

**POSITIVE IMPACT OF CRIME MAPPING TECHNOLOGY IN PATROL
EFFICIENCY AND CRIME HOTSPOT IDENTIFICATION:
AN APPRECIATIVE INQUIRY**

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**AHAT, JEA MAE T.
AJEAS, JASTINE L.
BAYON-ON, NORGIE KHYLE
DELA VEGA, JOHN LUTHER**

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Misamis University
Ozamiz City
COLLEGE OF CRIMINOLOGY



CERTIFICATE OF PANEL APPROVAL

The research paper attached hereto, entitled **“POSITIVE IMPACT OF CRIME MAPPING TECHNOLOGY IN PATROL EFFICIENCY AND CRIME HOTSPOT IDENTIFICATION: AN APPRECIATIVE INQUIRY”**, prepared and submitted by **JEAN MAE T. AHAT, JASTINE L. AJEAS, KHYLE NORGIE BAYON-ON, JOHN LUTHER DELA VEGA**, in partial fulfillment of the requirements for the degree **BACHELOR OF SCIENCE IN CRIMINOLOGY**, is hereby recommended for approval.

EDMAR R. DANIEL, MPA, MSCJ, JD

Adviser

Date

ELMA FE E. GUPIT, MSCJ

Member

Date

KRISTAL MAY V. MALDEPENA, MSCJ

Member

Date

JOSE F. CUEVAS, Rcrim., PhD

Chairman

Date

This research paper is approved in partial fulfillment of the requirements for the degree of **BACHELOR OF SCIENCE IN CRIMINOLOGY**.

JOSE F. CUEVAS JR. PhD

Dean, College of Criminology

Date

ABSTRACT

Crime mapping technology had become an essential tool in modern policing, enabling law enforcement agencies to enhance patrol efficiency and accurately identify crime hotspots through data-driven strategies. This study explored the positive impact of crime mapping technology on patrol operations among six police officers in Misamis Occidental, emphasizing successful practices and strengths rather than challenges. Employing a qualitative research design guided by Appreciative Inquiry, the research focused on the lived experiences and positive perceptions of police officers who actively utilized crime mapping tools in their daily operations. Participants were purposively selected, and data were gathered through in-depth interviews to capture meaningful narratives regarding the effective use of crime mapping technology. Data analysis followed the Appreciative Inquiry 4D cycle—Discovery, Dream, Design, and Destiny—allowing the study to identify existing strengths, envision future possibilities, co-create strategies, and sustain positive practices. Several key themes emerged from the analysis, including data-driven patrol deployment, enhanced situational awareness, real-time response capabilities, capacity building through training, system integration, and strengthened community engagement. These findings highlighted how crime mapping technology supported proactive policing, improved operational decision-making, and fostered transparency and collaboration with the community. The study concluded that crime mapping technology significantly contributed to more efficient patrol operations and effective crime hotspot identification when supported by continuous training, reliable data management, and organizational commitment. It was therefore recommended that law enforcement agencies institutionalize best practices, strengthen technological capacity, and promote a strengths-based culture to sustain and maximize the positive impacts of crime mapping in policing.

Keywords: *community engagement, crime hotspot identification, data-driven decision-making, mapping, patrol, proactive policing, situational awareness, technology*

DEDICATION

This study is dedicated to:

Our parents, whose unwavering love, endless sacrifices, and constant belief in our abilities have given us the strength, motivation, and perseverance to overcome challenges and continue striving throughout our academic journey.

Our friends, for their sincere encouragement, understanding, and companionship, provided comfort, inspiration, and support during both difficult and successful moments.

Above all, to God, the ultimate source of wisdom, strength, and guidance, whose grace, blessings, and unfailing love made this journey of learning, growth, and achievement possible.

May this study reflect our hard work, dedication, and commitment to learning, and serve as a meaningful contribution to knowledge and personal growth.

The Researchers

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INTRODUCTION

Background of the Study

Crime mapping technology enables police departments to convert reactive policing into proactive, data-driven policing by optimizing patrol routes and resource deployment (Syed & Albalawi, 2024). Through examining real-time and historical crime patterns, departments can recognize areas of high risk, prioritize deployments, and optimize the movement of officers, improving response times and coverage (Przeszlowski et al., 2022). It helps ensure that constrained resources like personnel, vehicles, and equipment are directed toward those neighborhoods that need those most, maximizing operational effectiveness while preventing waste. For instance, predictive analytics can identify potential crime hotspots, which can be policed by targeting patrols to discourage criminal behavior from taking hold, thus increasing public safety and trust in community policing (Blair et al., 2021).

On the other hand, it is also a foundation of evidence-based policing because it uses spatial and temporal patterns of crime to inform intelligence-driven strategies (Okoru et al., 2024). Through the translation of raw data into visual and statistical information, agencies are able to detect trends like seasonality in burglaries or assaults that occur late at night in particular neighborhoods and predict future criminal behavior. Evidence-based decision-making improves through data-supported resource deployment, proactive deployments, and customized interventions (Alhashmi, 2025). For instance, charting repeat thefts near retail areas during holiday seasons can inform focused patrols

or cooperation with local businesses, minimizing dependence on anecdotal suppositions and promoting a culture of accountability. Crime mapping helps empower agencies to appropriately deploy resources, prioritize high-impact programs, and dynamically adjust strategies based on changing crime patterns (Biden, 2023).

Globally, crime mapping technologies have become essential tools for modern law enforcement agencies, enabling them to make data-driven decisions, allocate resources effectively, and enhance public safety (Syed & Albalawi, 2024). Countries like the United States, the United Kingdom, Canada, and Australia have widely adopted Geographic Information Systems (GIS) to map, analyze, and predict crime trends (Roy & Indrajit, 2023).

In the United States, for instance, law enforcement agencies use platforms such as CompStat (Comparative Statistics), which combines crime mapping and real-time data analysis to track crime patterns, evaluate police performance, and strategize operations (Stolzenberg & D'Alessio, 2025). Tools like Crime Mapping.com, powered by Esri's ArcGIS technology, allow both police and the public to monitor crime in specific neighborhoods through interactive maps. In the United Kingdom, police utilize the UK Crime Map (police.uk), which provides the public with access to local crime statistics and locations, promoting transparency and community involvement in crime prevention (Zilka et al., 2023). In Canada, police departments employ GeoDash and other GIS tools to visualize crime data, monitor hotspot areas, and integrate social and environmental data for more comprehensive analysis.

Additionally, many police forces now use predictive policing technologies, such as PredPol (Predictive Policing), which analyze historical crime data to forecast where

crimes are likely to occur (Mugari & Obioha, 2021). These systems assist in proactive policing by suggesting where to send patrols to prevent potential incidents. Moreover, with the rise of smart cities, some jurisdictions have integrated crime mapping with real-time surveillance systems, big data analytics, and AI-powered platforms, creating more responsive and intelligent law enforcement models (Haley & Burrell, 2025).

Crime mapping has also become crucial in global counterterrorism, disaster response, and drug enforcement efforts, often coordinated through international agencies like INTERPOL and the United Nations Office on Drugs and Crime (UNODC). The worldwide implementation of crime mapping technologies reflects a shift toward intelligence-led policing, empowering authorities to respond more efficiently to public safety needs while engaging communities in the process (Mangi & Kandiri, 2024). As technological innovation continues to evolve, crime mapping systems are increasingly integrated with cross-border information sharing networks, enhancing collaborative security efforts among nations (Fabia et al., 2024). This global trend underscores the importance of investing in digital infrastructure and analytical capacity to ensure that law enforcement agencies remain adaptive, transparent, and responsive in an increasingly complex security environment.

