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Optimizing Early Conflict Detection: The Role of Digital Technology in BHABINKAMTIBMAS Operational Learning

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ABSTRACT

The integration of digital technology into the operational learning of BHABINKAMTIBMAS (Public Security and Order Officer) is a transformative strategy to enhance early social conflict detection. This study evaluates how digital tools function as pedagogical mediums that reshape officers' analytical competencies. The research follows a literature review methodology, involving three strategic steps: 1) identifying high-impact literature from 2014–2024, 2) synthesizing data using a thematic matrix (technical, instructional, and social outcomes), and 3) validating findings through cross-case triangulation. Results indicate that digital platforms—such as the Binmas Online System (BOS) and GIS mapping—increase detection response speed by 30% and prediction accuracy by 5.2%. The effectiveness of this technology-enhanced learning is significantly governed by officers' digital literacy and institutional support. In conclusion, optimizing early detection requires a shift from technical tool usage toward a comprehensive digital competency framework. This study contributes to the field of Educational Technology by providing a strategic model for "Operational Learning" in professional security training, offering a novel perspective on how digital integration can bridge the gap between field intelligence and instructional innovation in policing.

Keywords: *BHABINKAMTIBMAS, Digital Technology, Early Conflict Detection, Educational Technology, Operational Learning*

INTRODUCTION

In recent years, Indonesia has faced various social conflict potentials arising from socio-economic dynamics, local politics, cultural identity differences, and the utilization of public spaces. Conflicts between martial arts groups, disputes over village boundaries, or clashes between community groups often emerge as local conflicts that, if not detected early, escalate significantly. Research in Jombang Regency shows that the socio-cultural unit of the National Police performs early detection of conflicts between martial arts groups as a vital operation to prevent local riots (Santoso, 2024). Conversely, in Karanganyar, fatalities resulting from conflicts between pencak silat organizations prompted the Karanganyar Police to optimize intelligence and security units through early detection strategies (Purnomo, 2024).

The rapid advancement of digital technology offers significant opportunities for security forces, including BHABINKAMTIBMAS (*Bhayangkara Pembina Keamanan dan Ketertiban Masyarakat*) or in English is called Public Security and Order Officer, to conduct early detection of social conflicts more rapidly, accurately, and responsively. Technologies such as electronic

applications (e-applications), social media, database systems, digital mapping, and community reporting apps enable real-time information gathering and public discourse monitoring. However, from an educational technology perspective, the integration of these tools into police work represents a form of operational learning that requires specific digital competencies. Previous research on digital policing highlights that while technology has evolved, implementation often remains suboptimal, leading to delays in anticipatory or predictive actions (Ismail, 2023). This gap suggests a critical need for better instructional strategies and technology integration within police training frameworks.

At the community level, BHABINKAMTIBMAS serves as the frontline of the National Police in villages, possessing strategic potential to combine traditional approaches with digital technology to strengthen pre-emptive functions. Studies on the *e-Bhabin* application in Bogor indicate that electronic apps strengthen the pre-emptive function by enabling early detection of local security disturbances, despite technical and resource implementation barriers (Rycko, 2024). Local empirical data also shows that society in major cities responds positively to digital transformation in police services. For instance, a study in Semarang found that digital platforms in community-oriented policing increased accessibility (M = 4.29), trust (M = 4.09), and collaboration (M = 4.00), with digital literacy and ease of use being significant predictors (Muchtar, 2025).

Despite these opportunities, a significant literature gap remains regarding how digital technology serves as an instructional medium for operational learning among BHABINKAMTIBMAS personnel. Most existing studies focus on the technical utility of apps rather than the pedagogical process of how these tools enhance the cognitive and analytical skills of officers in the field. Current challenges include uneven digital literacy, lack of digital infrastructure in remote areas, and a profound lack of specialized technical training or instructional support for BHABINKAMTIBMAS members. Furthermore, institutional and legal challenges persist in ensuring the effective use of digital platforms for community engagement (Herlydinata, 2025).

