International Journal of Economics, Business and Innovation Research
https://e-journal.citakonsultindo.or.id/index.php/IJEBIR
E-ISSN : 2964-0865
IJEBIR

Implementation Of Predictive Policing As A Crime Prevention Effort In The Era Of Digital Transformation

Herry Yusman[1], Nashriana[2], Suci Flambonita[3], Zhelin Armeta[4]

[1,2,3] Fakultas Hukum, Universitas Sriwijaya, Indonesia

Corresponding Author : hyusman151@gmail.com, nashriana@fh.unsri.ac.id
suciflambonita@fh.unsri.ac.id, zhelin.armeta@fh.unsika.ac.id

Abstract

The rapid advancement of digital technology has encouraged a shift in law enforcement strategies through the adoption of predictive policing as a preventive approach to crime prevention. This study examines the legal framework governing predictive policing in Indonesia and proposes an implementation model that aligns with the principles of the rule of law, human rights protection, personal data protection, and accountability in the use of artificial intelligence and big data. This research employs a normative legal method using statutory, conceptual, and comparative approaches. Primary, secondary, and tertiary legal materials are examined qualitatively to formulate legal arguments on the implementation of predictive policing as an effective, transparent, proportional, and equitable crime prevention strategy supporting digital transformation in law enforcement.

Keywords: predictive policing; crime prevention; digital transformation; artificial intelligence; law enforcement.

INTRODUCTION

Predictive policing is defined as the collection and analysis of data on previous crimes to statistically identify and predict individuals or geospatial areas with a likelihood of increased criminal activity, in order to help develop police interventions as well as prevention strategies and tactics. This represents the digital utilization or use of numerical systems for specific calculation methods by applying predictive policing in Indonesia to

Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License.

prevent acts prohibited by law or criminal offenses. In this era of digitalization, criminal acts are divided into conventional crimes and cybercrimes. The distinction between cybercrime and conventional crime lies in the role of technology, which in this context facilitates the commission of criminal acts. Predictive policing focuses on preventing conventional criminal acts. According to Hung & Yen, researchers and postdoctoral scholars at Academia Sinica, Taiwan, there are several types of predictive policing applications that must be distinguished: Area-based policing, focusing on the times and places where crime is more likely to occur; Event-based policing, focusing on the types of activities more likely to occur; and Person-based policing, focusing on individuals more likely to be involved in criminal acts, such as former convicts.

The implementation of predictive policing involves the development of the AI Fairness 360 (AIF 360) system, an open-source toolkit that can be used to detect, understand, and mitigate bias in algorithms. Amid the rapid development of technology and rising crime rates, it is time for Indonesia to modernize its policing methods through the adoption of predictive policing.

Indonesia is now facing serious challenges, as criminals become increasingly sophisticated and criminal methods continue to evolve. The Indonesian National Police (Polri) released its year-end report on December 27, 2025, indicating that the crime rate throughout 2023 increased by 4.3% compared to 2024. Universally, the role of police in society is defined as law enforcement officers and order maintenance, which also includes the role of crime fighters. In Indonesia, this role is realized through the Korps Samapta Bhayangkara (Korsabhara), a unit within the Indonesian National Police under the Security Maintenance Agency, tasked with conducting functions related to maintaining conducive public safety and order. One of Korsabhara's duties is crime prevention through routine patrols and strategic presence in crime-prone locations.

In practice, the police have already conducted enhanced patrols around accident-prone areas, and the government has conceptualized predictive policing through the Presisi program. This program aligns with the theoretical steps of predictive policing, focusing on an early detection system, which is then analyzed integratively and used as a decision support system ultimately aimed at optimizing police functions in both preemptive and preventive capacities, with law enforcement as a last resort. Its implementation will be managed using technologies such as artificial intelligence, IoT, big data, and all their supporting systems. Studies in the literature indicate that the application of decentralized policing can increase the effectiveness of law enforcement, as indicated

Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License.

by a decline in crime rates — particularly violent crimes and property crimes — increased resolution of criminal cases, and reduced levels of public anxiety over criminal threats.