In the Philippines, the Philippine National Police (PNP) employ various crime mapping technologies to enhance its capability in crime prevention, investigation, and law enforcement (Alincaestre & Dalugdog, 2022). One of the primary tools is the E-Watch (Electronic Watch), a web-based Geographic Information System (GIS) developed by the Directorate for Investigation and Detective Management (DIDM), which visualizes crime incidents geographically to identify hotspots and support strategic deployment of police

units. Another essential system is the Crime Incident Recording and Analysis System (CIRAS), a centralized database that enables uniform recording, statistical analysis, and mapping of crime incidents across all police stations (Wagner, 2023).

The E-Blotter System digitizes the traditional police blotter, allowing for real-time documentation and easier integration into mapping and analytical platforms. The PNP also utilizes geo-spatial crime mapping through GIS tools such as ArcGIS and QGIS, which are especially useful in identifying spatial crime patterns and supporting crime prevention operations (Panigrahy, 2021). In support of citizen involvement, the PNP launched I Report, a mobile and web-based platform that allows the public to report crimes and incidents, thereby contributing to real-time crime data collection and visualization (Mangrobang & Genove, 2025). Furthermore, through its Performance Governance System (PGS) and the P.A.T.R.O.L. Plan 2030, the PNP integrates crime mapping technologies to monitor crime trends and improve operational efficiency. Additionally, command centers at both regional and national levels make use of digital dashboards and mapping interfaces for real-time situation analysis. These technologies collectively improve crime analysis, community policing, and resource allocation across the country (Obinna et al., 2024).

Crime mapping technology closes the gap between police and neighborhoods by building trust and openness through open, localized crime trend information. Sharing visualized information like interactive maps of neighborhood crime patterns empowers residents to grasp safety issues and work together on solutions, rather than a top-down solution, to a participatory partnership. This openness fosters shared responsibility, as

residents become aware of policing priorities and agencies receive first-hand information about resident concerns.

While crime mapping technologies have been widely adopted in various parts of the world and acknowledged for their role in modern policing, there remains limited empirical research in the Philippine context particularly within the Philippine National Police (PNP) that explores how these technologies positively affect patrol efficiency and hotspot identification from an appreciative inquiry perspective. Most existing literature focuses on technical implementation, challenges, or general outcomes, but few studies emphasize the lived experiences, best practices, and perceived benefits by frontline patrol officers and police planners. Additionally, there is a lack of qualitative research that uncovers success stories and positive operational changes brought about by crime mapping tools in Philippine law enforcement. This empirical and methodological gap highlights the need for context-specific, qualitative investigations that capture lived experiences and strengths-based insights to better understand how crime mapping technologies contribute to effective policing within the PNP.

The primary purpose of this study is to explore and highlight the positive contributions of crime mapping technologies to the efficiency of police patrol operations and the accurate identification of crime hotspots, using the Appreciative Inquiry (AI) framework. It aims to uncover best practices, success cases, and transformative experiences of law enforcement personnel who utilize these tools, particularly within the PNP. The study seeks to shift the lens from problem-centric evaluations to a strengths-based understanding of how technology enhances public safety, resource deployment, and situational awareness.

This study has important implications for policymaking, training, and technology integration in Philippine law enforcement. Through identifying the strengths and positive impacts of crime mapping systems, the findings can inform the development of institutional policies that support wider and more effective adoption of GIS-based tools in policing. It can also contribute to capacity-building programs that train officers to maximize the use of such technologies in daily operations. More broadly, the study encourages a culture of innovation, positivity, and technological competence in the PNP, serving as a model for other developing countries seeking to modernize their policing methods.

Theoretical Framework

This study was anchored on Technology Acceptance Model by Fred Davis (1989); and Routine Activity Theory by Lawrence Cohen and Marcus Felson (1979).

Technology Acceptance Model (TAM), introduced by Fred Davis in 1989, is a well-established theoretical framework that explains how individuals come to accept and use new technologies. The model suggests that two main factors Perceived Usefulness (PU) and Perceived Ease of Use (PEOU) influence a user's attitude towards technology, which then impacts their behavioral intention to use it (Wiprayoga et al., 2023). Perceived Usefulness refers to the degree to which a person believes that deploying a system will enhance their performance, while Perceived Ease of Use indicates how effortless the individual perceives the technology to be (Isiaku & Adalier, 2024). TAM has been widely adopted across various fields due to its simplicity and predictive power in understanding technological adoption behaviors (Ishengoma, 2024).

This concept serves as the guiding framework in this study to explain how the acceptance and use of crime mapping technology contribute to improved patrol efficiency and effective crime hotspot identification within the Philippine National Police (PNP) (Awwal, 2024). Anchored on the core constructs of Perceived Usefulness and Perceived Ease of Use, TAM is employed to examine how frontline patrol officers and police planners perceive crime mapping tools as enhancing operational performance, supporting informed patrol deployment, optimizing resource allocation, and enabling accurate identification of crime hotspots (Syahrial, 2025). From an appreciative inquiry perspective, the study emphasizes positive experiences, success stories, and best practices that demonstrate how user-friendly systems, adequate training, and institutional support encourage favorable attitudes and sustained use of crime mapping technology (Awwal, 2024). These positive perceptions are analyzed in relation to officers' behavioral intention and actual system use, highlighting how technology acceptance translates into improved patrol efficiency and proactive crime prevention.

In evaluating how police officers perceive the usefulness and ease of use of crime mapping tools, this study analyzes how these perceptions influence their willingness to adopt and consistently utilize the technology in daily patrol operations. The Technology Acceptance Model (TAM) provides a robust theoretical basis for this inquiry, as demonstrated in prior studies across various organizational contexts. For instance, Abuhassna et al. (2023) employed TAM to examine technology acceptance and found that perceived ease of use significantly influenced users' intention to adopt digital systems, underscoring the importance of system usability in sustaining technology use. Similarly, Hussain et al. (2025) applied TAM to assess technology adoption among

professionals, revealing that perceived usefulness played a critical role in shaping acceptance and continued use. In the public sector, Ayatulloh et al. (2025) further validated TAM's applicability by demonstrating its effectiveness in predicting technology acceptance within government organizations. These theory-driven studies collectively reinforce TAM's suitability for examining law enforcement personnel's acceptance of crime mapping systems. Guided by this framework, the present study seeks to generate insights into the key perceptual factors that drive or hinder technology acceptance among police officers, providing an empirical basis for improving training programs, system design, and policy interventions aimed at enhancing patrol efficiency and crime hotspot identification.

Routine Activity Theory (RAT), proposed by Lawrence Cohen and Marcus Felson in 1979, emphasizes that crime occurs when three elements converge in time and space: a motivated offender, a suitable target, and the absence of capable guardianship. The theory shifts the focus from offender pathology to the environmental and situational factors that facilitate criminal activities (Bakar, 2025). It suggests that altering the routine activities of individuals or improving guardianship can effectively reduce opportunities for crime (Zoorob & O'Brien, 2024). This perspective allows law enforcement and urban planners to target environmental changes that disrupt the convergence of these elements, thereby preventing crime before it occurs (Chamard, 2024).

