



Applicability Predictive Policing in Indonesia Police Agency

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ABSTRACT

This paper explores the application of predictive policing in Indonesia, to overcome challenges such as large geographic areas, uneven population distribution, and insufficient police numbers to handle a large population. Predictive policing involves collecting and analyzing data to anticipate and prevent crime. The study identified issues such as disproportionate police to population ratios, unequal distribution of society, high crime rates, and low utilization of police resources. Using a qualitative approach, especially realist ethnographic studies and action research, this research aims to assess the feasibility and implementation of predictive policing in Indonesia. By combining an in-depth qualitative approach with an understanding of institutional infrastructure and current technology, this study provides valuable new insights into the implementation of predictive policing in Indonesia. The benefits of this research include theoretical contributions to police science and practical insights for future studies of predictive policing in the police. Analyzing crime data from 2018 to 2020 shows a decline in crime rates nationally, but regional variations. The decision-making bureaucracy in the Indonesian National Police is described by emphasizing a centralized system. This paper explores current applications of predictive policing, and highlights the role of intelligence reports. Despite declining crime rates, the study concludes that predictive policing faces challenges in considering qualitative research and a lack of comprehensive data. This paper calls for future discussions regarding predictive policing, technology integration, and Big Data program development to increase accuracy and effectiveness in Indonesia.

Keywords: Predictive Policing, Crime Prevention, Indonesia National Police, Law Enforcement.

ABSTRAK

Tulisan ini mengeksplorasi penerapan kebijakan prediktif di Indonesia, untuk mengatasi tantangan seperti luasnya wilayah geografis, distribusi penduduk yang tidak merata, dan jumlah polisi yang tidak mencukupi untuk menangani jumlah penduduk yang besar. Predictive policing melibatkan pengumpulan dan analisis data untuk mengantisipasi dan mencegah kejahatan. Studi ini mengidentifikasi isu-isu seperti rasio polisi terhadap jumlah penduduk yang tidak proporsional, distribusi masyarakat yang tidak merata, tingkat kejahatan yang tinggi, dan rendahnya pemanfaatan sumber daya kepolisian. menggunakan pendekatan kualitatif, terutama studi etnografi realis serta action research., penelitian ini bertujuan untuk menilai kelayakan dan penerapan predictive policing di Indonesia. Dengan menggabungkan pendekatan kualitatif yang mendalam dengan pemahaman tentang infrastruktur kelembagaan dan teknologi terkini, studi ini memberikan wawasan baru yang berharga dalam implementasi predictive policing di Indonesia. Manfaat penelitian ini mencakup kontribusi teoritis terhadap ilmu kepolisian dan wawasan praktis untuk studi predictive policing di kepolisian pada masa depan. Menganalisis data kejahatan dari tahun 2018 hingga 2020 menunjukkan adanya penurunan tingkat kejahatan secara nasional, namun variasi regional. Birokrasi pengambilan keputusan di Kepolisian Negara Republik Indonesia diuraikan dengan menekankan sistem terpusat. Makalah ini mengeksplorasi penerapan predictive policing saat ini, dan menyoroti peran laporan intelijen.. Meskipun tingkat kejahatan menurun, studi ini menyimpulkan bahwa predictive policing menghadapi tantangan dalam pertimbangan penelitian kualitatif dan kurangnya data yang komprehensif. Makalah ini menyerukan diskusi di masa depan mengenai predictive policing, integrasi teknologi, dan pengembangan program Big Data untuk meningkatkan akurasi dan efektivitas di Indonesia.

Kata Kunci: Predictive Policing, Kepolisian Negara Republik Indonesia, Penengakan Hukum.

INTRODUCTION

Nowadays, discussions regarding predictive policing are being discussed, for example in the business sector, they use data analysis to determine market conditions and regulate how to improve their achievements and can determine strategies to achieve targets. Reflecting on these activities, the police can also use this concept as an effort to prevent crime by using existing data analysis and determining strategies to prevent future crimes. Although it is currently being discussed, the short definition of predictive policing is to collect and collect data from various sources and then analyze it and the results of the analysis are used as a way of anticipating, preventing and taking action against future crimes.