A study from UCLA tested the effectiveness of crime prediction using AI models compared to human analysts. In this study, officers from three LAPD divisions (North Hollywood, Southwest, and Foothill) were deployed to crime-prone areas marked as red boxes on a map, without being told whether the area was selected by a computer or a human. They were free to act as needed at those locations over several months. The results showed that police deployment based on AI prediction successfully reduced an average of 4.3 crimes per week, a reduction of 7.4 percent compared to no patrols at all. Meanwhile, areas selected by human analysts also experienced a decline, but only by two crimes per week. This demonstrates that AI has significant potential to increase the effectiveness of police patrols and help reduce crime rates more significantly than conventional methods.

These data demonstrate that this approach has successfully reduced crime rates. If countries implementing predictive policing show its success, and Indonesia has been making efforts toward its implementation, then with its vast territory and large population, Indonesia has even greater need for technology-based strategies to optimize law enforcement. Therefore, there is no longer any reason to reject the implementation of predictive policing in Indonesia.

The origins of predictive policing date back to the early 2000s in the United States, when the Richmond Police Department used SPSS data mining software for threat assessment and risk-based tactical unit deployment in 2003, which subsequently spread to other departments. The term “predictive policing” was first explicitly used in 2008 and was reinforced by media attention accompanying the implementation of PredPol (short for Predictive Policing) software by the Santa Cruz and Los Angeles police departments in 2011. Predictive policing emerged as a breakthrough capable of addressing the problem of criminal acts. Historically, in 2009, Bratton et al. (2009: 3) suggested understanding predictive policing as forward-looking crime prevention that connects technology, management practices, real-time data analysis, problem-solving, and information-based policing to produce results, crime reduction, efficient institutions, and modern, innovative policing. The application of predictive policing provides an appropriate response strategy to mounting political, public, and economic pressure on the police to find new ways of dealing with rising crime rates. In 2012, then-LAPD police chief Charlie Beck (as cited in Orr, 2012) highlighted the pragmatic appeal of predictive policing: “I’m

Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License.

not going to get more money. I'm not going to get more cops. I have to be better at using what I have, and that's what predictive policing is."

Based on the foregoing, it can be understood that digital transformation has brought significant changes to the patterns and characteristics of criminal acts, thereby demanding updates to strategies in the security maintenance and law enforcement system. Predictive policing emerges as one innovation that leverages digital technology, artificial intelligence, big data, and predictive analytics to optimize the police function in preventing criminal acts before they occur. Although various countries have demonstrated the success of this approach and Polri has begun integrating the concept of predictive policing through the Presisi policy, its implementation in Indonesia still faces various challenges, whether from the aspects of regulation, data governance, technological infrastructure readiness, human rights protection, or the accountability of the use of algorithms in decision-making processes. Therefore, a comprehensive study is needed to analyze how the implementation of predictive policing as a crime prevention effort in the era of digital transformation can be carried out effectively, in accordance with the law, upholding the principles of the rule of law, and capable of providing a balance between increased law enforcement effectiveness and protection of citizens' rights. On the basis of these considerations, this study is titled "The Implementation of Predictive Policing as a Crime Prevention Effort in the Era of Digital Transformation."

Problem Formulation

Based on the background described above, this study is directed to examine several key issues, including:

1. How is predictive policing implemented as a crime prevention effort in the era of digital transformation?
2. How is predictive policing legally regulated from the perspective of the rule of law, human rights, and personal data protection in Indonesia?
3. What is the ideal model of predictive policing implementation to realize an effective and equitable crime prevention system in Indonesia?

Research Method

This research is a normative legal study employing a statutory approach, conceptual approach, and comparative approach. These three approaches are used to examine legal regulations, the concept of predictive policing, and its application in several countries. Analysis is conducted qualitatively on primary, secondary, and tertiary legal

Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License.

materials to produce comprehensive legal arguments. The conceptual approach is used to examine theories related to predictive policing, big data, artificial intelligence, and crime prevention, while the comparative approach is conducted through a comparison of predictive policing implementation in several countries as evaluative material for its development in Indonesia. Analysis is conducted qualitatively on primary, secondary, and tertiary legal materials using a descriptive-analytical method to formulate legal arguments regarding the application of predictive policing in crime prevention.

