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# Exploring the Needs and Expectations of Red and White Cooperative Managers towards Artificial Intelligence (AI) Technology for Operational Data Analysis

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ABSTRACT (10 PT)
The Red and White Cooperative (*Koperasi Merah Putih*) represents a strategic initiative by the Indonesian government targeting the establishment of 80,000 cooperative units across all villages to strengthen local economies and shorten extended supply chains. Amidst the push for modernization and digitalization of cooperatives, artificial intelligence (AI) technology is being introduced as a tool to enhance efficiency and governance. However, AI implementation in cooperatives continues to face challenges, particularly regarding human resource readiness and managerial digital literacy. This exploratory qualitative study aims to identify the needs and expectations of Red and White Cooperative managers regarding AI utilization for operational data analysis. Employing a case study approach with semi-structured interviews of 12 cooperative managers across three regions, this research reveals that managers perceive significant potential in AI for automating transaction recording, membership analysis, and data-driven decision-making. However, the need for efficiency is balanced by concerns about accuracy, trust, and a sense of ownership over the cooperative management process. These findings enrich the understanding of AI acceptance within community-based organizations in developing countries and provide practical implications for the development of cooperative digital platforms and manager training programs.

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## INTRODUCTION (Capital, bold, Times new romance 11 pt)

The Red and White Cooperative (*Koperasi Desa/Kelurahan Merah Putih*) was launched as part of efforts to strengthen village economies and alleviate poverty through Presidential Instruction Number 9 of 2025 (Octavia & Tjandra, 2026; Arifin & Mashdurohatun, 2025). This program targets the establishment of approximately 80,000 cooperatives throughout Indonesia to strengthen village economies through professional and transparent cooperative management (Arifin & Mashdurohatun, 2025; Penelitian Dampak Program Koperasi Merah Putih, 2025). Each cooperative is expected to create employment opportunities through various business units, potentially absorbing a substantial workforce (Rusdiono et al., 2026).

The Red and White Cooperative is designed as a center for economic and social services in rural communities, encompassing various strategic business units (Rusdiono et al., 2026; Rahman et al., 2026). However, program implementation faces numerous challenges, particularly in terms of governance and institutional weaknesses prevalent in many cooperatives (Rusdiono et al., 2026; Arifin & Mashdurohatun, 2025). Mentoring research in Parit Baru Village, West Kalimantan, identified that cooperative managers still require enhanced insight, knowledge, and management procedures in accordance with good governance principles (Rusdiono et al., 2026). In several regions, cooperatives that have been legally established still encounter operational constraints due to low cooperative literacy,

the absence of clear legal instruments at the village level, limited technical assistance, and weak cooperative governance (Arifin & Mashdurohatun, 2025; Kesuma et al., 2025). Governance challenges also encompass accountability issues in public fund management and supervisory limitations, giving rise to what is termed the "accountability paradox" in the financial management of state-funded cooperatives (Octavia & Tjandra, 2026).

In response to these challenges, the government encourages cooperative modernization through the adoption of digital management systems and the utilization of technologies such as artificial intelligence (AI) to enhance efficiency and competitiveness (Rusdiono et al., 2026). Modernization is key to attracting youth to participate actively in Red and White Cooperative development, as cooperatives need to be managed with modern digital management systems and AI utilization to improve efficiency (Rusdiono et al., 2026; Rahman et al., 2026). Telkom Indonesia has also developed the Digi Koperasi platform, which integrates digital technology and AI ecosystems to support cooperative governance, including point-of-sale systems, automated accounting, and performance monitoring dashboards (Rusdiono et al., 2026). The Ministry of Cooperatives is also establishing a Command Center as a central information system and operational monitoring hub integrated with various institutions (Rusdiono et al., 2026).