Indonesia is one of the countries that has an area of approximately 1,904,569km² (Kompas, 2022) and has a population of \pm 270 million (BPS, 2020), but the number of police is 412,818 personnel (Data Indonesia, 2021), so the ratio of the population to police is 1:654, so that it is not ideal for works. The rough count of one police officer must be able to secure 654 people. Of course this is not an ideal calculation for a police officer in a public security effort. However, this does not mean that the police must give up public security. Therefore, by using Predictive Policing, we collect data and analyze it so that it can provide efficiency for Indonesian police officers in criminal prevention efforts.

Predictive policing does not simply mean replacing tried-and-true police techniques. It builds on the essential elements of all policing strategies for the greater good. And many people question whether predictive policing is a new way of implementing police work? Casady¹ argues that the idea is not new, "It is a coalescing of interrelated police strategies and tactics that were already around, like intelligence-led policing and problem solving. This just bring them all under the umbrella of predictive policing"

Then, how does predictive policing work? The effectiveness of predictive policing is determined by how much data is obtained and how different the data is, and how these data are connected to each other so that they have an attachment and form a network. from the network then a policy is made to anticipate the network. Current analytic tools and tech-niques like hot spots, data mining, crime mapping, geospatial prediction and social network analysis can be applied to a broad range of criminal justice problems. For instance, they can be used to anticipate localized crime spikes, inform city and neighborhood planning, and aid in police management decisions. In proactive policing, law enforcement uses data and analyzes patterns to understand the nature of a problem. Officers devise strategies and tactics to prevent or mitigate future harm. They evaluate results and revise practices to improve policing. Departments may combine an array of data with street intelligence and crime analysis to produce better assessments about what might happen next if they take various actions.

So that the results of the analysis can be used as material for consideration of policy making so that the policy can be implemented and applied in the environment. the community, and the public can see and feel the impact of predictive policing, namely crime prevention seen from the reduction in the number of cases in which crimes occur.

Based on the background described above, the authors identify several problems that exist in Indonesia, so it is necessary to increase Predictive Policing, including:

1. The number of Indonesian people who are not proportional to the number of police in Indonesia with a ratio of 1:654
2. The community in Indonesia is still not evenly distributed throughout the region
3. The high crime rate in Indonesia
4. Lack of effective use of the existing police with the existing conditions in Indonesia.

¹ Beth Pearsall. *Predictive Policing: The Future of Law Enforcement*. NIJ Journal. 2010

Based on the background and identification presented above, the author identifies the issues to be addressed with various considerations and limitations. As for the matter referred to:

1. What is the Condition of Crime in Indonesia?
 2. Can Predictive Policing be used as a means of crime prevention in Indonesia?
- a. Theoretical Benefits
1. Theoretically, the research conducted by this author can be used as a development of police science for the Police on Predictive Policing as an effort to effectively use members..
 2. This study is expected to be a reference to the implementation of subsequent studies related to Predictive Policing.
- b. Practical Benefits

The researcher expect that this study can provide thought contributions to be carried out effectively and efficiently in consideration of policy making by the National Police.

METHODS

The research method used in this case uses a qualitative research approach using realist ethnography methods by conducting interviews and field observations on these issues and also researchers conducted action research for two years in several regions in Indonesia, including Maluku Tengah Regency, Maluku Province, Semarang City, Central Java Province and Jember Regency, East Java Province.. The focus of the research implementation is on leaders who have authority over policymaking in every activity carried out by the National Police. As well as crime-related data used as basic material for analysis before a policy is taken so that the effectiveness and efficiency of using members can be applied. And the data that we need are :

1. Basis Intelligence
2. Crime data
3. Crime rate and Crime Clock

RESULT

Crime in Indonesia

As previously stated, that Indonesia has a very wide area, and because of the very wide area. The characteristics of the community are also different. So that the type of crime varies from region to region. In addition to the characteristics of society, time also affects the occurrence of crime.