DISCUSSION

The Urgency of Implementing Predictive Policing in Crime Prevention in the Era of Digital Transformation

Crime is a phenomenon influenced by various social, economic, and educational aspects. Low levels of welfare, limited access to education, high unemployment, and non-conducive social environments are factors that can increase the potential for criminal acts. This situation indicates that crime prevention must be carried out through a comprehensive approach that takes into account the root causes behind it. This is consistent with the view of Rahmalia, Ariusni, & Triani, who state that economic factors and low quality of human resources often cause individuals to choose criminal acts as a shortcut to meet their living needs. This situation indicates that crime prevention must be carried out comprehensively through implementation supported by active community participation in providing information to law enforcement authorities. Subsequently, this data can be analyzed by the police to identify the root causes of criminality, so that the prevention policies adopted are not merely repressive but are also capable of promoting improvements in public welfare. With lower crime rates, many benefits will naturally follow in various sectors, including the economic sector, where: (1) Investors, both local and foreign, tend to be more confident in investing capital in safe areas because the risk of losses due to crime (such as theft, extortion, or damage to assets) is lower. (2) Lower operational costs — companies do not need to spend large additional funds on security (e.g., security guards, CCTV, high insurance), so profitability can increase. (3) Growth of small and medium enterprises (SMEs) — SMEs will be more free to develop because they are not afraid of becoming victims of extortion, theft, or fraud. The informal economic sector can also grow more healthily. (4) Increased tourism — safe areas attract more tourists, both domestic and foreign, which in turn drives consumption in hotels, restaurants, transportation, and other supporting sectors. (5) Job creation — with more businesses and investment, demand for labor automatically rises, which can reduce

Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License.

unemployment rates. (6) Increased regional revenue — with a vibrant economy, revenue from taxes, levies, and business licenses also increases, which can be used for further development.

A study by UCLA together with law enforcement authorities tested the effectiveness of predicting crime-prone locations using algorithmic models compared to human analysts. The study showed that algorithmic models for determining patrol areas proved more effective. Researchers even estimated that if such a system were broadly applied, the city of Los Angeles could save up to $9 million per year in terms of victim costs, court costs, and social losses.

Predictive analytics helps the police deal with crime problems more effectively and efficiently — for example, by deploying personnel in high-risk hot spots, so that potential criminal acts can be prevented before they occur. This approach accelerates intervention and reduces the impact of crime. Meanwhile, if Indonesia does not adopt this technology, the risk is that police will continue to operate reactively, only moving after a crime has occurred, slowing down response times and giving perpetrators room to act. Moreover, the public now demands more proactive steps, so that the failure to prevent crime effectively could undermine public confidence in the protection and security provided by the state.

Beyond this, predictive policing represents an effort to fulfill the mandate of Pancasila and the Constitution to help maintain public safety and order, in line with the mandate of Article 30 paragraph (4) of the 1945 Constitution concerning Polri's duty to protect and serve the people. Furthermore, predictive policing also reflects the second principle of Pancasila, namely just and civilized humanity, and the fifth principle concerning social justice for all Indonesian people, as the implementation of predictive policing is consistent with the fundamental values of the nation.

Strengthening the Crime Prevention System Through Data-Based Predictive Policing

The implementation of predictive policing in Indonesia is not merely an innovation but a necessity. With a surge in crime that is increasing not only in quantity but also in complexity, the state can no longer rely on conventional approaches. BPS data from 2024 records an increase in national criminal cases from 105,000 to 122,000. This figure is not merely a statistic; it is a warning that reactive legal approaches are no longer adequate. Predictive policing addresses this challenge with a precise preventive approach. By integrating big data from various sources — ranging from population data, traffic records,

Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License.

to citizen reports — Polri can map crime patterns and intervene before victims fall. In the Routine Activity Theory by Cohen and Felson, crime occurs when an offender, a target, and the absence of a guardian converge. Predictive policing places the guardian before the crime occurs. So, will the state continue to wait for the next victim to fall, or choose to act earlier in order to protect its citizens?