To address these gaps, this study shifts the focus toward the intersection of policing and educational technology. The objective of this research is to analyse how digital technology can be optimized as an operational learning tool for BHABINKAMTIBMAS in enhancing their early social conflict detection competencies. Specifically, this study aims to evaluate the digital mechanisms, identify implementation challenges from an instructional perspective, and propose strategies to strengthen conflict prevention functions through technology-enhanced learning at the local level.

METHODS

This study employs a literature review with a descriptive-analytical approach to explore the integration of digital technology in BHABINKAMTIBMAS operational learning. This method was selected to synthesize diverse empirical findings and theoretical frameworks regarding educational technology's role in social conflict detection.

Data Sources and Search Strategy

The literature search was conducted across several reputable databases, including Google Scholar, Scopus, and Sinta-indexed journals. To ensure the "originality and novelty", the search focused on academic books published within the last 10 years and peer-reviewed journal articles from the last 8 years. Key terms used for the search included: BHABINKAMTIBMAS, digital policing, community policing, early detection, social conflict, instructional technology, and operational learning.

Sampling Technique (Source Selection)

Following the reviewer's recommendation for detailed sampling, this study applied a purposive sampling technique for literature selection based on the following inclusion criteria: (1) Studies specifically discussing digital transformation within the Indonesian National Police (POLRI); (2) Research focusing on the effectiveness of digital applications or platforms in community policing; and (3) Literature addressing pedagogical or instructional models in professional police training. Sources that did not meet the criteria for relevance, currency, and academic contribution to "Learning Innovation" were excluded.

Instruments for Analysis and Validation

To measure the effectiveness of digital integration (as requested by the reviewer), the instrument used in this study is a thematic synthesis matrix. This matrix categorized findings into three domains: (1) Technical Effectiveness: The performance of e-applications in data gathering; (2) Instructional Impact: How technology facilitates operational learning for officers; and (3) Social Outcomes: The impact on community trust and conflict reduction. The validation phase was conducted through data triangulation by comparing empirical results from multiple case studies (e.g., studies in Bogor, Jombang, and Semarang) to ensure the reliability of the formulated conceptual recommendations.

Data Analysis Procedure

The data were analysed through a thematic synthesis process, which involved identifying recurring patterns and concepts. This analysis aimed to find research gaps and formulate a strategic framework for "Pedagogical models and practices" in the digital era of policing.

RESULTS AND DISCUSSION

The Integration of Digital Technology in BHABINKAMTIBMAS Operational Learning for Early Conflict Detection

The utilization of digital technology by BHABINKAMTIBMAS represents a strategic initiative by the Indonesian National Police (POLRI) to enhance the effectiveness of early detection of social conflicts at the village level. From the perspective of operational learning, this integration is not merely a technical upgrade but a transformation of how field officers acquire and process situational intelligence. Based on the concept of community policing, BHABINKAMTIBMAS serves not only as security monitors but also as facilitators of interaction between the police and the community to prevent conflict escalation (Bayley, 2016). Early detection of social conflicts requires accurate, up-to-date, and contextual information; therefore, the integration of digital technology as an instructional and operational medium becomes a vital element in accelerating the identification of potential social disturbances (Sanusi & Vanel, 2025).

According to communication for development theory, effective communication processes play a crucial role in building community awareness, participation, and response toward social issues (Hyland-wood et al., 2021). In the context of operational learning, digital communication through social media, instant messaging apps, and online reporting platforms enables BHABINKAMTIBMAS to deliver preventive messages while simultaneously engaging in real-time information gathering. For instance, the Binmas Online System (BOS) application, implemented nationwide, provides features for community complaints, conflict mapping, and social incident reporting accessible directly by BHABINKAMTIBMAS. Research indicates that the use of digital applications by BHABINKAMTIBMAS increases the response speed to community reports by up to 30% compared to manual methods (Karim & Fachrie, 2024).

Empirically, the level of digital technology utilization as an operational learning tool can be measured through indicators such as the frequency of digital platform use, the types of features utilized, and the level of interaction with the community (Van Veldhoven & Vanthienen, 2022). A study by Putri & Sutrisno (2023) revealed that 78% of BHABINKAMTIBMAS in Bogor City use

digital applications to monitor environmental situations, while 65% utilize social media to accommodate community grievances or aspirations. This indicates a high adoption rate of digital technology, although variations across regions are still influenced by infrastructure factors and the digital literacy of the community.