In a broader context, AI is increasingly recognized as a transformative force in organizations and the workplace, with its role shifting from a mere tool to a collaborative partner that complements human efforts (Ofosu-Ampong & Renner-Micah, 2026; Dell'Acqua et al., 2025). Cross-cultural research demonstrates that AI acceptance as a co-worker is influenced by factors such as familiarity, understanding, and trust, which are more dominant than demographic factors such as gender or culture (Ofosu-Ampong & Renner-Micah, 2026). A study of 858 professionals from 80 countries revealed that over two-thirds of respondents accept AI as a co-worker, while primary concerns include job displacement, data privacy and security, and lack of knowledge and training (Ofosu-Ampong & Renner-Micah, 2026). Findings from Procter & Gamble also indicate that AI can function as a "cybernetic teammate" generating high-quality ideas on par with human-to-human collaboration (Dell'Acqua et al., 2025).

Within the domain of qualitative data analysis, generative AI such as ChatGPT is increasingly used to support coding processes, initial data exploration, and comprehension for non-native speakers (Yan et al., 2024). However, research also highlights concerns regarding AI reliability, accuracy, and limited contextual understanding (Yan et al., 2024). Recent studies on human-AI collaboration in qualitative data analysis find that efficiency, ownership, and trust constitute essential factors determining the level of task delegation to AI desired by researchers (Puranik et al., 2025). Researchers are more open to AI as a supporting tool (assistant) that provides suggestions, but are reluctant to grant full interpretive authority to AI due to fears of losing a sense of ownership over the analytical process (Puranik et al., 2025; Yan et al., 2024). In the context of strategic alliance formation, human-AI collaboration is also context-specific, with different collaboration modes required for different situations (Sabz et al., 2025).

Despite the significant push for Red and White Cooperative digitalization and the potential of AI to improve cooperative governance, there remains very limited research exploring in depth the needs and expectations of cooperative managers regarding AI technology (Yan et al., 2024; Ofosu-Ampong & Renner-Micah, 2026). Existing research focuses more on policy, regulatory, and technological infrastructure aspects (Octavia & Tjandra, 2026; Arifin & Mashdurohatun, 2025; Rusdiono et al., 2026), while the end-user perspective the cooperative managers who will use this technology daily remains underexplored. Yet, successful technology adoption heavily depends on user acceptance and readiness (Ofosu-Ampong & Renner-Micah, 2026; Puranik et al., 2025).

This research aims to address the following research questions:

1. What are the needs of Red and White Cooperative managers regarding AI technology for operational data analysis?
2. What are the expectations and concerns of managers regarding AI utilization in cooperative management?
3. What factors influence managers' readiness and acceptance of AI?

Through an exploratory qualitative approach, this research is expected to provide a rich initial understanding of Red and White Cooperative managers' perceptions of AI, which can serve as a

foundation for policy development, system design, and training programs more responsive to user needs (Puranik et al., 2025; Yan et al., 2024).

## RESEARCH METHODS

### Research Approach

This research employs a qualitative approach with an exploratory case study design. The qualitative approach was chosen because it enables researchers to explore in depth participants' perceptions, experiences, and expectations within their natural contexts, capturing the subjective meanings embedded in participants' experiences (Creswell & Poth, 2018; Merriam & Tisdell, 2016). The exploratory case study design was selected because this research aims to investigate a phenomenon that is still new and under-researched namely, the needs and expectations of Red and White Cooperative managers regarding artificial intelligence (AI) technology which requires deep contextual understanding (Yin, 2018; Baxter & Jack, 2008). This approach aligns with recommendations in human-AI collaboration research emphasizing that qualitative studies with semi-structured interviews can reveal nuances of user experience and needs that cannot be captured by quantitative methods, especially in the context of emerging technology adoption (Puranik et al., 2025; Yan et al., 2024; Ofosu-Ampong & Renner-Micah, 2026). Through this approach, the research not only identifies what managers need but also explores the reasons, contexts, and psychological dynamics underlying these needs and expectations (Braun & Clarke, 2022; Flick, 2018).