In accordance with Pancasila and the 1945 Constitution: The State Is Obliged to Protect the People from Crime. The law is not merely a collection of articles, but a promise of the state to its citizens: that every person has the right to live with a sense of security. Predictive policing is therefore not merely a digital tool, but a concrete way for the state to fulfill its constitutional promise. Article 28G paragraph (1) of the 1945 Constitution states that every citizen has the right to personal protection. Article 30 affirms that Polri is a state instrument for maintaining security. And in Pancasila, the second and fifth principles affirm the values of humanity and social justice. Predictive policing helps the state act before a crime occurs. This is a more tangible form of protection than merely waiting for victim reports. Even international law such as the ICCPR recognizes the right of the state to prevent harm to citizens, as long as it is carried out proportionally. So, can we say that the state has protected its citizens if it is unable to read the threats that are already plainly visible?

Some people worry that predictive policing will violate the law. But in fact, Indonesia's law already provides a strong foundation for the use of big data by law enforcement authorities. Law No. 2 of 2002 assigns to Polri the duty to maintain order and enforce the law. Article 15 even grants Polri the authority to manage crime information through the National Criminal Information Center. Furthermore, Law No. 27 of 2022 on Personal Data Protection states that personal data can be processed for national defense and security interests. Constitutional Court Decision No. 5/PUU-VIII/2010 affirms that restrictions on privacy rights are permitted, as long as they are in the public interest and based on law. Therefore, predictive policing, as long as it is carried out transparently and is not abused, is in fact lawful and justified. If the law permits it, and the threat is real, is it not negligent for the state not to use it?

In a world that moves ever faster, the police can no longer rely solely on intuition. Predictive policing brings a new approach — one that is intelligent, efficient, and well-targeted. By using historical data, this system can predict when and where crime is most likely to occur. This means police can be present in the right place, at the right time, with the optimal number of personnel. The Routine Activity Theory (Cohen and Felson) shows that crime often occurs due to the absence of oversight. If the police already know the

Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License.

high-risk locations and times, the potential for crime can be significantly reduced. The city of Richmond in the US even recorded a reduction of up to 47% in random shooting incidents after implementing a predictive system. According to the World Bank (2023), countries that implement such systems can save operational costs by up to 20%. The UNGA has also noted that predictive tools can help police assess crime risks and allocate resources efficiently (UN Document N24/234/89). So, in the context of this motion, we are not only talking about security, but also about budget efficiency, resource effectiveness, and the state's ability to act more intelligently. If technology can help the police work more precisely, should we still persist with the old guessing-game approach?

In the digital era, fears that technology will constrain human rights often stem from a normative vacuum and weak oversight. Yet the law has provided key principles to ensure that technologies such as predictive policing do not become repressive tools. One such principle is the principle of proportionality and accountability, as recognized in the Siracusa Principles (1984) and the UN Human Rights Council resolution on the use of digital technologies in the administration of justice (A/HRC/RES/42/15). Indonesia already has a domestic foundation to guarantee this. In Law No. 39 of 1999 on Human Rights, Article 70 states that restrictions on rights must be through law and in the public interest. Furthermore, Law No. 11 of 2008 in conjunction with Law No. 19 of 2016 on Information and Electronic Transactions regulates the use of electronic systems in a legal, accountable, and auditable manner. This is reinforced by internal Polri regulations such as Perkap No. 1 of 2019 on the Management System and Performance Standards. With a clear regulatory design, the use of predictive policing actually has the potential to strengthen human rights, not reduce them. This technology can be directed as a rights-enabling instrument, namely protecting citizens' right not to become victims, accelerating responses to potential crimes, and preventing greater rights violations in the future. So, if technology can be synergized with human rights principles and the precautionary principle, is it not appropriate that we use it to uphold justice?

The advantages of predictive policing are not only technology-based, but have also been tested through research and independent evaluation. A study by RAND Corporation (2019) showed that predictive policing was able to reduce property crimes by up to 11% in test areas in California.[21] Meanwhile, the European Union Agency for Fundamental Rights (FRA) in a 2021 report stated that predictive policing can be lawfully applied if accompanied by an ethical assessment and periodic evaluation based on risk-benefit analysis. In Indonesia, the Indonesian Institute of Sciences (now BRIN) has underscored the importance of using predictive technology in the criminal law system. In a 2024 study,

Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License.

