reduction motivate cooperatives to adopt online platforms, whereas risks related to transaction security and staff digital competency serve as barriers. Notably, their findings demonstrate that cooperative performance and member satisfaction act as mediators for continued engagement

in digital platforms, indicating that digitalisation outcomes are contingent upon both external and internal organisational factors (Abas et al. 2023). These insights resonate with broader research on digital transformation in Malaysian small and medium enterprises (SMEs), which underlines the role of human capital, organisational culture and leadership in driving technology adoption (Ammeran & Abdul Latip, 2024). Although not specific to cooperatives, such studies provide conceptual parallels where digital transformation is a multi-dimensional process contingent on strategic alignment, digital literacy and environmental readiness (Ammeran & Abdul Latip, 2024). Studies focusing on specific cooperative typologies further illustrate the social and developmental stakes of digital transformation. For example, research on women's cooperatives in Sarawak highlights how information and communication technology (ICT) integration can empower marginalised groups by enhancing communication, capacity building and market access (Bujang et al., 2024). This perspective aligns digital adoption with broader social objectives, situating technology as both an instrument of economic participation and community empowerment.

Despite these contributions, the literature reveals persistent gaps. Systematic reviews of cooperative development in Malaysia emphasise the sector's slow digital readiness and uneven digital capacity across cooperative types (Hamzah & Yusoff ,2025). While large, resource-endowed cooperatives may have adopted digital practices more systematically, small, community-based or faith-linked cooperatives (e.g., mosque cooperatives) are less represented in the literature, pointing to a need for context-specific investigation (Abdul Jalal et. al, 2025). Similarly, extant frameworks often lack conceptual specificity for cooperative governance dynamics, which differ significantly from investor-owned firms due to their member-centric governance and democratic decision-making structures (Hamzah & Yusoff, 2025).

From the theoretical frameworks on digital transformation aspect, scholars have assumption that technology adoption alone yields organisational transformation, rather digital strategy coherently integrated with mission, governance and capabilities (Jamaludin & Basari, 2022). Studies of digital maturity in related sectors indicate that transformation involves incremental stages of capability development and cultural adaptation, aspects that cooperative research has only begun to operationalise (Jamaludin & Basari, 2022).

Based on the above literature on digital transformation in Malaysian cooperatives, it reveals an emergent yet uneven intellectual landscape. Research underscores policy momentum, the importance of organisational readiness and the realised benefits of digital tools in expanding online engagement and enhancing governance. However, it also highlights persistent barriers related to digital literacy, risk perceptions and resource constraints. Henceforth, this study aims to understand the digital transformation phenomenon by studying in-depth of the four cooperatives.

Research methodology

This study employs a qualitative multiple case study design to investigate digital transformation initiatives within four cooperatives located in the northern region of Malaysia. A case study approach is particularly appropriate when the research seeks to develop an in-depth understanding of contemporary phenomena embedded within real-life organisational contexts, especially when the boundaries between the phenomenon and context are blurred

(Yin, 2018). Digital transformation represents a complex and multifaceted process involving strategic intent, organisational capabilities, leadership and institutional constraints, which necessitates rich qualitative inquiry. A multiple case design was adopted to enhance analytical robustness through replication logic, allowing patterns to be identified across cases rather than relying on a single organisational context (Eisenhardt, 1989; Yin, 2018). This approach supports theory building by enabling systematic comparison across cases while preserving contextual depth.

The four cooperatives were selected using purposive sampling, consistent with qualitative research practices that prioritise information-rich cases relevant to the research objectives (Patton, 2015). Selection criteria included: (i) active engagement in digital initiatives, (ii) variation in organisational size and business activities, and (iii) accessibility to key decision-makers involved in digital transformation. Focusing on cooperatives within the northern region of Malaysia provides contextual coherence while capturing diversity in digital maturity and strategic orientation. Primary data were collected through semi-structured interviews with key informants, including board members, senior managers, and operational staff directly involved in planning or implementing digital initiatives. Semi-structured interviews are particularly suitable for exploratory and interpretive studies as they allow researchers to maintain consistency across interviews while retaining flexibility to probe emerging themes and contextual nuances (Kallio et al., 2016).