There are several indicators that are commonly used to measure crime from a macro perspective and the level of seriousness. In the macro context, there are indicators of the number of crimes, the crime rate per 100,000 population (crime rate), and the time interval for the occurrence of a crime (crime clock).



Image 1. Crime rate and Crime clock, 2018-2020

Source: Operational Biro of Indonesia Headquarters

Data from the National Police Headquarters shows the number of incidents of national crime in 2018 as many as 294,281, and in 2019 there were 269,324 incidents, and in 2020 there were 247,218 crimes. in the period 2018-2020 there is a decline every year. However, this is seen from a national perspective, the results will be different and tend to be more volatile if it is more dissected per each province in Indonesia.

Crime Rate is a number that can show the level of vulnerability of a crime in a certain area within a certain time. The higher the crime rate, the higher the level of vulnerability to crime in an area, and vice versa. In the 2018-2020 period, the risk level of being exposed to a crime (crime rate) per 100,000 population has decreased, in 2018 it was 113 and 2019 was 103 and in 2020 it was 94.

Other indicators of crime during the 2018-2020 period showed a similar pattern of development, showing a decline. The time interval for the occurrence of a crime was 00.01'47" in 2018, and in 2019 it was 00.01'57". And in 2020 the interval will be longer by 00.02'07". The method of calculating the crime clock is done by converting the time of year in seconds then divided by the total crime crimes that occurred in a year, then the results are converted into hours, minutes, and seconds.

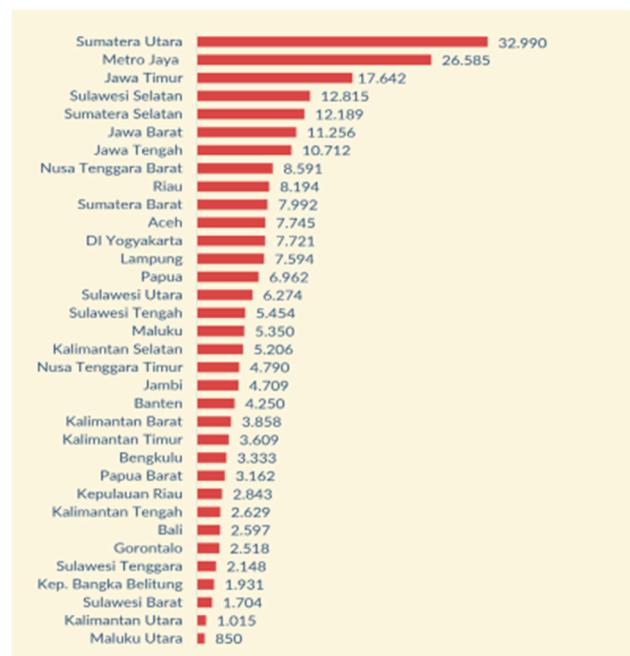


Image 2. Number of Crimes reported According to Province, 2020
Source: Operational Biro of Indonesia Headquarters

As mentioned earlier, that Indonesia has a very wide area and has different characteristics ranging from typography, geography to community culture. This is what makes the statistical difference in the incidence of crime in each province in Indonesia. It seems as stated in the picture above, West Sumatra Province has the highest number of crimes among other provinces in 2020. And North Maluku Province has the lowest number of crimes in 2020.

Crime rate can be used to describe the condition of security and public order and the level of vulnerability of an area when viewed in more detail. The number of crimes (total crime) and the level of risk of being exposed to crime (crime rate) only describe the level of risk and seriousness of the crime that occurred over a certain period of time. Based on the Criminal Code of the Republic of Indonesia and The International Classification of Crime for Statistical Purpose initiated by the United Nation, namely the United Nation Office on Drugs and Crime (UNODC, 2015) classifying types of crime based on several criteria, namely:

1. The target of the crime (people, property, public order, state, and so on).

2. The seriousness of the crime (crimes against life, crimes against the physical, crimes against property rights, and so on).
3. How the crime was committed (crimes against rights/property with the use of violence, crimes against property rights/goods without violence, and so on).