BRIN affirmed that predictive policing can play a significant role in creating efficiency in the justice system by reducing the investigative burden of repeat criminal acts. In addition, the National Cyber and Crypto Agency (BSSN) has also collaborated with Polri in developing the integration of cyber security data to support digital crime prevention. So, when scientists, research institutions, and security authorities agree on the benefits of this technology, is it not rational to listen and adopt it within the national legal framework?

The strength of predictive policing lies precisely in its flexibility. It is not a uniform system, but can be adapted to the local social and cultural context. In urban areas, this system can be integrated with CCTV, pattern recognition, and traffic data. While in rural areas, it can be based on citizen reports through e-Lapor, Polmas WhatsApp, or community early warning systems. Moreover, the effectiveness of prediction increases when combined with local government data. This collaboration enables preventive analysis to identify root problems — whether due to unemployment, poverty, or lack of public space — and gives rise to social interventions such as legal counseling, job training, or youth programs in crime-prone areas. This approach positions technology not as an instrument of repression, but of empowerment. This model is consistent with community-oriented predictive policing in Canada, which combines data prediction with community restorative approaches. In Indonesia, foundations such as Polisi RW and Bhabinkamtibmas can be strengthened to make prediction not just about numbers, but also about the living sociological context. This policy is consistent with the concept of the Presisi Police promoted by the Chief of Police — data-based and public participation-based policing. So, rather than opposing technology, would it not be wiser to use it as a social empowerment tool appropriate to the face of Indonesian society?

Strengthening the Legal Framework of Predictive Policing in Supporting Digital Transformation Toward Indonesia Emas 2045

Predictive policing is not merely a security tool, but a foundation for the direction of national legal transformation. In the 2025–2029 RPJMN (National Medium-Term Development Plan), the state targets the strengthening of a legal system based on digital technology, with emphasis on early detection, rapid intervention, and integration of law enforcement information systems. This serves as a response to the challenges of modern crime, including ever-increasing digital crime. Furthermore, the 2025–2045 RPJPN (National Long-Term Development Plan) affirms that Indonesia is moving toward a legal system that is adaptive, precise, and based on big data as part of the Indonesia Emas agenda. The digitalization of law is not merely about efficiency, but is a prerequisite for

Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License.

justice in the technology era. Therefore, predictive policing is not merely an optional policy, but part of the state's long-term mandate to build a legal system that is modern, intelligent, and inclusive. If we claim to want an Indonesia Emas — advanced, safe, and just — should we still delay the use of technology that is already mandated by the RPJMN and RPJPN themselves?

Predictive policing is not merely technology, but a concrete form of data-based prevention that is rational, objective, and fair. It must be emphasized that prevention is far more valuable than enforcement. And predictive policing is present as a modern answer to that need. In the Crime Pattern Theory formulated by Paul and Patricia Brantingham, it is proven that crime does not occur randomly. It has patterns. It can be mapped, analyzed, and most importantly, prevented. Predictive policing uses three main approaches: Area-Based, identifying high-risk areas based on trends and data; Event-Based, observing patterns of recurring criminal incidents; and Person-Based, analyzing historical data of individuals potentially involved. However, we are aware of the risk of discrimination if data is not managed wisely. Therefore, the predictive policing referred to here is about how to use Fairness-Aware Algorithms, a machine learning technology specifically designed to eliminate historical bias. This means that decisions made are not based on race, gender, or social background, but on objective facts and patterns. The application of Fairness AI has been proven effective in mitigating data bias. With the advancement of the times, IBM has developed a toolkit called AI Fairness 360 (AIF 360), which is used to help detect bias in data and reduce biased outcomes in AI systems. The methods used in Fairness AI to mitigate data bias include: pre-processing (before training), which involves modifying raw data before it is processed by AI; in-processing, which adjusts the AI training model with an emphasis on fairness; and post-processing (after training), which evaluates the results produced by the AI. In truth, data bias in predictive policing can be prevented through the use of a good system. So the issue of data bias is not a problem that needs to be constantly raised. With predictive policing, we no longer rely on subjective intuition that is prone to error. We replace it with artificial intelligence that is neutral and consistent in reading data. This is not about surveilling the people; this is about protecting the people. Rejecting predictive policing is the same as closing one's eyes to the progress of the times, which can in fact be the best aid in upholding justice. Technology is not the enemy of law. Technology is an ally.