This concept provides a relevant theoretical view for this study by emphasizing that crime occurs when a motivated offender, a suitable target, and the absence of capable guardianship converge in time and space (Chan & Gibbs, 2022). Rather than focusing on offender characteristics, this theory highlights the role of environmental and situational

conditions in facilitating criminal activities. In the context of this study, crime mapping technology is examined as a strategic tool that enables law enforcement to strengthen capable guardianship by identifying spatial and temporal crime patterns and deploying patrol resources more effectively (Stewart & D'Alessio, 2021). In using crime mapping to anticipate areas and times of heightened criminal opportunity, patrol officers can disrupt the convergence of offenders and targets through visible presence and proactive interventions. Guided by an appreciative inquiry approach, the study focuses on positive operational experiences and successful practices where crime mapping has enhanced guardianship, altered routine activities in high-risk areas, and contributed to more efficient patrol deployment (Modise, 2025). The application of this concept underscores how data-driven patrol strategies can reduce crime opportunities by modifying situational conditions, thereby supporting proactive and preventive policing within the Philippine National Police (PNP).

Routine Activity Theory (RAT) is instrumental in explaining how crime mapping technologies support situational crime prevention by addressing the spatial and temporal convergence of motivated offenders, suitable targets, and the absence of capable guardianship. Through the identification of crime hotspots, crime mapping enables police officers to strategically deploy patrols and surveillance resources to high-risk areas, thereby strengthening guardianship and disrupting routine criminal activities (Denley, 2023). This application directly aligns with the theory's emphasis on modifying environmental and situational conditions to reduce opportunities for crime. Empirical studies grounded in this theory further support this approach. Eran and Hasranizam (2024) demonstrated that GIS-based crime hotspot analysis allows law enforcement

agencies to identify areas with heightened criminal convergence and implement targeted interventions consistent with theory's principles. Similarly, Chainey et al. (2021) found that patrol routes informed by crime data significantly improve situational awareness and visible guardianship in high-crime locations, leading to more effective crime prevention outcomes. Ceccato and Newton (2024) also emphasized the importance of environmental and systems-based approaches in crime prevention, highlighting how spatial analysis and environmental modifications can alter routine activities and reduce crime opportunities.

Conceptual Framework

The concepts drawn from the study were established based on the different themes developed based on the participants' narratives.

Data-Driven Patrol Deployment and Decision-Making. Pertains to the systematic use of crime mapping outputs, spatial crime data, and analytical reports to guide the planning, scheduling, and routing of police patrols and to inform operational decisions (Howard & Wei, 2025). In this study, it refers to the extent to which patrol officers and police planners systematically use crime hotspot maps, temporal crime patterns, and data-driven recommendations to guide decisions on patrol area assignment, patrol frequency, resource allocation, and tactical responses. This is evidenced through officers' narratives, documented modifications in patrol strategies, and reported improvements in patrol efficiency, situational awareness, and proactive crime prevention (Weisburd et al., 2024).

The systematic use of crime data, analytical tools, and crime mapping technologies to guide law enforcement operations, enabling proactive policing and optimized resource allocation (Mahimkar, 2021; Syed & Albalawi, 2024). Through GIS, predictive analytics, and real-time reporting, officers can identify high-risk zones, detect

patterns of criminal activity, adjust patrol areas and frequency, and make tactical decisions based on evidence rather than intuition (Vári, 2024; Ibrahim & Hugo, 2025). Effective implementation relies on capacity building, system integration, and reliable data management, ensuring officers are trained in analytical tools, systems are interoperable, and data is accurate, secure, and actionable (M. Pamuk, 2023; Bellanova & Glouftsios, 2022; Hughes & Blockley, 2025). These approaches enhance situational awareness, facilitate real-time responses, strengthen coordination among units, and maximize operational efficiency, allowing police to anticipate criminal activity, deploy resources strategically, and foster community trust, ultimately improving public safety outcomes (Wooditch, 2023; Tortor et al., 2024; Chavis, 2021).

Capacity Building, System Integration, and Data Management. Pertains to the coordinated processes that enable law enforcement personnel to effectively utilize crime mapping technologies for data-driven patrol deployment and decision-making (Syed & Albalawi, 2025). In this study, it includes to which officers are trained and skilled in GIS applications and data analysis (capacity building), the degree to which technological platforms such as crime mapping tools, records management systems, and dispatch systems are interoperable and synchronized (system integration), and the accuracy, reliability, timeliness, and secure handling of crime data used to guide patrol routes, resource allocation, and tactical decisions (data management). Together, these elements ensure that patrol strategies are evidence-based, operationally efficient, and capable of enhancing situational awareness and public safety.

The effective deployment of crime mapping technology in law enforcement relies on three interrelated components: capacity building, system integration, and data

management (Haley, 2025). Capacity building involves equipping personnel with the necessary skills and technical knowledge through continuous training, workshops, and hands-on activities, enabling officers to effectively operate GIS systems, analyze crime data, and make informed patrol and operational decisions (Pamuk, 2023; Syed, 2024). System integration ensures that separate technological platforms, such as crime mapping tools, records management systems, and dispatch platforms, are connected to create a coherent, interoperable environment that allows seamless data flow, synchronized updates, and coordinated decision-making across units (Bellanova & Glouftsiou, 2022; Nwankwo et al., 2023). Data management provides accurate, timely, and secure information, supporting predictive analytics, evidence-based decision-making, and intelligence-led policing while protecting sensitive information and maintaining public trust (Brunton-Smith et al., 2024; Hughes & Blockley, 2025). When combined, these three components enhance operational effectiveness, situational awareness, and resource optimization, allowing law enforcement agencies to proactively deploy patrols, respond efficiently to emerging crime trends, and foster accountability and community partnership (Jyothi et al., 2024; Awoyemi et al., 2025).

Enhanced Situational Awareness and Real-Time Response. Relate to the ability of law enforcement personnel to perceive, interpret, and anticipate events in their operational environment using accurate, timely, and comprehensive crime data (Zinovia et al., 2022). It extends to which patrol officers and police planners utilize crime mapping technologies, GIS tools, predictive analytics, and real-time reporting systems to monitor crime hotspots, track ongoing incidents, and make immediate operational decisions. This includes the capacity to prioritize tasks, adjust patrol routes, coordinate with other units,

and respond proactively to emerging threats, resulting in improved patrol efficiency, optimized resource deployment, and increased public safety (Ahmad et al., 2024; Weisburd, 2021; Tortor et al., 2024).

Enhanced situational awareness enables law enforcement personnel to comprehend, interpret, and forecast events in their operational areas using accurate, timely, and comprehensive data, with crime mapping technology serving as its foundation by identifying hotspots, crime patterns, and environmental factors influencing criminal behavior (Ahmad et al., 2024; Weisburd, 2021). When combined with real-time response capabilities through live data feeds, mobile applications, GPS tracking, and automated reporting tools, officers receive instant alerts that reduce response times and allow quicker, more effective interventions (Amjad Abidi et al., 2021; Tortor et al., 2024; Wrzosek, 2022). This integration fosters stronger coordination among field officers, command centers, and specialized units, ensuring synchronized actions such as rerouting patrols, adjusting perimeter control, and deploying support teams efficiently (Apostolakis et al., 2022; Manning & Hawkins, 2023). Moreover, these capabilities reinforce intelligence-led policing by enabling agencies to continuously assess effectiveness, refine tactics, and allocate patrols based on emerging risks, ultimately enhancing community safety, increasing police visibility, and building public trust in technology-assisted law enforcement (Chavis, 2021; Kennedy et al., 2025).