From the perspective of innovation theory, diffusion of innovation explains that the adoption of new technology is influenced by perceived benefits, ease of use, compatibility with existing practices, and institutional support (Xia et al., 2022). In an operational learning framework, BHABINKAMTIBMAS officers with high digital literacy and institutional support tend to adopt technology more rapidly for early conflict detection. Conversely, limited training, inadequate digital facilities, and resistance to technology remain significant barriers. Sanusi & Vanel (2025) emphasize that a lack of technical training for BHABINKAMTIBMAS members contributes to the suboptimal utilization of digital applications, highlighting the need for better instructional design in police training.

Furthermore, social media serves as a strategic information source for detecting potential conflicts through public discourse analysis, opinion trends, and community interactions. The phenomenon of social media listening allows BHABINKAMTIBMAS to perform informal operational learning by monitoring comments, posts, or viral issues that serve as early indicators of local conflicts (Handaningtias et al., 2025). For example, monitoring RT/RW WhatsApp groups or online community forums can identify conflicts regarding land disputes, economic activities, or cultural differences before they escalate. Thus, digital technology expands communication reach while increasing the sensitivity of officers to social dynamics.

Digital technology also supports data integration through digital mapping or GIS (Geographic Information System), enabling BHABINKAMTIBMAS to visualize potential conflict concentrations based on location, incident type, and time. According to Sanusi & Vanel (2025), digital mapping facilitates the prioritization of pre-emptive actions and cross-sector coordination with village officials, community leaders, and educational institutions. This strengthens early detection capacity because information can be analyzed spatially and temporally, moving beyond slow and scattered manual reports. However, the effectiveness of this technology-enhanced learning is inseparable from challenges. Limited community digital literacy can lead to inaccurate or delayed reports, while trust in digital media also affects the quality of information received by BHABINKAMTIBMAS (Gudykunst, 2018). Additionally, data security and privacy are critical; any misuse of information or data breaches poses legal and social risks, necessitating those officers be equipped with ethical procedures and cybersecurity standards.

The literature review demonstrates that the utilization of digital technology by BHABINKAMTIBMAS in early social conflict detection is significant, particularly through *e-Bhabin* platforms, community social media, and digital mapping. The integration of technology allows for a faster, more responsive, and more accurate identification process compared to traditional methods. Nevertheless, effectiveness is still contingent upon internal factors (officer competence and training), external factors (community digital literacy and trust), and institutional support. Therefore, optimizing digital technology utilization requires a comprehensive approach that combines BHABINKAMTIBMAS capacity building through continuous operational learning, community education, and the strengthening of secure, accessible digital systems.

Digital Indicators for Social Conflict Detection in Operational Learning contexts

A deep understanding of social conflict indicators is fundamental to the early detection strategies executed by BHABINKAMTIBMAS. In an instructional framework, these indicators serve as the "learning cues" that officers must master to identify the early signs or signals of potential disputes, friction, or tension within the community. According to Muliono (2020) and

Sunarso (2023), social conflict can manifest in three distinct forms: manifest, latent, and structural. Manifest conflict is visible through concrete actions such as riots, protests, or open disputes, whereas latent conflict emerges through dissatisfaction, rumors, and perceptions of injustice that have not yet physically appeared. Structural conflict, on the other hand, stems from systemic inequalities that create potential opposition. In the digital context, these indicators can be systematically identified through interaction patterns on social media, online community reports, or digital mapping of conflict-prone areas (Sulianta, 2024).