In this discussion regarding the use of predictive policing to the National Police, this classification acts as one of the considerations for policy making to determine the actions that need to be taken to reduce the number of crimes and prevention as well as to determine the number of personnel deployed in a police action.

Decision Making Bureaucracy in the Indonesian National Police

Decision making is a management action in achieving the target. Decision-making theory has the main elements in the form of decision makers faced with a particular problem that can be compared with each other; the goals, values or goals that guide the decision maker are very clear and can be graded according to the order of importance.² Various alternatives to solve the problem are carefully researched and need to be considered. Each alternative and each of the consequences that accompany it can be taken into consideration in making policies or decisions that can enable the achievement of the goals, values or goals.

In Polri, decision making has the characteristics of a centralized, hierarchical, and tiered command system.³ from the smallest police station, who has responsibility for all policies taken within the scope of the police sector area is the Sector Head Police, and the police chief must report and be responsible for the policies taken to the Regional Head Police⁴ The Regional Head Police himself is the leader who has the authority to make policy at the Resort Police level or within the Regency or City area, and the Regional Head Police is responsible for and reports on all policies to the Provincial Head Police.⁵ The Head Provincial Police is the highest leader of the National Police within the scope of the Provincial Police (Polda) and the Head Provincial Police has the authority to make policies within the scope of the Provincial Territories, and the Head Provincial Police is also responsible for and reports to the National Police Chief.⁶ The National Police Chief is the highest police leader in Indonesia, the National Police Chief is responsible for all police activities in Indonesia, and the National Police Chief is responsible and obliged to report police activities to the President of the Republic of Indonesia.⁷

² Mujito, et al. Implementasi Algoritma Multi Factor Evaluation Process (MFEP) untuk Pemilihan Anggota Penyidik pada Bareskrim Polri (Implementation of the Multi Factor Evaluation Process Algorithm for the Selection of Investigators at the National Police Criminal Investigation Agency). Polban Journal. 2018.

³ Perkap No.5 Tahun 2018 tentang Indeks Tata Kelola Kepolisian Negara Republik Indonesia. (National Police Chief Regulation No. 5 of 2018 concerning the Governance Index of the Indonesian National Police.)

⁴ Perkap 23 tahun 2010 Pasal 81 huruf A (Regulation of the National Police Chief 23 of 2010 Article 81 letter A).

⁵ Perkap 23 Tahun 2010 Pasal 1 angka 6 (Regulation of the National Police Chief 23 of 2010 Article 1 number 6).

⁶ Perkap 23 Tahun 2010 Pasal 1 angka 4 (Regulation of the National Police Chief 23 of 2010 Article 1 number 4).

⁷ Peraturan Presiden Republik Indonesia No. 52 Tahun 2010 Pasal 5 ayat (1) (Presidential Regulation of the Republic of Indonesia No. 52 of 2010 Article 5 paragraph (1)

The structure of the Indonesian police bureaucracy



Image 3. Structure of Indonesia Police bureaucracy

Source: Presidential Regulation of the Republic of Indonesia No. 52 of 2010.

Predictive Policing in Indonesia

In Polri the lowest police force is called Polsek or Sector Police, which is led by a Head Sector Police, and in some types of Polsek there is also a Vice sector police who assists the head sector duties. There are various types of sector police in Indonesia, there is a sector that oversees one sector for one sub-district, but there is also a sector in charge of more than one sub-district. In the organizational structure, there are unit heads who oversee certain units, for example 5 basic units that must exist at the police level, namely, the Criminal Investigation Unit, the Intelligence Unit, the Traffic Unit, the community building Unit and the Alert Unit.