Community Engagement and Transparency. Can be understood as the active involvement of citizens in safety initiatives through open access to crime-related information and clear communication between law enforcement and the public (McMaughan et al., 2021). In providing real-time, user-friendly visualizations of crime

patterns, hotspots, and patrol activities, crime mapping platforms make policing decisions visible and evidence-based, which strengthens accountability and builds trust (Syahrial, 2025). At the same time, interactive features such as mobile apps or online dashboards allow residents to report incidents, share feedback, and collaborate with officers, creating a two-way flow of information that empowers communities to take preventive actions. This operational openness reduces uncertainty, increases public awareness of risks, and fosters cooperation, ultimately contributing to a safer environment where both police and citizens work together in a transparent and proactive manner (Renner et al., 2025).

Community engagement in law enforcement occurs when residents actively participate in identifying, preventing, and responding to crimes in their neighborhoods, and crime mapping technology facilitates this process by visually representing crime trends and hotspots, thereby enhancing public understanding of local safety conditions (Nubani et al., 2023; Modise, 2023). Transparency complements engagement by ensuring that police openly share maps, reports, and updates, which demonstrates accountability, reduces confusion about crime levels, and assures communities that patrol decisions are based on factual evidence rather than bias (Irvita & Asriani, 2025; Sarzaeim et al., 2023; Ziosi & Pruss, 2024). Studies further highlight that merging engagement with transparency improves communication between residents and police, strengthens public support, and allows law enforcement to incorporate local insights that may not be captured in official records, thereby aligning police priorities with community expectations (Dobson et al., 2025; Mitchell et al., 2025; Awoyemi et al., 2025). Moreover, transparent practices legitimize police operations, as communities gain confidence when

crime data is shared responsibly, which fosters cooperation, increases crime reporting, and supports long-term crime reduction (Buil-Gil et al., 2021; Tyler & Nobo, 2022).

Strengthen Training and Technical Skill. Denotes to equipping officers with the necessary competencies to effectively operate and interpret crime mapping technology, ensuring that patrol operations are optimized through evidence-based decision-making (Sager et al., 2025). This involves structured training programs, workshops, and continuous learning modules that build technical proficiency in using geospatial tools, mobile applications, and GPS-enabled systems, while also enhancing analytical skills to identify crime hotspots and emerging patterns. Its effectiveness can be measured through improved patrol deployment, reduced response times, and greater accuracy in targeting high-risk areas, alongside the adaptability of officers to integrate technological updates and troubleshoot system issues in real time (Weisburd et al., 2024). Law enforcement agencies can transform raw crime data into actionable strategies by reinforcing these skills, thereby fostering proactive policing and maximizing the impact of crime mapping technology in maintaining public safety (Haley & Burrell, 2025).

Strengthening training and technical skills in law enforcement is essential to ensure personnel can fully utilize crime mapping technologies and transform data into actionable insights for patrol operations. Comprehensive training programs serve as a bridge from traditional policing methods to modern technological demands, equipping officers with the ability to manage digital equipment, recognize crime trends, and apply analytical insights effectively (Tang, 2024; Spyropoulos et al., 2023). Continual professional development further sustains this competence, as regular workshops, simulations, and refresher courses help officers adapt to evolving GIS and analytical

applications, preventing skill stagnation and fostering adaptability in dynamic operational environments (Khan et al., 2022; Caligiuri, 2025; Areej, 2023). Hands-on learning approaches also sharpen analytical and problem-solving skills, enabling officers to work directly with visual maps, identify hotspots, and anticipate technical issues, thereby enhancing both individual capacity and organizational preparedness (William et al., 2023; Spruill, 2021). Moreover, shared technical proficiency across personnel strengthens communication and coordination, reduces errors, and ensures consistent data entry, resulting in more reliable crime mapping outputs and improved operational performance (Kokala, 2024; Weisburd et al., 2023). Collectively, it demonstrates that investing in training and technical skill development produces confident, capable officers who can strategically leverage technology to optimize patrol operations and advance proactive policing.

Improve Data Accuracy, Real-Time Updates, and Supportive Policies. States that ensuring law enforcement patrol operations are guided by reliable, timely, and well-governed information (Alonge et al., 2021). Data accuracy is achieved through systematic validation and standardization of crime records, reducing errors and inconsistencies in mapping outputs (Mahimkar, 2021). Real-time updates, enabled by live data feeds, GPS tracking, and automated reporting systems, provide officers and command centers with immediate situational awareness, allowing faster responses and dynamic patrol adjustments (Duraklar, 2025). Supportive policies, including organizational guidelines, legal frameworks, and inter-agency collaboration protocols, institutionalize the consistent use of crime mapping while safeguarding transparency and accountability. Together, these elements optimize patrol strategies by grounding decisions in precise evidence,

enabling agile responses to unfolding incidents, and ensuring sustainable adoption of technology in proactive policing.

Improving data accuracy, real-time updates, and supportive policies is central to optimizing crime mapping technology in law enforcement patrol operations, as accurate and standardized reporting procedures ensure reliable detection of crime hotspots, emerging trends, and patterns that guide strategic deployment (Derakhshan et al., 2021; Oatley, 2021). Real-time updates further enhance patrol agility by providing officers with immediate access to incident data through mobile reporting applications, integrated CCTV feeds, and GPS-based systems, enabling proactive responses, quicker interventions, and ultimately safer communities (Wu et al., 2024; Verma et al., 2024; Bennell et al., 2022). At the institutional level, supportive policies establish uniform rules for data entry, system use, and inter-agency sharing, ensuring accountability, protecting sensitive information, and promoting ethical practices while also securing long-term investment in training and technological upgrades (Gupta et al., 2023; Kurniawati et al., 2024; Okusi et al., 2025). When these three elements accurate data, real-time updates, and supportive policies work in coherence, crime mapping evolves into a dynamic decision-making tool that strengthens patrol strategies, enhances crime prevention, and builds public trust in law enforcement operations (Mara & Cutini, 2022; Zheng & Khalid, 2022).

Ensuring continuous funding, maintenance, and technological upgrades. Pertains to the sustained allocation of financial resources, institutional support, and technical improvements that guarantee the system's long-term reliability and effectiveness in patrol operations (Dahuri et al., 2025). Stable funding secures the costs of software licenses,

hardware, and training programs, while regular maintenance through scheduled checks and troubleshooting preserves system stability and data integrity. At the same time, ongoing technological upgrades such as enhanced GIS applications, improved analytical tools, and updated system features ensure that crime mapping remains responsive to evolving policing needs (Stolzenberg & D'Alessio, 2025). These measures will be sustainable by preventing system obsolescence, promoting consistent use across departments, and aligning organizational structures with technology goals, thereby maximizing the long-term benefits of crime mapping in proactive patrol strategies and public safety.

Ensuring continuous funding, maintenance, and technological upgrades is essential for sustaining the long-term benefits of crime mapping technology in patrol operations, as stable financial support enables system upgrades, staff training, and infrastructure replacement, while also covering critical costs such as software licenses, hardware replacements, and data subscriptions that underpin analytical accuracy and operational efficiency (Zhang et al., 2022; Marasambessy, 2023). Regular maintenance, including software updates, database cleaning, and network diagnostics, prevents system failures, data inaccuracies, and security breaches, thereby ensuring reliability and readiness for evolving operational demands (Binang et al., 2024; Yanko et al., 2024; Yazdi, 2024). At the same time, technological upgrades provide law enforcement agencies with advanced tools such as predictive analytics, artificial intelligence, and improved GIS platforms, which enhance compatibility, processing speed, and user accessibility, resulting in more precise and efficient crime analysis (Prayatno et al., 2024; Butt et al., 2021). When continuous funding, systematic maintenance, and regular

upgrades work in synergy, they create a sustainable ecosystem that allows crime mapping to remain dynamic, adaptable, and central to both routine operations and strategic planning, ultimately strengthening proactive policing, resource deployment, and public safety outcomes (Souza & Freitas, 2022; Tok & Chattopadhyay, 2023; Ezeji, 2024).