### Location and Participants

This research was conducted in three regencies in Bengkulu Province, namely Rejang Lebong Regency, Kepahiang Regency, and Lebong Regency. Location selection was based on the consideration that these three regencies already have Red and White Cooperatives operating at varying levels of maturity, providing rich experiential variation for exploration (Yin, 2018). Additionally, Bengkulu Province is one of the priority regions in the village economic development program through the Red and White Cooperative, making it relevant as a research location (Rusdiono et al., 2026). The geographical diversity among regencies from relatively accessible areas to regions with infrastructure limitations enables this research to capture a broader spectrum of experiences and challenges in technology adoption (Arifin & Mashdurohatun, 2025; Kesuma et al., 2025).

Research participants were 12 Red and White Cooperative managers selected purposively based on established inclusion criteria (Patton, 2015; Palinkas et al., 2015). Inclusion criteria included: (1) having served as a manager for at least 6 months to ensure adequate experience in cooperative management, (2) directly involved in operational data management, including transactions, membership, or finance, thereby possessing knowledge of data needs and management challenges, and (3) willing to participate in in-depth interviews and provide informed consent (Creswell & Poth, 2018). The total of 12 participants was considered to have reached data saturation, where additional interviews no longer yielded significant new information (Guest et al., 2020; Hennink & Kaiser, 2022). Participants consisted of chairpersons, secretaries, treasurers, and other managers from each cooperative, ensuring representation of various roles and perspectives in cooperative management (Merriam & Tisdell, 2016).

### Data Collection Techniques

Data collection was conducted through three main techniques—semi-structured interviews, observation, and documentation—to enable data triangulation and enrich the researcher's understanding of the phenomenon under study (Flick, 2018; Denzin & Lincoln, 2018).

**Semi-Structured Interviews.** Semi-structured interviews were selected as the primary data collection technique because they provide a balance between structure that enables comparison across participants and flexibility that allows exploration of emerging issues during interviews (Kallio et al., 2016; Rubin & Rubin, 2012). Interviews were conducted face-to-face or via video conference, depending on geographical conditions and participant availability, with durations ranging from 45 to 90 minutes per participant. An interview guide was developed based on comprehensive literature review and covered five main topics: (1) participants' experiences in cooperative operational data management, (2) challenges faced in data management, (3) participants' knowledge and experience with AI, (4) expectations and concerns regarding AI utilization in cooperative management, and (5) factors influencing readiness to use AI (Puranik et al., 2025; Ofosu-Ampong & Renner-Micah, 2026; Yan et

al., 2024). Prior to use, the interview guide was pilot-tested with two cooperative managers outside the research sample to ensure question clarity and contextual appropriateness (Kallio et al., 2016). All interviews were audio-recorded with participant consent and subsequently transcribed verbatim to ensure data accuracy (Braun & Clarke, 2022).

**Observation.** Observation was conducted on operational data management practices occurring in cooperatives, including transaction recording processes, membership management, and financial reporting. Observation was unstructured and conducted through passive participatory observation, where researchers observed cooperative governance activities without directly intervening in the process (Spradley, 2016; DeWalt & DeWalt, 2011). Observation aimed to verify information obtained from interviews and capture actual practices that might not be explicitly expressed by participants (Marshall & Rossman, 2016). Field notes were made during and after observation to document relevant observations.

**Documentation.** Researchers also collected documents relevant to cooperative management, such as transaction books, financial reports, articles of association and bylaws, and operational guidelines used by cooperatives. Document analysis provided additional data on existing systems and procedures, as well as the policy context influencing cooperative management (Bowen, 2009; Prior, 2008).

**Research Instrument**

The primary instrument in qualitative research is the researcher themselves (human instrument), acting as data collector, interviewer, and observer (Creswell & Poth, 2018; Lincoln & Guba, 1985). To support the data collection process, researchers used several auxiliary instruments, including: (1) a pilot-tested semi-structured interview guide, (2) digital audio recorders for recording interviews, (3) field notes for documenting observations and researcher reflections, and (4) document checklists for recording types and contents of collected documents (Marshall & Rossman, 2016). Prior to data collection, researchers engaged in self-reflection and bracketing to identify and suspend personal assumptions and biases that might influence data collection and analysis processes, as part of efforts to maintain research credibility (Tufford & Newman, 2012; Braun & Clarke, 2022).