The head of the police sector is the highest decision-making officer at the level of the police sector. In the first decision making, the Intelligence is the eyes and ears of the leader in the office. and products commonly reported to Managers differ according to the level of urgency. one form of report is LI (Information report) which is usually made by the Intelligence unit at any time. In the first part of the LI, there is an explanation regarding the reported field, the reported subject. Then, in part I, namely the introduction⁸; Contains related, Information Sources, Relationships with Sources, Method of Contain, Information, Information Time, and Information Remarks. *The source of information*, is the subject of the information provider or who provides information, it can be ordinary citizens, it can be from informants, it can also be from fellow members of the police or other agencies. *Relationship with the source*, in this case the relationship between members of the intelligence unit and the source of information is explained to strengthen the consideration of the value of information. *The method of obtaining information* is the method used by the Intelligence unit in obtaining information, either through open or closed (Eliciting) interviews, observation and so on. *Information time* is the time taken by the Intel unit to obtain the information. *Information remarks*, classification The value of reported information is adjusted to the weight of the information. Value information using A-F Ratings and numbers 1-6. A1 is the information with the largest percentage of truth, and F6 is the smallest value. In Part II contains facts, related information contains a brief description of complete factual information and is limited to things that are necessary⁹. Part III contains the opinion of the reporter or the intelligence unit, containing the

⁸ Perkabaintelkam No 4 tahun 2013 Pasal 33 huruf a. (Regulation of the head of the Security Intelligence Agency No. 4 of 2013 Article 33 letter a)

⁹ Perkabaintelkam No 4 tahun 2013 Pasal 34 huruf a. (Regulation of the head of the security intelligence agency No. 4 of 2013 Article 34 letter a)

following; Analysis, Future Predictions, Intelligence Ways, and Recommendations¹⁰. *The analysis* contains related analysis of the personnel in charge of the information obtained. *Predictions* that will occur are predictions taken from the results of the officer's analysis. *Intelligence Ways* are steps that have been taken by the intelligence unit in an effort to take action against the information that has been obtained. *Recommendations* are suggestions for input to the leaders to make policy decisions on what has been informed.

From the Intelligence Report, the head of the local police is responsible for making policies regarding information or events that will occur. And in decision making, consideration of decision making, not only from intelligence reports, but also from various police products. Among other things, there is basic intel information in the area, basic Intel is one of the products made by the Intel unit in each police station that contains information related to the information contained in the area of coverage of the police station, covering aspects of ideology, politics, socio-culture, and security. Intel base is always updated annually to provide up-to-date and accurate information to management.

In addition to intelligence information, the Police leader always carries out analysis and evaluation, for the time being given authority to the incumbent leadership. And in the implementation of the analysis and evaluation, it discusses the events that have occurred, the impacts that have been caused, the aspects that caused the events that occurred. From the role of analysis and evaluation, this is a forum for personnel and leaders to discuss events that have occurred, and also discuss predictions that will occur based on the analyzes and information obtained by the personnel, then from the results of the analysis and evaluation also become material. consideration by the leadership as policy decisions for future police activities. so that the main objectives of the main objectives of the police can be achieved.

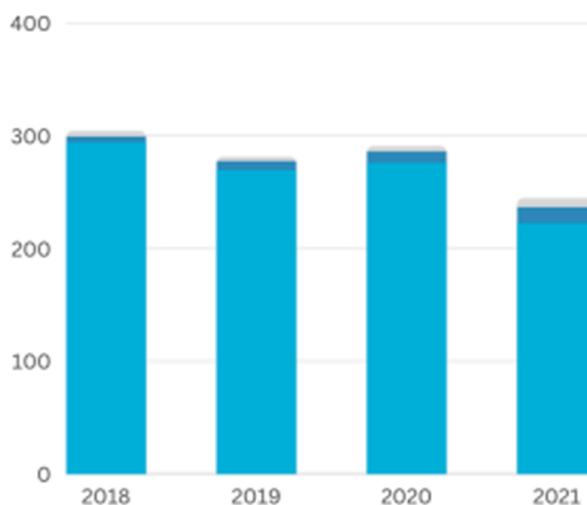


Image 4. Crime Total of Cases handled by INP
Source: Annual National Police Report, 2021.