Fostering Inter-Agency Partnerships and Community Collaboration. Entails a structured cooperation among law enforcement agencies, government institutions, and local communities to sustain its long-term benefits in patrol operations (Griffiths, 2022). Inter-agency partnerships are operationalized through formal data-sharing agreements, joint training, and coordinated patrol strategies that reduce duplication of efforts and enhance efficiency, while community collaboration involves residents actively engaging in crime prevention by accessing mapping platforms, participating in neighborhood watch programs, and reporting local incidents (Griffiths, 2022). These practices strengthen trust, improve transparency, and align police priorities with community concerns, ensuring that crime mapping remains a dynamic and sustainable tool for proactive policing.

Fostering inter-agency partnerships and community collaboration is a critical measure for sustaining the long-term benefits of crime mapping technology, as it enables organizations to share resources, expertise, and intelligence, thereby enhancing situational awareness and coordinated responses to crime (Adelani, 2024; Griffiths, 2022). Collaboration with the public further strengthens trust, transparency, and accountability, with community involvement through workshops, neighborhood watch programs, and online reporting platforms providing local knowledge that improves the accuracy and timeliness of crime data, ultimately supporting more effective patrol deployment and

prevention strategies (Irvita & Asriani, 2025; Pepper & Bullock, 2024; Ogbu & Agnes, 2025).

Agencies and communities can reduce duplication, increase efficiency, and sustain crime mapping initiatives by pooling resources and expertise, while real-time intelligence and feedback from residents allow police to adapt strategies to evolving conditions, reinforcing public trust and program success (Phythian et al., 2024; Lansing et al., 2023). The integration of institutional knowledge with community insights accelerates police effectiveness, enabling the identification of new hotspots, prediction of criminal activity, and synchronized planning for emergencies or large-scale operations (Firmin et al., 2022; Poursoltan, 2023). Ultimately, ongoing dialogue and shared responsibility between agencies and residents create a resilient safety network, improving public perceptions of law enforcement and enhancing the overall impact of crime mapping on neighborhood security (Awoyemi et al., 2025).

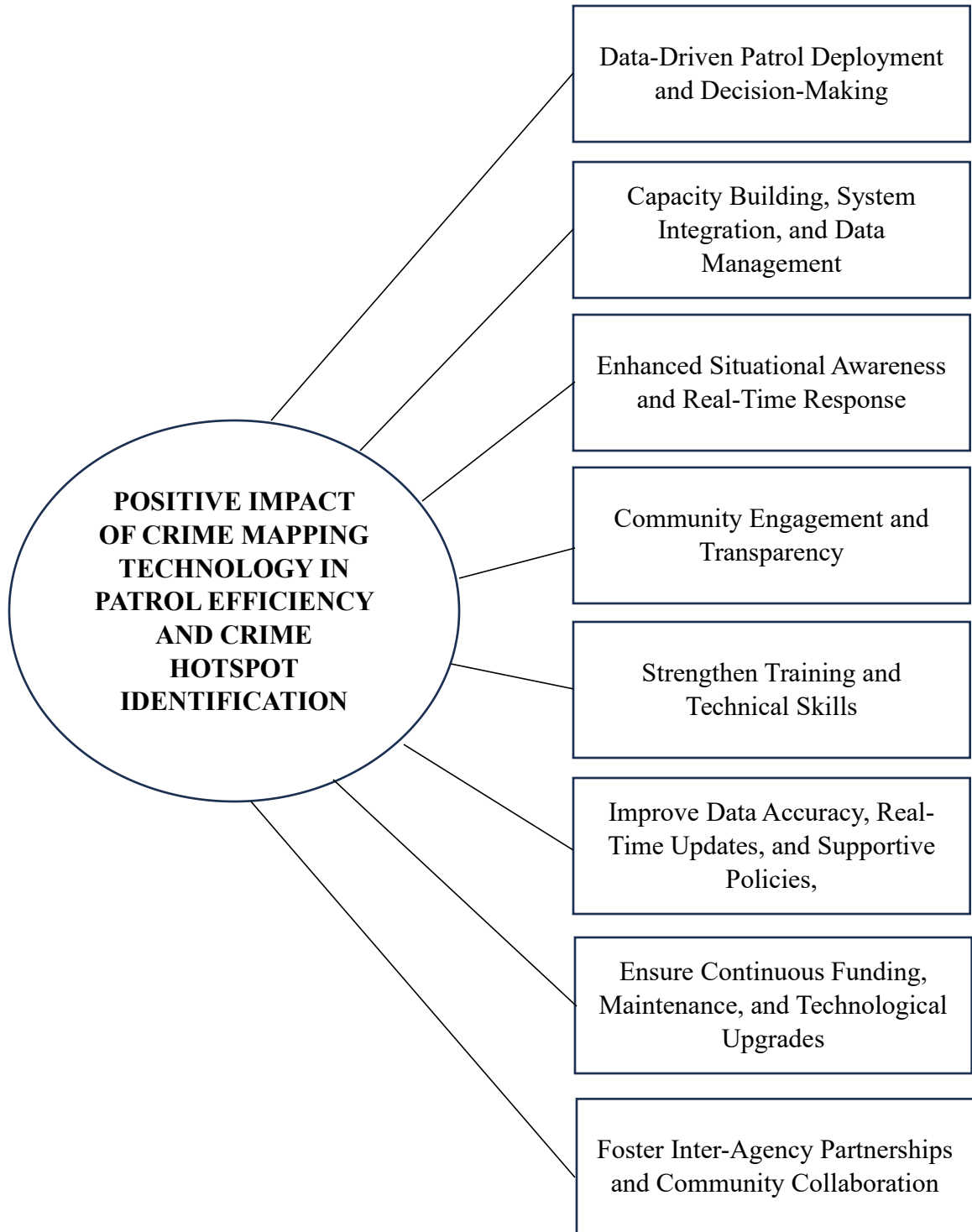


Figure 1. Schematic Diagram of the Study

Objectives of the study

This study explored the positive impact of crime mapping technology on patrol efficiency and crime hotspot identification.

Specifically, this study sought to answer the following question:

1. To identify the best practices implemented by law enforcement agencies when integrating crime mapping technology into patrol operations.
2. To determine how crime mapping technology can contribute to a safer and more proactive community-policing approach.
3. To develop strategies that can optimize the use of crime mapping technology in law enforcement patrol operations.
4. To identify measures that can sustain the long-term benefits of crime mapping technology in patrol operations.

Significance of the Study

The significance of this study lies in its contribution to understanding the positive impact of crime mapping technology on patrol efficiency and crime hotspot identification within the Philippine National Police (PNP). By adopting an Appreciative Inquiry approach, the study highlights best practices, strengths, and successful experiences of law enforcement personnel in using crime mapping tools, shifting the focus from problem-centered analysis to a strengths-based perspective. The findings provide valuable insights for the PNP by demonstrating how data-driven patrol deployment, enhanced situational awareness, and real-time response capabilities can improve operational efficiency and proactive policing. For police officers and patrol units, the study underscores how crime mapping technology supports informed decision-making, faster response times, and more effective allocation of limited resources. For police administrators and policymakers, the results serve as an empirical basis for developing policies, training programs, and system integration strategies that sustain the effective use of crime mapping technologies.