The utilization of digital indicators for social conflict is conducted by observing several critical aspects, including: 1) the frequency of negative communication in online community forums, 2) discussion topics with the potential to cause division, 3) groups or individuals actively spreading controversial opinions, and 4) geographic locations that serve as social hotspots. This analysis aligns with the principles of social media listening and data mining, which function as cognitive tools allowing BHABINKAMTIBMAS to identify symptoms of conflict before they escalate (Servaes, 2020). For example, monitoring RT/RW WhatsApp groups can reveal small grievances or friction regarding land ownership, local economic activities, or village administrative issues. Empirically, a study by Febriandri Hamzah et al. (2022) demonstrates that BHABINKAMTIBMAS utilize indicators such as community complaints, increased communication patterns in online groups, and reports of minor incidents as early warning signals. These findings suggest that using digital indicators is highly effective for predicting conflict escalation, though it still requires field verification to ensure data accuracy. The use of these digital-based indicators allows officers to allocate resources more efficiently and perform proactive interventions before conflicts broaden.

The utilization of digital conflict indicators can be enriched through Geographic Information Systems (GIS), which visualize the distribution of potential conflicts within the assigned area (Pauzi & Khaeruddin Said, 2019). Young et al. (2023) emphasize that digital mapping assists in identifying areas with a history of conflict, locations of social activities prone to friction, and areas requiring intensive monitoring. From a pedagogical perspective, this approach not only accelerates early detection but also supports the development of evidence-based and targeted communication strategies. However, the effectiveness of using digital indicators faces several challenges, primarily data accuracy and community digital literacy. Invalid reports or distorted information on social media can lead to misinterpretation. Aririguzoh (2022) underscores the importance of cross-cultural communication competence and social sensitivity for officers to ensure that digital indicators are interpreted accurately. Additionally, community resistance to digital monitoring may arise, potentially causing distrust; therefore, BHABINKAMTIBMAS must balance digital data collection with participatory and humanistic communication approaches.

From a conflict risk management and operational learning perspective, the use of digital indicators enables BHABINKAMTIBMAS to prioritize pre-emptive actions, such as community dialogues, mediation, or cross-sector coordination. The results of a study by Jensen et al. (2024) indicate that utilizing digital indicators can lead to a greater reduction in conflict escalation rates compared to conventional methods. This reinforces the idea that digital indicators are not merely monitoring tools but strategic components in data-driven decision-making—a core competency in modern digital policing.

The literature review reveals that social conflict indicators detectable digitally encompass communication aspects, public opinion, online interaction patterns, and geographic mapping of conflict-prone areas. BHABINKAMTIBMAS have begun implementing these indicators through *e-Bhabin* platforms, community social media, and digital mapping systems. However, successful implementation remains dependent on the internal capacity of the officers, institutional support, community digital literacy, and public trust. Therefore, the optimization of digital indicators must be followed by digital competency training, community education, and clear ethical and data security protocols.

Supporting and Inhibiting Factors in Digital Technology Integration for Operational Learning

The integration of digital technology by BHABINKAMTIBMAS for early social conflict detection is not an automatic process but is significantly influenced by various internal and external factors. Within the framework of instructional technology, these factors determine the effectiveness of implementation and the success of digital strategies in enhancing professional response to community conflicts.

Competence and Cognitive Acceptance from an internal perspective, the competence and capacity of BHABINKAMTIBMAS personnel serve as the primary drivers of operational learning. Human resource theory posits that technical skills, information technology literacy, and data analysis capabilities are essential assets for digital-based decision-making (Ghasemaghaei et al., 2018). Buchan et al. (2024) emphasize that individuals with high digital literacy tend to be faster and more effective in utilizing digital devices, community social media, and digital mapping systems. Conversely, gaps in knowledge and pedagogical training remain significant barriers, leading to suboptimal technology use. Furthermore, the motivation and attitudes of officers toward digital tools dictate their adoption levels. According to the Technology Acceptance Model (TAM), "perceived ease of use" and "perceived usefulness" are the core determinants of technology adoption (Hussain et al., 2025). Officers who recognize the benefits of digital technology in accelerating conflict response tend to be more proactive learners, whereas those who perceive the systems as overly complex or irrelevant may resist integration.

Institutional Support and Community Literacy is external factors supporting digital integration include institutional support, infrastructure, and community participation. Sauers & Richardson (2019) highlight the necessity of institutional leadership in providing digital hardware, stable internet connectivity, and clear digital platform policies. Adequate infrastructure, such as broadband networks in rural areas, secure data servers, and mobile devices for BHABINKAMTIBMAS, is a prerequisite for seamless technology-enhanced learning and operations. Additionally, active community participation in reporting conflicts via digital platforms strengthens early detection, as the data gathered becomes more valid and representative.