Predictive policing is a crime prevention method whose effectiveness has been proven. Predictive policing emphasizes preventive efforts with concrete actions for prevention. Looking at the successes of other countries that have implemented predictive

Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License.

policing: The Spanish Police successfully helped maximize limited human resources during personnel reductions due to economic problems. Predictive policing was carried out through crime risk analysis with the help of a Decision Support System so that patrols conducted by local police officers could be precisely targeted to prevent criminal acts. In addition to budget effectiveness and resource maximization, predictive policing has also been proven to successfully reduce crime rates. After the adoption of the predictive policing system, crime rates in Dubai reportedly declined by 25%. This was achieved through data analysis regarding crime-prone areas and times, prioritizing patrols and community involvement. Predictive policing is a preventive step whose effectiveness in reducing crime rates has been proven. In truth, the duty of law enforcement is not only to deal with criminal acts after they have occurred, but also to find ways to prevent those criminal acts from occurring. Treatment should not be focused only at the downstream, but should begin with prevention at the upstream first.

Protection of Public Security and Privacy Rights in the Implementation of Predictive Policing

Many parties view the data collection used for predictive policing as a form of violation of privacy rights. Law No. 27 of 2022 on Personal Data Protection has already granted the state the authority to process personal data for the sake of public security. Privacy is an individual/personal/derogable right that can be reduced in certain circumstances for the sake of a greater interest. Reflecting on the Utilitarian Theory of Law proposed by Jeremy Bentham, the law must be able to produce the greatest benefit for the greatest number of people. We can imagine how many lives could be saved and how many criminal acts could be thwarted by the implementation of predictive policing. The implementation of predictive policing is in essence a step to create a sense of security for the public against criminal acts through effective, solution-oriented, and innovative preventive measures.

Based on data from the Central Statistics Agency (BPS) in 2023, there were 584,991 criminal incidents recorded, with a ratio of 1 criminal incident every 53 seconds, an increase compared to 2022. This fact clearly demonstrates the urgency of implementing predictive policing as a new breakthrough whose effectiveness has been proven through the country comparisons presented earlier.

The impact of predictive policing does not end with a reduction in crime rates alone. Predictive policing will create a domino effect in sectors such as the economy and social welfare. With the creation of a sense of security, the public will be freer in conducting

Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License.

mobility and activities. Traders can sell goods until late at night without anxiety; workers can return from their offices with peace of mind; women can travel without fear of harassment. Rather than causing stigmatization, the implementation of predictive policing transforms crime-prone areas into safe areas.

The success of applying predictive policing methods with a community approach can be seen from the real example of Kampung Ambon, West Jakarta. This area was previously a red zone for drug trafficking. The Chief of the West Jakarta Metro Police announced a program called RW Bebas Narkoba (Drug-Free Neighborhood). The strategy implemented did not rely solely on law enforcement, but also emphasized community empowerment through direct approaches at the neighborhood level. Residents received guidance and skills training in various fields, such as auto mechanics, cosmetology, and education for prospective security personnel. These steps aimed to create more decent employment opportunities to reduce community involvement in drug trafficking activities. The police also established a command post in the Kampung Ambon area and conducted daily patrols. The collaboration between the community approach and routine patrols resulted in a decline in drug trafficking rates, according to statements from neighborhood heads in the Kampung Ambon area. Based on the statement of the KBO Sat Narkoba (Narcotics Unit Chief) of the West Jakarta Metro Police, a concrete example is that in 2023, the police successfully foiled 1.1 kilograms of methamphetamine that was about to enter Kampung Ambon. The crime prevention measures that are the focus of this discussion do not stop at patrols alone, but also emphasize the resolution of root problems through community-based approaches. The mechanisms that can be offered do not rely solely on law enforcement authorities, but also emphasize community involvement in predictive policing. Predictive policing will involve the smallest structures such as RT/RW (neighborhood units). It cannot be denied that socioeconomic factors are one of the drivers that push people toward criminal acts. In areas deemed crime-prone, data collection will be conducted to determine unemployment and education rates. The police can cooperate with the Ministry of Manpower to create job training programs both online and offline. In other aspects, we also emphasize the use of data derived from community reports to create accurate predictive policing through improvement and maximization of the Polri Presisi application. Polri Presisi (Predictive, Responsibility, and Transparent Justice) is a data processing and community reporting system owned by the police to integrate existing services. This idea will certainly pave the way to maximize the Polri Presisi application and develop the existing predictive policing by adopting the Fairness AI system to create accurate and equitable predictive policing. With complete

Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License.

data available, accurate information will be generated that will be used by the police to take preventive actions through patrols.