The study is also significant to the community, as it emphasizes transparency and community engagement, which help strengthen public trust and cooperation in crime prevention efforts. Furthermore, this research contributes to the academic field of criminology by providing context-specific qualitative evidence on technology-assisted policing in the Philippines, serving as a reference for students and scholars. Lastly, it offers a foundation for future researchers who may build upon its findings to further explore technological innovations, predictive policing, and sustainable strategies for modern law enforcement operations.

RESEARCH METHODOLOGY

Design

The study employed a qualitative research design using Appreciative Inquiry's 4D cycle Discovery, Dream, Design, and Destiny to highlight strengths, envision future outcomes, co-create strategies, and sustain actions for optimizing crime mapping technology in patrol operations. Appreciative Inquiry is a suitable approach for the study because it focuses on identifying and amplifying successful practices rather than merely addressing problems. It encourages stakeholders such as law enforcement officers and analysts to explore and build upon the strengths of crime mapping technology in enhancing patrol efficiency and pinpointing crime hotspots. In emphasizing positive experiences, best practices, and effective implementations, this approach fosters a forward-thinking mindset that can inspire continuous improvements and innovation in policing strategies. Moreover, Appreciative Inquiry aligns with the study's objective of understanding how technology contributes to law enforcement success, promoting a constructive dialogue that leads to sustainable advancements in crime prevention and response.

Setting

This study was conducted in City and Municipal Police Stations in Misamis Occidental, Northern Mindanao, Philippines. Misamis Occidental is a province located in the Northern Mindanao region (Region X) of the Philippines. Bordered by Zamboanga del Norte to the west, Zamboanga del Sur to the south, and Misamis Oriental to the east, the province occupies a strategic position along the coastlines of Panguil Bay and Iligan Bay, making it a vital hub for commerce, agriculture, and local governance. Its capital is

Oroquieta City, and it includes other key urban centers such as Ozamiz City and Tangub City, which serve as economic and administrative centers. The province comprises 14 municipalities and 3 cities, and its terrain ranges from coastal lowlands to mountainous interiors, affecting the accessibility and deployment of public services including law enforcement.

Participants

This study included 6 police officers through purposive sampling who met the following inclusion criteria: (1) were actively involved in using crime mapping technologies for patrol and hotspot identification, (2) had direct experience with crime mapping technology for at least one year, and (3) were willing to participate in the study.

Instruments

A guide question was used in the interviews to obtain information from the participants. Each interview consisted of an introduction followed by a set of opening, core, and closing questions. Open-ended questions and narrative response formats were employed to elicit detailed accounts from the participants during the in-depth interviews. The researcher recorded the necessary information using digital recording equipment, ensuring that the interview process was accurately and completely documented. The recorded data were then transcribed and analyzed to identify themes that emerged from the participants' responses.

Data Collection

The researcher had obtained approval from the Dean of the College of Criminology at Misamis University to conduct the study before carrying out the interviews. After receiving approval, the researcher obtained permission from police

offices, then identified potential participants and assessed whether they met the inclusion criteria prior to the interviews. The researcher prioritized the participants' agreement and voluntariness, ensuring that they were informed of their rights and that they had the freedom to withdraw from the study at any time without incurring any fees.

Once the informed consent forms were signed, the researcher scheduled a focus group discussion. Before the discussion took place, the researcher outlined its purpose and objectives and identified the specific information or insights to be gathered. A list of open-ended questions was prepared to allow for spontaneous conversation while ensuring that all key topics were addressed. A suitable location and schedule were selected, taking into account comfort and privacy.

At the beginning of the focus group, the researcher introduced themselves, explained the purpose of the discussion, and presented the session guidelines. The discussion guide was followed to encourage participants to share their thoughts and ideas. The researcher took notes throughout the session and observed and recorded participant behavior in a journal. A voice recorder was also used to ensure that the events of the focus group were accurately documented. The discussion typically lasted for about one hour, depending on the flow of the conversation. All responses from the focus group were transcribed and analyzed by the researcher.

Ethical Consideration

In this qualitative research, specific measures were undertaken to address potential issues and concerns arising from the methodology. The researchers' primary obligation was to adhere to the ethical protocols set by the university. The following ethical considerations were strictly observed:

Voluntary Participation. All participants provided informed consent prior to involvement in the study. They were made fully aware of the nature of the research, the procedures involved, and the possible risks and benefits. The researcher ensured that participants understood they could withdraw at any time without penalty or loss of benefits. Refusal to participate carried no consequences, and signed consent did not waive any legal rights or remedies. Debriefings were conducted at the end of the study to clarify the purpose, results, and implications for the participants.

Confidentiality and Anonymity. The researchers safeguarded all data collected, ensuring confidentiality and anonymity. Participants were not identified in reports or publications unless they explicitly consented to disclosure. The researchers also complied with Republic Act No. 10173, the Data Privacy Act of 2012, to ensure that all data collected was handled securely and confidentially.

Respect for Participants. Participants were treated with respect throughout the study. The researcher avoided intrusive or embarrassing questions and took measures to prevent any risk of physical, psychological, or socioeconomic harm. The interview guide was carefully formulated and validated by experts to minimize potential risks.

Plagiarism. The manuscript underwent rigorous checking, including plagiarism detection software. Proper citation and referencing were consistently applied to credit original authors, and the manuscript was edited to eliminate any misrepresentation of others' work.

Fabrication. The study contained no fabricated data, results, or conclusions. All findings were based on actual participant responses, and the literature reviewed was consistent with the information presented.

Falsification. There was no evidence of falsification, duplication, or exaggeration of data. Proper citation ensured the integrity of the study.

Conflict of Interest (COI). The study was free from conflicts of interest. No professional judgment concerning participants' welfare or the validity of the research was influenced by secondary interests such as financial or academic gain.

Authorship. The researchers, a student of the Bachelor of Science in Criminology program, personally collected the data, interpreted the results, and wrote the manuscript. The study underwent multiple revisions and editing based on recommendations from the advisor, panel members, and other reviewers to ensure quality and accuracy. The researcher was also aware that, as required by the university, the study would be submitted for publication in an international peer-reviewed journal.

Data Analysis

In analyzing the data gathered from the interview, this study utilized the 4D model by Cooperrider (2005): discover, dream, design, and destiny.

Discover. This phase focused on identifying what gave crime mapping technology its value in patrol operations. Past successes, such as improved deployment strategies, enhanced situational awareness, and more accurate hotspot identification, were discussed and explored, with the goal of highlighting the enabling factors that made these achievements possible (Browning, 2022; Fileborn et al., 2020).

Dream. The Dream phase emphasized imagining potential positive futures for crime mapping technology in law enforcement. With diverse participants engaged in the Appreciative Inquiry process, multiple perspectives and experiences were represented, allowing for constructive visions of how crime mapping could further enhance patrol

efficiency, strengthen proactive policing, and foster safer communities. Through positive language and imagery, participants co-created aspirational outcomes for the continued integration of technology into policing practices (Browning, 2022; Fileborn et al., 2020).

Design. In this phase, co-creation continued but shifted toward debating and refining the possibilities already envisioned. The focus was on reaching a shared vision of how crime mapping technology could be institutionalized as a sustainable tool for patrol operations. Individual aspirations such as more precise hotspot identification, faster response times, and improved collaboration were transformed into collective strategies in an inclusive and supportive environment where all participants felt heard (Browning, 2022; Burns et al., 2020; Fileborn et al., 2020).