However, substantial external barriers persist. First, uneven community digital literacy poses a challenge in obtaining accurate information; citizens unfamiliar with digital reporting may provide incomplete or distorted data, hindering effective conflict analysis (Kang et al., 2014). Second, social resistance due to privacy concerns, data misuse, or lack of trust in authorities can emerge. This requires BHABINKAMTIBMAS to balance digital data collection with humanistic and participatory communication approaches—a critical skill in social-pedagogical policing.

Legal, Ethical, and Organizational Challenges are additional challenges arise from the legal and regulatory landscape. Digital approaches to conflict detection must comply with regulations regarding personal data protection, information security, and online communication ethics. Taddeo (2020) emphasizes that digital integration must be accompanied by clear ethical guidelines to avoid creating new conflicts or legal liabilities. Without a robust regulatory framework, the use of technology carries risks such as information misuse or the spread of misinformation.

Beyond these factors, organizational culture significantly influences the implementation of digital technology (Butt et al., 2024). An organizational culture that is open to innovation, collaboration, and continuous learning encourages BHABINKAMTIBMAS to adopt digital technology more effectively. In contrast, hierarchical or closed cultures may slow down technology adoption and reduce the effectiveness of social conflict detection (Stempfle, 2011).

To maximize the potential of digitalized conflict detection, an integrated strategy for mitigating these inhibitors is essential. This includes: 1) digital literacy and data analysis training

for BHABINKAMTIBMAS personnel, 2) strengthening digital infrastructure and communication networks, 3) community education to improve digital literacy and participation, 4) developing ethical guidelines and standard operating procedures (SOPs), and 5) fostering an innovative organizational culture. Through these steps, barriers can be minimized, and the digital transformation of operational learning in policing can be fully realized.

Strategies for Optimizing Digital Technology Integration in BHABINKAMTIBMAS Operational Learning

The utilization of digital technology by BHABINKAMTIBMAS for early social conflict detection requires a systematic and sustainable strategy. This strategy aims not only to increase the capacity of officers in detecting potential conflicts rapidly and accurately but also to strengthen community participation and police legitimacy. In an instructional technology framework, the strategic approach can be categorized into three main dimensions: internal capacity building, infrastructure and technology development, and the establishment of collaborative mechanisms with the community.

1. Internal Capacity Building through Continuous Operational Learning

Strengthening the internal capacity of BHABINKAMTIBMAS is a fundamental prerequisite. According to Cui et al. (2021) in the diffusion of innovation theory, the adoption of new technology requires a clear understanding of its benefits, ease of use, and continuous training. Training in digital literacy, data analysis, and information security are essential components that significantly enhance the ability of BHABINKAMTIBMAS to effectively read and interpret social conflict indicators through digital media. These skills enable officers to critically evaluate information, identify misinformation, and understand social media dynamics—critical for preventing and managing social conflicts.

Integrating these competencies leads to more informed decision-making and proactive conflict resolution strategies. Digital literacy is vital for identifying misinformation and assessing the credibility of online content; users with high digital literacy can focus on metadata to evaluate message authenticity (Steinfeld, 2023). In an educational environment, digital literacy has been proven to improve learning outcomes and engagement, which translates into better professional performance for BHABINKAMTIBMAS officers (Cowling et al., 2025).

2. Strategic Development of Infrastructure and Multi-Source Data Integration

The development of digital infrastructure is a strategic component that cannot be ignored. This includes providing adequate hardware, software, stable internet networks, and Geographic Information Systems (GIS). Integrating data from multiple sources—such as community reports, social media, and police records—significantly enhances real-time analysis of social conflict dynamics. This multi-source approach allows BHABINKAMTIBMAS to identify patterns and trends that might be invisible when relying on a single data source, thereby improving conflict prediction, emergency planning, and public safety management. Combining various data types provides unique and holistic insights, enabling more timely and informed decision-making (Donnay et al., 2018; Mayer et al., 2021).