An interview protocol was developed based on prior literature on digital transformation and strategic management (Vial, 2019; Warner & Wäger, 2019). Key areas explored included digital strategy, drivers of digital adoption, governance and leadership roles, organisational capabilities, challenges encountered and perceived outcomes of digital transformation. Interviews lasted between 60 and 90 minutes and were conducted either face-to-face or online. All interviews were audio-recorded with participants' consent and transcribed verbatim to ensure accuracy and completeness of the data. The interview data were analysed using thematic analysis, following a systematic and iterative process of identifying, analysing, and interpreting patterns within qualitative data (Braun & Clarke, 2006). The analysis began with familiarisation through repeated reading of transcripts, followed by initial coding to capture meaningful units of text. Codes were then reviewed and clustered into higher-order themes that reflected recurring patterns across cases.

To support analytical rigour and manage the volume of qualitative data, Google NotebookLM was utilised as an AI-assisted qualitative analysis tool. The Google NotebookLM facilitated data organisation, cross-referencing, and synthesis of interview transcripts, enabling the identification of salient patterns and relationships across cases. While the tool supported the analytical process, the development, interpretation and refinement of themes remained theory-driven and researcher-led, consistent with qualitative best practices (Braun & Clarke, 2019). The final themes reflect both within-case insights and cross-case commonalities in how cooperatives approach and experience digital transformation.

Findings and Discussion

Based on the thematic analysis, three emerging themes were identified and discussed below.

Diverse Catalysts for Change

Understanding why a cooperative chooses to innovate is fundamental to analyzing its transformation strategy. The catalysts for innovation are tied to the core business, the needs of the members and the specific challenges of the operating environment. The initiative for change across the four case studies reveals a spectrum of catalysts, from practical necessity to strategic ambition as shown in Table 1.

Initiative for change	Cooperative	Explanation
Operational Necessity	Koperasi Kerjaya	For this agricultural cooperative, innovation was a necessity driven by the physical limitations of an aging workforce, predominantly over 60. The specific challenge of manual pesticide spraying, a slow and labour-intensive process, directly led to the proposal and eventual adoption of agricultural drone technology to ensure the sustainability of their members' livelihoods.
Mission-Driven Expansion	KOINSAN	KOINSAN's ability to innovate is directly related to its ability to keep its social and educational mission going. As a complex social business, it went digital because of financial problems and the difficulty of running the business. To make financial management more professional and make it easier to collect fees, accounting and Point-of-Sale (POS) systems were put in place. This made sure that the organization had the money it needed to keep doing community-focused work.
Strategic Growth and Compliance	KOPKEDAH	KOPKEDAH's transformation was driven by two main goals: better management control and a plan to grow the business into new markets. The need to handle complicated financial products and make sure they followed the rules (including Shariah principles) led to the creation of proprietary enterprise software within the company. They turned this internal ability into a product, which made them money by selling their systems to other cooperatives.

A New Business Model	Lifestyle Coop	Lifestyle Coop used a new, digitally native business model to start. Its main service, a co-working space with mentoring for small business owners, is a direct response to the needs of the modern gig economy. Technology is the most important part of this cooperative's value proposition.

Table 1: The Initiative for Change
Source: Developed by the researcher

This demonstrates that the most successful innovation roadmaps are not imported from the corporate world but are born from a deep, authentic understanding of a cooperative's unique operational realities and member needs. Kassim et. al, (2022) investigated how a social innovation model guided an entrepreneurial cooperative in Malaysia to address sustainable development goals rooted in community needs. Their findings show that innovations designed around member and stakeholder priorities strengthened social capital and contributed to shared prosperity, highlighting how innovation capability grounded in local member contexts can improve cooperative outcomes. This also is supported by Chen et. al, (2016) which analysed cooperative agrifood firms and concluded that innovation sources and absorptive capacity is shaped by organizational characteristics and member-oriented innovation processes which affect cooperative performance. This emphasizes that understanding internal innovation sources and contexts matters for performance in cooperative settings.

The Dimension of Technological Adoption

Digital transformation in the cooperative sector is not a single idea. It shows up in many ways, from the use of specific tools to solve immediate operational problems to the creation of large, proprietary enterprise ecosystems that change the business itself. The four cooperatives used different kinds of technology as showed in Table 2.