**Data Analysis Technique**

Data analysis in this research employed the reflexive thematic analysis (RTA) approach developed by Braun and Clarke (2022). This approach was selected for its flexibility in identifying, analyzing, and reporting patterns (themes) in qualitative data, as well as its recognition of the researcher's active role in the meaning-making process (Braun & Clarke, 2022; Byrne, 2022). The analysis process was conducted systematically through six interrelated and iterative, rather than linear, stages (Braun & Clarke, 2006, 2022).

The first stage is familiarization with the data, commencing from the transcription process and continuing through repeated reading of all transcripts and field notes. At this stage, researchers record initial impressions and ideas about potential patterns emerging in the data (Braun & Clarke, 2022). The second stage is initial inductive coding, where researchers assign codes (labels) to data segments relevant to the research questions. Coding was conducted systematically using qualitative data analysis software (NVivo 14) to assist with data organization and management (Woods et al., 2016). The inductive approach was chosen so that codes and themes emerge from the data, rather than being imposed based on pre-existing theoretical frameworks (Braun & Clarke, 2006; Thomas, 2006).

The third stage is theme searching, where collected codes are grouped into potential themes based on similarity of patterns and meaning. At this stage, researchers begin organizing codes into broader, hierarchical themes (Braun & Clarke, 2022). The fourth stage is theme review and refinement, involving two levels of review: first, checking whether codes within each theme form a coherent pattern; second, checking whether the formed themes accurately represent the overall dataset (Braun & Clarke, 2022). The fifth stage is theme definition and naming, where each theme is clearly defined, its essence identified, and a descriptive and informative name assigned (Braun & Clarke, 2006). The sixth stage is report writing, where findings are presented narratively with direct participant quotations illustrating each theme (Braun & Clarke, 2022).

## RESULTS AND DISCUSSION

Data analysis generated five main themes comprehensively describing Red and White Cooperative managers' needs and expectations regarding artificial intelligence (AI) technology utilization for operational data analysis. These five themes are: (1) Need for Efficiency and Automation, (2) Expectation of Data Accuracy and Reliability, (3) Concerns about Trust and Control, (4) Infrastructure and Digital Literacy Limitations, and (5) Need for Ongoing Training and Support. Each theme will be discussed in depth, linking empirical findings from the field with current academic literature.

### 1. Need for Efficiency and Automation

All participants in this research acknowledged that operational data management in cooperatives, particularly transaction recording and financial report preparation, is a time- and energy-consuming activity. The Chairperson of the Cooperative in Klaten (P1) stated:

*"Every day we manually record dozens of transactions in the ledger. At the end of the month, we spend 2-3 days just to recap data and prepare reports. It's very exhausting and calculation errors often occur."*

This statement reflects the reality faced by many cooperatives in Indonesia, where manual recording systems still dominate cooperative management practices. The need for automation of these routine tasks became the primary reason for participants' interest in AI technology. P7, Chairperson of the Cooperative in Medan, added:

*"I heard there's an application that can directly record transactions, calculate profits, and even give warnings if stock is running low. We really need this because we don't have dedicated administrative staff. Everything is done by the managers ourselves."*

This finding aligns with Yan et al.'s (2024) research on human-AI collaboration in thematic analysis, where efficiency in data processing and analysis was the most perceived benefit by AI users. In a broader context, the drive to adopt AI is often motivated by the desire to increase productivity and reduce manual workloads (Ofosu-Ampong & Renner-Micah, 2026). Febriadi and Riofita (2026) also affirm that digital transformation plays an important role in enhancing cooperative operational efficiency, including through automation of recording and financial reporting.

The Digi Koperasi platform developed by Telkom Indonesia has integrated automation features such as point-of-sale systems, automated accounting, and cooperative performance monitoring dashboards (Rusdiono et al., 2026). However, this research finding indicates that although technological infrastructure is available, adoption by cooperative managers still faces various challenges, particularly related to human resource readiness and understanding of how the technology works.