CONCLUSION

The implementation of predictive policing represents a strategic necessity within Indonesia's law enforcement system in the era of digital transformation. Through the utilization of big data, artificial intelligence, and predictive analytics, this approach is capable of shifting the policing paradigm from a reactive pattern toward more effective, efficient, and evidence-based preventive action (evidence-based policing). Various practices in several countries show that predictive policing can increase patrol effectiveness, optimize the use of police resources, and reduce crime rates without neglecting the principles of democratic law enforcement. From a legal perspective, the implementation of predictive policing essentially already has a normative foundation in various laws and regulations, including the 1945 Constitution of the Republic of Indonesia, Law Number 2 of 2002 on the National Police of the Republic of Indonesia, Law Number 27 of 2022 on Personal Data Protection, as well as various national digital transformation policies. However, its implementation still requires more comprehensive regulation regarding data governance, algorithm usage standards, oversight mechanisms, human rights protection, and accountability of artificial intelligence systems so as not to cause discrimination, data misuse, or violations of public privacy rights. The ideal model of predictive policing implementation in Indonesia must be built through the integration of digital technology with a community policing approach, the use of transparent and bias-free algorithms (fairness-aware artificial intelligence), strengthening of the Polri Presisi system, cross-ministerial and institutional collaboration, and active community participation in providing information and early detection of potential crimes. With this model, predictive policing not only functions as a crime prediction instrument, but also becomes a means of community protection that is in line with the principles of the rule of law, respect for human rights, and the aspiration to realize a law enforcement system that is modern, adaptive, transparent, and equitable, toward Indonesia Emas 2045.

Recommendations

In order for the implementation of predictive policing to run optimally while upholding the principles of the rule of law, the government together with the Indonesian National Police need to immediately formulate specific regulations that comprehensively govern the management of predictive policing, whether through Government Regulations

Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License.

as implementing regulations of the Police Law or Police Regulations governing its operational standards. These regulations need to clearly contain the types and limits of data that can be used, mechanisms for data collection and processing, cybersecurity standards, periodic algorithm audits, personal data protection, the public's right to obtain information and file objections against algorithm-based decisions, and oversight mechanisms by independent institutions to ensure transparency and accountability. Beyond regulatory strengthening, the implementation of predictive policing should be carried out in stages through a pilot project in several areas with high crime rates as a means of evaluating system effectiveness before it is applied nationally. The development of the system must also integrate Artificial Intelligence technology that applies the principles of Fairness AI to minimize algorithmic bias, supported by strengthening digital infrastructure, increasing Polri human resource capacity, and integrating data between agencies, such as the Central Statistics Agency, the National Cyber and Crypto Agency, local governments, and relevant ministries. On the other hand, the success of predictive policing depends not only on the sophistication of the technology, but also on community involvement. Therefore, a model of community-based predictive policing needs to be developed through optimization of the Polri Presisi application, strengthening the roles of Bhabinkamtibmas, Polisi RW, village governments, and digital-based community reporting systems as accurate data sources in supporting early detection of criminal acts. With the synergy of strong regulations, accountable technology, professional institutions, and active public participation, predictive policing can become a modern law enforcement instrument capable of enhancing national security without sacrificing the protection of human rights, thus aligning with the digital transformation agenda and the development of the national legal system toward Indonesia Emas 2045.

REFERENCES

Artun, Omer, and Dominique Levin. Predictive Marketing: Easy Ways Every Marketer Can Use Customer Analytics and Big Data. Hoboken: Wiley, 2015.