National Police Chief Gen. Pol. Listyo Sigit Prabowo at the year-end release press conference at the National Police Headquarters¹¹, in Jakarta stated that during 2021 the number of crimes in Indonesia decreased by 53,340 cases or 19.3 percent from 275,903 cases in 2020 to 222,543 cases in 2021. And in terms of the percentage of completion of the number of crimes

¹⁰ Perkabaintelkam No 4 tahun 2013 Pasal 33 huruf b. (Regulation of the head of the security intelligence agency No. 4 of 2013 Article 33 letter b)

¹¹ Antara News. 2021. Kapolri sebut jumlah kejahatan dilaporkan sepanjang 2021 menurun (The National Police Chief said the number of crimes reported throughout 2021 had decreased).

against the number of events reported crime (clearance rate) increased by 6,1 percent, from 66.7 percent to 69.6 percent. It was also said that the most dominant crimes throughout 2021 were conventional crimes with 174,043 cases or 79 percent of the total number of crimes. This figure has decreased when compared to the same data in 2020 of 199,725 cases. Furthermore, for transnational crimes that are extraordinary in nature, the National Police have succeeded in resolving cases of 2,601 cases with a clear clearance of 52 percentⁱ.

Apart from maximizing the role of intelligence information based on data in the field, the implementation of predictive policing also applies an analysis process based on existing data. In order to determine if predictive analytics approaches are feasible, agencies wishing to use them must take into account specifics of the available resources, analytic tools, and local environment. Here, we outline important things to think about.

a. Goal of Analytics

When using predictive analytics to close an intelligence gap or handle a crime issue, agencies should take these factors into account. For some challenges, some predictive analytics techniques are more suitable than others.

The main applications of the predictive analytics methods covered in this short are listed in Table 1.

Table 1. Primary Uses of Predictive analytics techniques

Predictive analytics technique	Primary Uses
Regression analysis	Identifying areas at increased risk of crime and identifying variable that have a positive association with increased risk of crime
Hot spot detection	Identifying areas with increased concentration of crime
Risk terrain modelling	Identifying areas at increased risk of crime based on environmental factors that increase vulnerability for specific locations
Targeted offender lists	Identifying individuals at increased risk of becoming offender or victims
Machine learning algorithms	Identifying areas at increased risk of crime

Sources: (Joh 2017, Kennedy et al. 2011; Perry et al. 2013)

b. Data Availability

To facilitate their application, many predictive analytics algorithms require various data sources. An organisation must determine whether it gathers the required data in the appropriate formats in order to apply predictive analytics methods. In the event that the data are unavailable, the agency can think about creating more reliable records management and data collection systems in order to employ predictive techniques later on.

Table 2 presents commonly required types and sources of data associated with each technique described in this brief.

Table 2. General Data Requirements for predictive analytics techniques

Predictive analytics technique	General Data Requirements
Regression analysis	Historical crime data, data for independent variables identified as being relevant
Hot spot detection	Historical crime data
Risk terrain modelling	Historical crime data, environmental risk factors data, calls for service data

Targeted offender lists	Arrest data, gang affiliations data, criminal activity records, victimization data
Machine learning algorithms	Historical crime data, incident report data

However, in implementation there are several obstacles related to data availability efforts. Because Indonesia has a very large area, it takes time to obtain accurate data before it is analyzed and then applied in the field. And sometimes when data is collected and analyzed, conditions in the field have started to change so that the results obtained can be said to be out of time. This creates problems faced by officers in the field because analysts are located in city centers or in provincial capitals and/or in big cities. So effectiveness still needs to be investigated further.

c. Capabilities and Resources

All of the predictive analytics methods covered in this short need technical abilities, including data administration, statistical analysis, and statistical programming language proficiency. These functions may be performed by employees of the agency (crime analyst, for example) or by outside suppliers like vendors or research partners. Additionally, different approaches call for progressively complex abilities and extensive training.

Table 3 illustrates some of the technical skills needed to implement the predictive analytics techniques described in this brief.