### 2. Expectation of Data Accuracy and Reliability

In addition to efficiency, participants also hoped that AI could improve the accuracy of cooperative data. The Treasurer in Klaten (P3) explained:

*"There are often discrepancies between cash records and books. Sometimes members also complain because they feel their payments weren't recorded. If there were a system that could ensure all transactions are correctly recorded, that would be very helpful."*

This expectation of accuracy reflects the belief that technology can reduce human error, especially in repetitive tasks involving numerical calculations. P8, Secretary in Medan, added:

*"When there's an error, we are responsible, not the machine. So we really need to be sure that the data provided by AI is accurate and trustworthy."*

However, research on AI adoption indicates that expected accuracy must be balanced with realistic understanding of AI limitations. Yan et al.'s (2024) study on ChatGPT for thematic analysis found that while AI can generate code suggestions quickly, its quality and consistency remain questionable, especially for subtle themes requiring deep contextual understanding. Gao et al. (2023) also demonstrate a gap between users' perceived trustworthiness of AI and their actual behavioral trust

in using AI systems. In the cooperative context, this finding implies that cooperative managers require adequate verification mechanisms to ensure the accuracy of data generated by AI systems, as well as understanding of the technology's limitations to avoid over-reliance that could prove fatal.

**3. Concerns about Trust and Control**

Although participants showed enthusiasm for AI's potential, they also expressed significant concerns. Primary concerns revolved around issues of trust, control, and sense of ownership over the cooperative management process. P4, Chairperson of the Cooperative in Kubu Raya, expressed:

*"I'm worried that if everything is done by machines, we as managers will lose understanding of the cooperative's condition. We can't just trust the numbers that come out of the application without knowing how those numbers are calculated."*

This concern reflects Puranik et al.'s (2025) finding that qualitative researchers are reluctant to grant full interpretive authority to AI due to fears of losing a sense of ownership over the analytical process. In the cooperative context, this concern is even more relevant given that managers are directly responsible to members. As expressed by P8:

*"When there's an error, we are responsible, not the machine. So we really need to be sure that the data provided by AI is accurate and trustworthy."*

Trust is indeed a fundamental factor in human-AI collaboration (Gao et al., 2023; Ofosu-Ampong & Renner-Micah, 2026). Cross-cultural research on AI acceptance as a co-worker finds that trust, understanding, and familiarity have more dominant influence than demographic factors such as gender or culture (Ofosu-Ampong & Renner-Micah, 2026). In the context of AI-based agricultural technology adoption in Ghana, research found that perceived usefulness and perceived ease of use play important roles in driving AI adoption, yet government support can actually reduce the positive relationship between both factors and AI adoption, indicating complexity in policy interventions (Tweneboah-Koduah et al., 2025). Similarly, in AI adoption within the design community, trust and cooperative attitudes are important factors influencing acceptance (Kuo & Wang, 2025).

These findings are also relevant to the Industry 5.0 concept emphasizing the importance of harmonious collaboration between humans and machines, where technology functions as a supportive assistant rather than replacing human roles (Nature Scientific Reports, 2025). In the Industry 5.0 paradigm, worker well-being and their active involvement in production processes become central focuses, so technology is designed to enhance human capacity, not diminish their roles.

**4. Infrastructure and Digital Literacy Limitations**

Digital infrastructure limitations pose real obstacles for most participants. P11, a manager in Kubu Raya, complained:

*"Here the internet signal often cuts out. Sometimes we have to go to the city just to access the internet. How can we use AI that requires continuous connection?"*

Beyond infrastructure, low digital literacy also presents a serious constraint. P5, Secretary in Kubu Raya, admitted:

*"I still have difficulty using simple applications on my phone. Let alone having to use what they call advanced AI. I'm afraid I won't be able to operate it."*

These findings confirm that AI adoption in the Red and White Cooperative cannot be separated from human resource readiness and supporting infrastructure. Febriadi and Riofita's (2026) research identifies that digital transformation implementation in Red and White Cooperatives still faces various challenges, such as limited human resources, low digital literacy, limited technological infrastructure, and resistance to organizational cultural change. Similarly, Kesuma et al. (2025) found that primary obstacles in Red and White Cooperative management include low cooperative literacy, the absence of clear legal instruments at the village level, limited technical assistance, and weak cooperative governance.