Bennett, Colin J., and Charles D. Raab. The Governance of Privacy: Policy Instruments in Global Perspective. London: Routledge, 2017.

Binder, Christian. Happenings Foreseen: Social Media and the Predictive Policing of Riots. Security and Peace 34, No. 4 (2016).

Chan, Jennifer. The Future of AI in Policing. In Predictive Policing and Artificial Intelligence, edited by J. L. M. McDaniel and K. Pease. London: Routledge, 2021.

Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License.

Faniyah, Iyah, and Fajar Maulana. Application of Electronic Information Technology Police 4.0 to Quickly Respond to Criminal Acts in the Jurisdiction of Payakumbuh Police. UNES Journal of Swara Justisia 7, No. 1 (2023).

Ferguson, Andrew G. The Rise of Big Data Policing: Surveillance, Race, and the Future of Law Enforcement. New York: NYU Press, 2017.

Ferguson, Andrew Guthrie. Predictive Policing Theory. In The Cambridge Handbook of Policing in the United States, edited by Tamara Rice Lave and Eric J. Miller. Cambridge: Cambridge University Press, 2019.

Gordon, Lisa A. A Byte Out of Crime: Predictive Policing May Help Bag Burglars—But It May Also Be a Constitutional Problem. ABA Journal 99, No. 9 (2013).

Hälterlein, Jens. Epistemologies of Predictive Policing: Mathematical Social Science, Social Physics, and Machine Learning. Big Data & Society 8, No. 1 (2021).

Meijer, Albert, and Martijn Wessels. Predictive Policing: Review of Benefits and Drawbacks. International Journal of Public Administration 42, No. 12 (2019).

Mugari, Ishmael, and Emeka E. Obioha. Predictive Policing and Crime Control in the United States of America and Europe: Trends in a Decade of Research and the Future of Predictive Policing. Social Sciences 10, No. 234 (2021).

Perry, Walter L., Brian McInnis, Carter C. Price, et al. Predictive Policing: The Role of Crime Forecasting in Law Enforcement Operations. Santa Monica: RAND Corporation, 2013.

United Nations. The Prevention of Crime, ECOSOC Resolution 2002/13, Annex, Action to Promote Effective Crime Prevention. 2002.

Prisgunanto, Ilham. Marketing Communication: Strategies and Tactics. Bogor: Ghalia Indonesia, 2014.

Quick, Kathryn S., and John M. Bryson. Public Participation. In The Oxford Handbook of American Bureaucracy. Oxford: Oxford University Press, 2016.

Rakhmanova, E. N., and T. V. Pinkevich. Digital Crime Concept. Advances in Economics, Business and Management Research 138 (2020).

Rummens, Anne, and Wim Hardyns. The Effect of Spatiotemporal Resolution on Predictive Policing Model Performance. International Journal of Forecasting 37 (2021).

Stewart, John. The Crisis of Modern Society: Richard Titmuss and Emile Durkheim. History of the Human Sciences (2023).

Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License.

Sumarjiyo. Effectiveness of Polri Intelligence Equipment in the Context of Early Detection to Prevent Criminal Acts. Polri Research and Development Journal 21, No. 1 (2018).

Suparlan, Parsudi. Police Science. Jakarta: Yayasan Pengembangan Kajian Ilmu Kepolisian, 2008.

Tuntalanai, Abrar. Strengthening the Role of Polri in the Era of Digital Transformation to Support Domestic Security in the Context of National Resilience. Jakarta: Lemhannas RI, 2023.

Tyas, Patria Oktayana Dining. Effectiveness of Call Center 110 Services as an Effort to Improve Prime Services to the Community at the Ogan Komering Ulu Police Resort (Polres OKU). Thesis, Taman Siswa University, 2023.

Vadza, Kejal Chintan. Cyber Crime and Its Categories. Computer Science 3, No. 5 (2013).

Weeber, Stan C. Durkheim on Crime and Societal Development: The Durkheim School of Comparative Criminology Reconsidered. Free Inquiry in Creative Sociology 32, No. 1 (2004).

Windani, Cynthia Ayu. Strategies and Challenges of Predictive Policing in the Era of Big Data for Modern Society. Deviance Jurnal Kriminologi 7, No. 2 (2023).

Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License.