Cooperative	Key Technologies & Systems Adopted
Koperasi Kerjaya	Agricultural drones, UBS accounting system, Cloud storage (Google Drive) for data backup
KOINSAN	Accounting systems, Point-of-Sale (POS) system for the mini-market, Internal communication platforms (WhatsApp groups)
KOPKEDAH	Proprietary systems for credit and Ar-Rahnu management, Cashless payment systems (QR codes), Website portal for member balance inquiries, Mobile app (in development), Comprehensive digital documentation and SOPs, Internal IT department
Lifestyle Coop	Co-working space infrastructure (Wi-Fi, lockers), Digital mentorship and training platforms (Zoom), POS systems and digital tools for incubated entrepreneurs

Table 2: Key Technologies and Systems Adopted by Cooperatives
Source: Developed by the researcher

The patterns revealed in the Table 2 highlight distinct levels of technological maturity. Koperasi Kerjaya is in the 'Operational Enablement' stage, adopting specific hardware and foundational software to solve immediate field-level and back-office problems. This is similar to study conducted by Kartika and Nurhasanah (2024) who identified how digital adoption at the organisational and member levels shapes cooperative sustainability and aligns with initial stages of technology adoption frameworks. KOINSAN and Lifestyle Coop represent the 'Business Integration' stage, where technology is the core infrastructure enabling their service delivery models, from social enterprise management to co-working operations. Magfiroh and Saebah (2025) investigate the influence of digital innovation on agricultural cooperatives in the context of Industry 4.0, showing how technology adoption boosts operational efficiency, productivity, and member satisfaction. This insights map onto the cooperative operational enablement and business integration stages. On another level, KOPKEDAH exemplifies the 'Strategic Diversification' stage, having leveraged its deep investment in proprietary software and internal IT capabilities not only to optimize its core business but also to create a new, external-facing business line as a technology vendor to the wider cooperative sector.

The Critical Role of Leadership and Governance

Technology gives us the tools we need to change, but leadership gives us the vision and the ability to carry out those changes. The board (Anggota Lembaga Koperasi or ALK) and management's ability to stick with it and solve problems is what turns technological potential into real results. Each of the four cooperatives has a different type of leader that helped it along the way.

Cooperative	Leadership style	Explanation
Koperasi Kerjaya	The Hands-on Champion	Encik Muzaini, a younger board member, was the one who pushed for drone technology. He not only pushed for the investment, but he also promised to get his pilot's license. To get the board to agree, he gave them a personal 'guarantee' of its success, showing that he was willing to take ownership, which was necessary to encourage innovation in a risk-averse setting.
KOPKEDAH	The Systematic Architect	The General Manager of KOPKEDAH, utilizing an accounting background, instituted a highly organized and methodical management strategy. This emphasis on process resulted in the establishment of stringent SOPs and facilitated the development of internal systems for their

		enforcement, changing the cooperative into a governance model and establishing the foundation for its expansion into a technological solutions provider.
KOINSAN	The Resourceful Stewards	The leadership at KOINSAN adeptly balances the conflicting responsibilities of managing a business and achieving a social objective. Their primary strength is resourcefulness. Acknowledging their financial limitations, they aggressively obtained external assistance from organizations such as Lembaga Zakat and JAKIM to subsidize tuition for disadvantaged students, thereby insuring the viability of their educational initiatives.
Lifestyle Coop	The Visionary Founder	The Secretary of Lifestyle Coop acts as the founder and primary visionary. Drawing on his extensive NGO background, he built the cooperative on the concept of 'from the people, for the people.' His leadership style is characterized by delegation, assigning clear portfolios to other members to foster a sense of shared ownership in building their modern, entrepreneurship-focused community.

Table 3: Leadership style
Source: Developed by the researcher

This leadership was tested not only by the need for vision but also by the practical, day-to-day hurdles they had to overcome. Their ability to navigate significant financial and human-centric challenges was paramount to their success.

Overcoming Barriers to Transformation

The path to innovation is rarely smooth. All four cooperatives, despite their differences, faced a common set of challenges related to financial investment, human capital and member acceptance. Their ability to overcome these barriers demonstrates remarkable resilience and adaptability. The following challenges could be learned as lesson for other cooperatives.