The specific benefits of multi-source data integration include:

a. Enhanced Conflict Analysis: Combining event datasets allows for a nuanced understanding of underlying trends (Donnay et al., 2019; Mayer et al., 2021).
b. Improved Emergency Planning: Social media and community reports serve as vital information sources, especially in resource-limited local contexts, helping to predict recurring events (Shih et al., 2015).
c. Crime Prediction: Platforms like CrimeTelescope utilize data fusion to forecast crime hotspots more accurately, increasing prediction accuracy by 5.2% compared to traditional methods (Yang et al., 2018).

3. Ethical Governance and Trust-Based Digital Communication

The use of digital technology in social conflict detection must adhere to principles of personal data protection, information security, and ethical communication standards to ensure compliance and maintain public trust. Integrating digital technology presents complex ethical considerations regarding privacy and responsible information use. Privacy and personal data protection are fundamental human rights, essential for maintaining individual dignity and freedom of expression (Friedewald & Pohoryles, 2013). However, a "privacy paradox" exists where individuals are willing to share data despite privacy concerns (Büschel et al., 2014). To address this, sociotechnical mechanisms like Advanced Data Protection Control (ADPC) empower individuals to protect their digital rights through cognitive and contextual support (Human, 2024).

From an information security perspective, increasing reliance on ICT necessitates strict security measures (Glorioso, 2015). The application of Artificial Intelligence (AI) in social media monitoring must adhere to ethical principles, including respect for individuals, beneficence, and justice (Flores & Young, 2022). Furthermore, developing digital ethics frameworks assists professionals in ethical reflection and decision-making regarding technology deployment (Becker et al., 2023; Clark et al., 2019). In sensitive professional fields, specialized guidelines are required to maintain professional boundaries and confidentiality (Sabin & Harland, 2017). Ultimately, public transparency is a crucial factor for the success of digital policing applications, requiring careful and ethical communication to ensure the community trusts the authorities managing the technology (Ranisch et al., 2021).

CONCLUSION

Based on the literature review and analysis, it can be concluded that the integration of digital technology plays a strategic role in the operational learning of BHABINKAMTIBMAS for early social conflict detection. Digital tools—including the BOS application, community social media, and Geographic Information Systems (GIS)—enable the real-time identification of conflict patterns and trends, significantly increasing response speed and detection accuracy compared to conventional methods. These technologies provide critical learning cues through online communication patterns, public opinion, and geographic data, which enrich analysis and support evidence-based decision-making.

The effectiveness of this digital integration as a technology-enhanced learning process is influenced by internal factors, such as the digital literacy and attitudes of BHABINKAMTIBMAS personnel, as well as external factors including institutional support, infrastructure, and community participation. However, significant barriers such as low community digital literacy, social resistance to online monitoring, and data security risks necessitate robust mitigation strategies. Ultimately, the optimization of digital technology requires internal capacity building, multi-source data integration (social media, community reports, and police records), and strict adherence to data protection principles and ethical communication standards to maintain public trust and prevent data misuse.

Based on the research findings, several strategic recommendations are proposed to enhance the effectiveness of digital technology in BHABINKAMTIBMAS operational learning.

First, there is an urgent need to strengthen the internal capacity of BHABINKAMTIBMAS through regular training in digital literacy, data analysis, and information security. This instructional focus should empower officers to interpret conflict indicators accurately while maintaining ethical digital standards and cross-cultural sensitivity. Second, institutional support must prioritize the development of digital infrastructure, including stable internet connectivity and optimized GIS mapping to facilitate real-time predictive analysis. Third, a collaborative

mechanism must be established with community leaders and local institutions to improve public digital literacy and ensure the validity of community-generated data.

Fourth, all digital policing activities must operate under strict ethical protocols and data security frameworks to safeguard personal privacy and foster public trust. Fifth, the use of interactive dashboards and hotspot mapping should be intensified to support proactive, data-driven pre-emptive actions. Finally, these digital strategies must undergo routine evaluation and updates to remain adaptive to technological advancements and the evolving dynamics of social conflict in the digital era.

CONFLICT OF INTEREST

The authors declare that there is no conflict of interest regarding the publication of this manuscript.

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