Destiny. The final phase (formerly called Delivery) centered on constructing futures “through innovation and action” (Ludema et al., 2006). Participants committed to sustaining the designed strategies by refining means of implementation, such as continuous training, technological upgrades, and inter-agency collaboration. In the context of crime mapping, this phase ensured that the envisioned improvements were translated into long-term practices that enhanced patrol efficiency and crime hotspot identification. While theorists differ on whether Destiny should be highly structured or more flexible, the study emphasized its role in embedding crime mapping technology into everyday policing as a durable, intelligence-led approach (Browning, 2022; Burns et al., 2020).

RESULTS AND DISCUSSION

The results and discussion present the insights gathered from six police officers two female and four male whose years of service ranged from three to eleven. These participants provided valuable perspectives on the positive impact of crime mapping technology in enhancing patrol efficiency and crime hotspot identification. Framed through the Appreciative Inquiry (AI) 4D cycle, the findings highlight how officers experienced the benefits of crime mapping in improving deployment strategies, strengthening situational awareness, and enabling proactive responses to emerging crime patterns. Applying the AI framework Discovery, Dream, Design, and Destiny the study not only captured past successes but also explored envisioned futures, co-created strategies, and commitments to sustaining long-term improvements. This integrates participants' narratives with related literature to provide a comprehensive understanding of how crime mapping technology strengthens intelligence-led policing and contributes to safer communities.

In the *Discover* phase, several best practices emerged regarding the integration of crime mapping technology into patrol operations that include Data-Driven Patrol Deployment and Decision-Making, and Capacity Building, System Integration, and Data Management, reflecting how law enforcement agencies have already leveraged its strengths to enhance efficiency and effectiveness. These practices illustrate how law enforcement agencies have successfully institutionalized crime mapping technology, laying a strong foundation for envisioning future improvements in patrol efficiency and crime hotspot identification.

Data-Driven Patrol Deployment and Decision-Making

This theme pertains to the systematic utilization of crime mapping outputs, spatial crime data, and analytical reports to support the planning, scheduling, and routing of police patrols, as well as to inform broader operational decisions (Howard & Wei, 2025). Emerged as one of the best practices in the integration of crime mapping technology into patrol operations. The theme revealed that officers and police planners systematically relied on crime hotspot maps, temporal crime patterns, and analytical reports to guide patrol area assignments, adjust patrol frequency, and allocate resources more effectively. Agencies were able to shift from reactive to proactive policing, ensuring that patrols were strategically deployed to areas with the highest risk of criminal activity by embedding spatial crime data into routine decision-making (Syed & Albalawi, 2025). This practice not only enhanced patrol efficiency but also strengthened tactical responses by enabling officers to anticipate crime trends and intervene before escalation. Consistent with (Howard and Wei, 2025), the systematic use of data-driven recommendations reduced redundancy, maximized visibility, and ensured that limited resources were directed where they were most needed.

The theme was strongly reflected in the accounts of the participants, who emphasized how crime mapping technology had enhanced their ability to plan and execute patrol operations more strategically. Participant 1 noted that visualizing crime patterns on maps enabled officers to identify high-risk areas and emerging trends, which facilitated quicker recognition of crime hotspots and more accurate deployment of patrols. Participant 2 reinforced this by highlighting that the identification of high-risk areas allowed for more efficient use of mobile and beat patrols, resulting in faster and more

effective responses, while also supporting real-time adjustments to patrol beats and sectors. Similarly, Participant 6 emphasized that crime mapping provided a faster and more precise assessment of high-risk areas, enabling personnel to plan patrols and allocate resources efficiently, while also assisting in pinpointing incident locations for prompt response.

Taken together, these perspectives illustrate how the systematic use of spatial crime data and analytical outputs has institutionalized best practices in patrol deployment, ensuring that resources are directed to areas of greatest need. The participants' insights demonstrate that crime mapping technology not only improves situational awareness but also strengthens intelligence-led policing by shifting patrol strategies from reactive to proactive, thereby enhancing overall patrol efficiency and responsiveness.

Thus, the statements of some of the participants said that:

“By visualizing crime patterns on maps, officers can easily identify high-risk areas and emerging trends. This allows officers to quickly identify crime hotspots, assess situations on the ground, and deploy patrols or response units faster and with greater accuracy.” (P1)

“By identifying high-risk areas, officers can deploy mobile and beat patrols more efficiently, resulting in faster and more effective responses. The technology also enhances real-time response, enabling adjustments to patrol beats and sectors.” (P2)

“It allows for faster and more accurate assessment of high-risk areas, enabling personnel to plan patrols and allocate resources efficiently. In terms of real-time response, crime mapping assists in identifying the exact location of incidents, allowing officers to respond promptly.” (P6)

The theme illustrates one of the most significant best practices by the Philippine National Police have implemented when integrating crime mapping technology into patrol operations. The participants' accounts consistently emphasized that crime mapping

outputs such as hotspot maps and temporal crime patterns enabled officers to visualize crime trends, identify high-risk areas, and make more informed operational decisions (Mahimkar, 2021). This best practice shifts policing from reactive responses to evidence-based strategies, ensuring that limited resources are directed to areas of greatest need while enhancing patrol efficiency, accuracy, and timeliness. Within the Appreciative Inquiry framework, these successes represent the Discover phase, capturing the strengths already achieved in integrating crime mapping technology and establishing a foundation upon which future innovations can be envisioned.

The Technology Acceptance Model (TAM) by Davis 1989 (Davis & Granić, 2026) provides a strong theoretical foundation for understanding the theme, as it explains how officers' perceptions of the usefulness and ease of use of crime mapping technology influence its adoption in patrol operations. Building on this theoretical views, the participants' narratives demonstrate how perceptions of the usefulness and ease of use of crime mapping technology directly shaped its adoption as a best practice in patrol deployment and operational decision-making.

The participants' narratives demonstrated that crime mapping was perceived as highly useful in identifying high-risk areas, guiding patrol assignments, and enabling real-time tactical adjustments, while its ease of use was evident in the ability to visualize spatial crime patterns and integrate analytical outputs into daily decision-making (Oatley, 2021). These perceptions directly align with TAM's constructs, supporting the conclusion that the systematic use of crime mapping technology in patrol deployment represents not only a technical innovation but also a best practice shaped by user acceptance and organizational integration (Syahril, 2025).

The theme therefore shows that the integration of crime mapping technology into patrol operations is not merely a technical innovation but a strategic best practice. It enables law enforcement agencies to move from reactive policing toward proactive, evidence-based strategies. Agencies enhance patrol efficiency, improve responsiveness, and foster safer communities by embedding crime mapping into daily patrol decision-making (Weisburd et al., 2024).

Capacity Building, System Integration, and Data Management

The theme highlights the coordinated processes that enable law enforcement personnel to maximize the value of crime mapping technologies in support of data-driven patrol deployment and decision-making (Syed & Albalawi, 2024). Capacity building ensures that officers are trained and skilled in GIS applications and data analysis, equipping them to interpret spatial crime data and apply analytical outputs in real-world patrol strategies (Araujo & Costa, 2024). System integration highlights the importance of interoperability between crime mapping tools, records management systems, and dispatch platforms, allowing seamless data sharing and synchronized operations that enhance situational awareness and responsiveness (Charlebois et al., 2024). Data management underscores the need for accuracy, reliability, timeliness, and secure handling of crime data, ensuring that patrol routes, resource allocation, and tactical decisions are evidence-based and operationally efficient. Together, these elements institutionalize the systematic use of crime mapping technology, enabling law enforcement agencies to strengthen patrol efficiency, improve decision-making, and enhance public safety outcomes (Springs, 2024).