Cross-cultural research on AI acceptance finds that lack of knowledge, training, and clear AI policies becomes one of the main reasons for uncertainty and rejection of AI (Ofosu-Ampong & Renner-Micah, 2026). The Deputy Assistant for Cooperative Digitalization at the Ministry of Cooperatives also acknowledges that the main challenge of the Red and White Cooperative program is equitable infrastructure access, particularly electricity and internet networks in several regions, as well as uneven community digital literacy indices (Riza Azmi, 2026). The Minister of Cooperatives himself acknowledges that training and capacity building for managers constitute important components of the Red and White Cooperative program, with the recruitment of 1,104 Project Management Officers (PMOs) placed in 38 provinces and 514 regencies/cities, as well as 8,000 business mentors providing direct guidance to cooperative managers (Ferry Juliantono, 2025).

**5. Need for Ongoing Training and Support**

Most participants recognized that AI adoption requires adequate training and support. P7, Chairperson in Medan, stated:

*"We need practical training, not just theory. We want to be taught how to use the application, how to read data, and what to do if problems arise."*

P10, a manager in Klaten, added:

*"Training must be ongoing, not just once and done. Technology keeps changing, so we need to update our knowledge regularly."*

This need for ongoing training aligns with recommendations from research on human-AI collaboration in qualitative analysis, emphasizing the importance of intuitive interface design, validation mechanisms, and iterative features to build user trust in AI (Yan et al., 2024; Gao et al., 2023). Yan et al. (2024) formulated five design recommendations for effective human-AI collaboration: (1) integrating transparent explanation mechanisms, (2) enhancing interface capabilities and integration, (3) prioritizing contextual understanding and customization, (4) embedding feedback and iterative human-AI functionality, and (5) strengthening trust through validation mechanisms.

The Minister of Communication and Digital Affairs, Meutya Viada Hafid, affirmed that the Ministry of Communication and Digital Affairs is tasked with providing digital infrastructure and ongoing training to support the Red and White Cooperative digitalization process, while also ensuring the sustainability of digital systems, so that cooperatives not only transform but also grow adaptively, innovatively, and sustainably in the digital economy era (BPSDM Komdigi, 2025). The Head of the Human Resources Development Agency of the Ministry of Communication and Digital Affairs, Bonifasius Pudjianto, added that digital literacy is no longer merely an option, but an urgent necessity so that cooperatives can increase efficiency, expand reach, and provide maximum contribution to community welfare (BPSDM Komdigi, 2025). The collective participation-based strengthening model formulated for the Red and White Cooperative also places member capacity building through ongoing education and participatory governance as a core principle (Rusdiono et al., 2026).

**Synthesis: Framework of Manager Needs and Expectations**

Based on the above findings, this research proposes a framework of Red and White Cooperative managers' needs and expectations regarding AI consisting of three interrelated main dimensions. The first dimension is the technical dimension, encompassing functional needs such as efficiency, automation, and data accuracy that constitute the primary reasons for managers' interest in AI. The second dimension is the human dimension, encompassing psychological factors such as trust, control, and ownership that influence managers' willingness to adopt AI. The third dimension is the contextual dimension, encompassing external factors such as digital literacy, technological infrastructure, and policy support necessary for successful AI adoption.

These three dimensions are inseparable. Successful AI adoption in the Red and White Cooperative requires balanced attention to all three dimensions. The Technology Acceptance Model (TAM) developed by Davis (1989) identifies perceived usefulness and perceived ease of use as primary predictors of technology acceptance. This research's findings confirm TAM's relevance in the cooperative context, while also demonstrating the need to enrich the model with trust factors that were

participants' primary concern (Ofosu-Ampong & Renner-Micah, 2026; Gao et al., 2023), as well as contextual factors specific to the Red and White Cooperative such as infrastructure availability and digital literacy levels (Febriadi & Riofita, 2026; Kesuma et al., 2025).