Table 3. Technical skillsets needed for predictive analytics techniques

Predictive analytics techniques	Technical skillsets
Hot spot detection	<ul style="list-style-type: none"> a. Use common statistical analytical tools b. Programming skills c. Ability to synthesize large amounts of data from various sources ranging from police reports to mapping and GIS data to recognize trends and patterns
Regression analysis	<ul style="list-style-type: none"> a. use of statistical software packages and languages b. understanding of statistical concepts c. ability to link multiple dataset
Targeted offender list	<ul style="list-style-type: none"> a. Ability to link multiple dataset b. Standardized approach to obtain intelligence from street officers, detectives, crime analysts, and other agencies c. Understanding of crime patterns and institutionalization of gangs d. Ability to synthesize large amounts of data from various sources
Risk terrain modeling	<ul style="list-style-type: none"> a. Understanding of statistical concepts b. Understanding of geospatial modeling, mapping and coding c. Use GIS software
Machine learning algorithms	<ul style="list-style-type: none"> a. Understanding of statistical concepts b. Ability to link multiple datasets c. Programming skills

The availability of human resources related to analysis experts in the Republic of Indonesia police is still relatively low. Because the majority of personnel have never undertaken training related to data processing, this is a matter of note and can be used as a recommendation in the future to be taken into consideration in creating a personnel quality development program.

Overall, findings about the effectiveness of predictive analytics in reducing crime are mixed (Ferguson 2019). The results often depend on several factors, such as the particular analytics used, the context in which they are used, and how well they are implemented. Several law enforcement agencies have found the use of predictive analytics and associated software to be effective at reducing crime (Bond et al. 2014; Turner et al. 2014). For example, in 2013, the Atlanta Police Department conducted an initial 90-day deployment of a machine learning software program in two urban policing zones. Results from the trial period showed that the two policing zones that used the program saw crime reductions of 8 and 9 percent, while policing zones that did not experienced crime increases between 1 and 8 percent (Turner et al. 2014). Conversely, some studies have found the use of predictive analytics to be ineffective at reducing crime (Hunt et al. 2014). A 2014 RAND study found no differences in property crime for districts using predictive analytics versus those that did not (Hunt et al. 2014).

CONCLUSION

Based on the description above, basically the implementation of Predictive Policing in the Indonesian National Police has been implemented. However, the implementation method is different from the others. The basics used as consideration are still in the form of qualitative, subjective, so it still cannot be said to fully implement predictive policing. And based on previous studies, most of which have used technology in all their activities, so that it can be calculated quantitatively and can be analyzed quantitatively as well. However, in Indonesia, due to the large area and the lack of distribution of technological facilities, it hampers the implementation of predictive policing evenly. In Indonesia, there is still no real authentic data that cannot be accounted for, and the BIG Data program has not been realized which accommodates all data related to crime in Indonesia. So that the accuracy regarding the word "predictive" is still lacking so that the effectiveness of "Predictive Policing" activities is still not 100% successful, indeed the results obtained are a decrease in the number of crimes from before, but improvement is still needed from the big data program so that quantitative data can be accounted for and able to provide appropriate predictive policing, so it can be said that the implementation of predictive policing in Indonesia is still not feasible because the data held is still not well coordinated so that analysis cannot be carried out.

Predictive analytics has been used more often by law enforcement organisations nationwide in the past ten years in an effort to deter and prevent crime. This covers both traditional and sophisticated predictive analytics for location- and person-based forecasts (such targeted offender lists) and hot spot detection. Predictive analytics has enabled law enforcement to adopt more proactive strategies for reducing crime as opposed to traditional reactive ones, including quickly responding to emergency calls. Predictive analytics has not, however, proven to be more successful than present operations for all agencies.

Predictive analytics powers and complexity have grown along with the field of policing. In the field, machine learning is becoming recognised as the best choice for predicting crime.

Scholars contend that machine learning is more appropriate given the complexity of criminological data and that its capacity to account for costs—that is, consequences—improves prediction accuracy. Nevertheless, choosing which personnel and financial resources to devote to predictive analytics software and techniques should be well-informed. Careful preparation and training are necessary for the effective application of predictive analytics to lessen and prevent crime.

In the future, there is a need for discussions related to predictive policing, and the use of technology in assisting police tasks in the community. so that problems related to personnel

shortages can be overcome by using technology. And also the use of technology and sharpen the prediction of future events and can be analyzed with the help of statistical programs.

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