The significant capital outlay for technology was a primary barrier. Koperasi Kerjaya had to justify the RM 54,000 investment in its first drone, while KOPKEDAH's ambition to build a new petrol station required a 6 million RM investment. Managing cash flow proved equally challenging, particularly for Koperasi Kerjaya, whose business model involves providing services on credit and receiving payment only after the harvest. Their survival hinges on a cooperative ecosystem where suppliers provide inputs on credit, demonstrating a powerful form of community resilience. This reality underscores the importance of external funding, with KOINSAN relying on grants to support its mission and both Koperasi Kerjaya and KOPKEDAH benefiting from various government agency grants. This highlights a critical dependency on external grants and government support, raising strategic questions about the long-term financial self-sustainability of technology-driven projects within the sector without robust internal revenue models.

Chollet et.al. (2025) conducted a systematic literature review on the sustainability performance of agricultural cooperatives, noting that financial and economic dimensions are central to cooperative sustainability. Cooperatives often face structural financial constraints that affect their long-term viability. This proves the findings of this study about capital outlays and reliance on external funding as critical strategic challenges for cooperatives. Without external funding or government incentives, cooperatives may struggle to compete with larger corporations due to limited access to capital, especially in large capital investments and technology adoption (Tijani, 2024).

Next is related to human element which is skills and mindset. People-related challenges were equally significant. Koperasi Kerjaya faced initial rejection of drone technology from older farmers sceptical of its effectiveness. KOPKEDAH encountered a different version of this, struggling to educate its aging membership on digital payment tools due to a pervasive fear of online scams. This emphasizes a broader challenge which is fostering a culture of acceptance for new technology and finding leaders with the right blend of vision and technical competency. Kartikawati and Nurhasanah (2025) document that member resistance and limited digital literacy are major barriers to digital innovation in cooperatives. Their case of a savings and loan cooperative shows that traditional mindsets and lack of skills among members often impede adoption of new digital systems, and that overcoming these barriers requires targeted training and communication strategies to build confidence and acceptance as highlighted by Cao et. al. (2025).

The move towards digitalization introduces new operational risks. Koperasi Kerjaya learned this lesson painfully when a catastrophic hard disk failure resulted in the complete loss of its early financial data, prompting a crucial shift to cloud-based storage. This stands in contrast to KOPKEDAH's more mature approach, which includes a formal disaster recovery plan and a strong focus on data security, reflecting its longer journey with enterprise-level systems. Minzar and Mishra (2024) discuss cybersecurity risks as a significant challenge in cooperative digitalization, noting that inadequate security infrastructure can expose cooperatives to data breaches and operational disruptions. This is relevant to the risk encountered by Koperasi Kerjaya and mitigated by KOPKEDAH's disaster recovery strategy. The resilience shown by these cooperatives in navigating such hurdles offers powerful lessons for the entire sector and paves the way for a more sustainable future.

Conclusion

The comparative analysis of these four cooperatives reveals that digital transformation is a deeply contextual process, shaped by purpose, leadership style and the unique challenges of each cooperative's environment. While their paths differ, their journeys offer a set of clear, actionable principles. The core conclusion is that innovation is not an end in itself but a means to enhance a cooperative's fundamental purpose. Leadership the essential catalyst and overcoming challenges is an inherent part of the process. For the broader cooperative sector, the following strategic imperatives are critical.

First, successful technology adoption is driven by a clear need. It must be a solution to a core business or community problem, whether improving member services, increasing operational efficiency, or creating new value aligned with the cooperative's mission. Technology for its own sake is a recipe for failure. Second, the board (ALK) and management are the architects of change. They must empower and support leaders who can champion new ideas, manage financial and operational risks, and navigate the cultural shifts that accompany technological change. A combination of strategic vision and hands-on problem-solving is essential. Finally, digitalization transformation does not require a single, massive overhaul. Starting with targeted solutions, like robust accounting software or a reliable cloud backup strategy, as seen in Koperasi Kerjaya's journey, can deliver immediate value, build institutional confidence and create the momentum needed for more ambitious digital initiatives.

Moving forward, the future of the Malaysian cooperative movement will be defined by its ability to adapt. The cooperatives that thrive will be successfully blend their traditional values of community, service and mutual support with a modern, dynamic capacity for innovation and digital adaptation. By doing so, they can ensure their continued relevance and sustainability in an increasingly digital world.

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