**Implications for AI Platform Development for Cooperatives**

This research's findings have important implications for the development of AI platforms for the Red and White Cooperative, such as Digi Koperasi developed by Telkom (Rusdiono et al., 2026; Media Indonesia, 2025). First, interface design should be simple and intuitive, accommodating users with low digital literacy. As recommended in human-AI collaboration design research, interfaces should be transparent and capable of providing explanations about how AI decisions are generated (explainable AI), enabling users to understand and trust the output produced (Yan et al., 2024; Gao et al., 2023).

Second, AI features should be assistive rather than autonomous. Research demonstrates that users are more comfortable with AI that provides suggestions that can be accepted or rejected, rather than AI that makes decisions independently (Puranik et al., 2025; Yan et al., 2024). In the cooperative context, this means AI should function as a data-based recommendation tool, while final decisions remain with managers who bear direct responsibility to members. This approach aligns with the human-centric concept in Industry 5.0 emphasizing harmonious collaboration between humans and technology (Nature Scientific Reports, 2025).

Third, validation and quality control mechanisms are needed to ensure data accuracy and reliability. Managers need ways to verify AI-generated results, whether through auditable dashboards, manually reviewable reports, or features enabling them to review and correct AI output (Yan et al., 2024). Training on interpreting and verifying AI output also becomes an important component in building user trust.

Fourth, training programs should be developed comprehensively and sustainably. Training should not only cover technical aspects of application use, but also understanding of how AI works, its limitations, and how to interpret the results produced (BPSDM Komdigi, 2025; Yan et al., 2024). The strengthening model emphasizing member capacity building through ongoing education and participatory governance is relevant here (Rusdiono et al., 2026). The government has prepared a comprehensive mentoring ecosystem through PMO placement and business mentors throughout Indonesia, yet field implementation still requires special attention to digital literacy gaps and infrastructure access (Ferry Juliantono, 2025).

Fifth, a phased approach to AI implementation is needed, starting from the simplest and most needed features, such as transaction recording automation and financial report generation, before moving to more complex features such as predictive analysis and automated decision-making. This phased approach enables managers to build trust and competence gradually, while providing time for infrastructure improvement and digital literacy enhancement in underserved regions (Febriadi & Riofita, 2026; Riza Azmi, 2026).

## CONCLUSION

Based on the research findings and discussion, it can be concluded that Red and White Cooperative managers have significant needs for artificial intelligence (AI) technology utilization for operational data analysis. The primary needs identified include transaction recording automation, administrative efficiency enhancement, and improved accuracy and reliability of financial and membership data.

Although demonstrating enthusiasm for AI's potential, managers also expressed fundamental concerns regarding trust, control, and sense of ownership over the cooperative management process. They worry about losing understanding of the cooperative's condition if all processes are delegated to machines, as well as bearing full responsibility should errors occur from AI systems. This indicates that AI acceptance in the cooperative context is determined not only by technical benefits but also by psychological factors and managers' social responsibility to members.

The primary challenges faced in AI adoption are digital infrastructure limitations and low digital literacy among managers. Unstable internet connections in rural areas and managers' limited capacity to use basic technology constitute real obstacles that must be addressed before AI implementation can be effectively conducted. Therefore, ongoing training and mentoring become urgent needs, not only in technical aspects of application use, but also in understanding how AI works, its limitations, and interpretation of results produced.

This research proposes that successful AI adoption in the Red and White Cooperative requires balanced attention to three main dimensions: the technical dimension (efficiency, automation, accuracy), the human dimension (trust, control, ownership), and the contextual dimension (digital literacy, infrastructure, policy support). AI platforms developed should be assistive in nature with simple and intuitive interfaces, equipped with validation mechanisms enabling managers to verify results produced, and supported by comprehensive and sustainable training programs. A phased approach to AI implementation is also recommended, starting from the most basic features before moving to more complex features, to build managers' trust and competence gradually.

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