The participants' accounts clearly demonstrate that the effective integration of crime mapping technology into patrol operations relies on coordinated practices of capacity building, system integration, and data management (Syahrial, 2025). Participant 3 emphasized the importance of face-to-face seminars that provided officers with hands-on experience and direct guidance, enabling them to confidently apply crime mapping tools in daily patrol operations. Participant 2 expanded on this by noting that training was not limited to in-person sessions but also delivered through digital platforms such as Zoom, which made integration smoother and more efficient. This participant further highlighted the role of system integration, citing the Philippine National Police's development of the Integrated Crime Management Information System (CMIS), which ensures interoperability and enhances the timeliness and accuracy of crime data through continuous system improvements.

Participant 1 reinforced these points by describing a blended approach to training formal seminars, workshops, and peer mentoring that addressed challenges in adoption and sustained officer competence. This participant also underscored the importance of system integration by explaining how GIS platforms like ArcGIS or QGIS are linked to the Crime Incident Recording System (CIRS) and Blotter System, allowing officers to overlay crime hotspots with patrol routes for optimized deployment (Araujo & Costa, 2024). Finally, Participant 1 stressed the critical role of data management, noting that daily updates from precincts, immediate encoding of validated incidents, and proper training in documentation practices are essential to maintaining data accuracy and timeliness. Collectively, these narratives highlight that the best practices in integrating crime mapping technology extend beyond the tools themselves; they require continuous

training to build officer capacity, interoperable systems to streamline operations, and rigorous data management protocols to ensure reliability. Philippine National Police strengthen patrol efficiency, enhance situational awareness, and ensure that operational decisions are consistently evidence-based by institutionalizing these practices (Tang, 2023).

Thus, the statements of some of the participants said that:

"Training for these tools was conducted through face-to-face seminars, providing officers with hands-on experience and guidance... allowing officers to integrate the technology into daily patrol operations more effectively." P3

"Training for these tools was conducted through face-to-face seminars as well as digital platforms like Zoom... integration into daily operations has become much smoother and more efficient... Under this plan, the PNP develops and implements the Integrated Crime Management Information System (CMIS)... Accuracy and timeliness of data are ensured through constant system improvements and updates." P2

"Police personnel are trained to use these tools through a combination of formal seminars, workshops, and hands-on sessions... These challenges have been addressed through resource-sharing initiatives, peer mentoring, and continuous training programs... Crime mapping integrates well with other tools and systems in law enforcement. GIS platforms, such as ArcGIS or QGIS, are often linked to the PNP Crime Incident Recording System (CIRS) or the Blotter System, allowing officers to overlay crime hotspots with patrol routes and optimize deployment... Ensuring data accuracy and timeliness requires daily updates from precincts, immediate encoding of validated incidents into CIRAS, and proper training for all officers on incident documentation." P1

The theme of highlights the organizational best practices that underpin the effective integration of crime mapping technology into patrol operations. Participants' narratives revealed that the success of crime mapping does not rest solely on the availability of technological tools, but on the coordinated processes that ensure officers are trained, systems are interoperable, and data is reliable. These findings suggest that sustainable implementation requires institutional commitment to continuous learning,

technological upgrades, and standardized data protocols across all units. Moreover, embedding these practices into everyday operations fosters a culture of accountability and evidence-based decision-making, ensuring that crime mapping technology consistently enhances patrol efficiency and overall public safety outcomes.

Capacity Building emerged as a critical practice, with officers describing how training was delivered through seminars, workshops, and hands-on sessions, often supplemented by digital platforms such as Zoom. These initiatives provided personnel with the technical skills to interpret GIS outputs and apply them in daily patrol operations. Peer mentoring and continuous training programs further reinforced competence, ensuring that officers could adapt to evolving technologies and sustain effective use of crime mapping tools (Stolzenberg, & D'Alessio, 2025). This investment in human capital reflects a recognition that technology adoption requires not only access but also confidence and skill among end-users. System Integration was another key practice, as participants emphasized the importance of linking crime mapping platforms with existing law enforcement systems such as the Crime Incident Recording System (CIRS), Blotter System, and dispatch platforms (Duraklar, 2025).

Integration allowed officers to overlay crime hotspots with patrol routes, synchronize data across units, and make real-time adjustments to beats and sectors. The Philippine National Police's development of the Integrated Crime Management Information System (CMIS) was cited as an example of institutional efforts to ensure interoperability, thereby streamlining workflows and enhancing situational awareness (Marcovitch & Moffatt, 2024). This practice demonstrates that crime mapping achieves

its full potential when embedded within a broader technological ecosystem rather than functioning in isolation.

Data Management was consistently highlighted as essential to the credibility and utility of crime mapping outputs (Mahimkar, 2021). Participants noted that daily updates from precincts, immediate encoding of validated incidents, and proper training in documentation ensured the accuracy, timeliness, and reliability of crime data. Secure handling and system improvements further safeguarded the integrity of information, enabling officers to make evidence-based decisions about patrol deployment and resource allocation (Ibekwe, 2025). By institutionalizing rigorous data management protocols, agencies ensured that crime mapping was not only operationally efficient but also trustworthy as a decision-making tool (Spyropoulos et al., 2023).

These practices illustrate that the integration of crime mapping technology into patrol operations is a multidimensional process (Lima et al., 2024). It requires building officer capacity to use and interpret tools, integrating systems to enable seamless data flow and operational coordination, and managing data to maintain accuracy and reliability (Ramakrishna Manchana, 2024). These elements collectively ensure that patrol strategies are evidence-based, operationally efficient, and capable of enhancing situational awareness and public safety. Within the Appreciative Inquiry framework, these successes represent the Discover phase, capturing the strengths already achieved in integrating crime mapping technology and providing a foundation for envisioning future innovations such as predictive analytics and advanced interoperability.

The theme of is best explained through the lens of the Technology Acceptance Model (TAM) by Fred Davis 1989. TAM emphasizes that the adoption of technology is

shaped by users' perceptions of its usefulness and ease of use (Ishengoma, 2024). In the participants' narratives, these constructs were clearly reflected: officers described how training programs, seminars, and hands-on sessions improved their competence in GIS applications, making crime mapping tools easier to use in daily patrol operations (Piza & Arietti, 2022). They also emphasized the usefulness of system integration, noting that platforms such as the Integrated Crime Management Information System (CMIS) and GIS linkages with the Crime Incident Recording System (CIRS) allowed for seamless data flow, real-time updates, and optimized patrol deployment. Furthermore, participants highlighted the importance of accurate and timely data management, which reinforced their confidence in the reliability of crime mapping outputs and strengthened their willingness to rely on these tools for operational decisions (Mahimkar, 2021). These insights align directly with TAM's framework, showing that officers adopt and integrate crime mapping technology because they perceive it as both beneficial to patrol efficiency and manageable within their workflows.

The theme demonstrates that the integration of crime mapping technology into patrol operations is most effective when supported by the coordinated practices of capacity building, system integration, and data management (Maboa & Horne, 2025). The interoperability of crime mapping platforms with records management and dispatch systems ensures seamless workflows and real-time adjustments to patrol deployment, while rigorous data management protocols safeguard the accuracy, timeliness, and reliability of information used to guide operational decisions (K et al., 2025). These practices institutionalize the systematic use of crime mapping, transforming patrol deployment from reactive responses to proactive, evidence-based strategies.

In the *Dream* phase, the themes of Enhanced Situational Awareness and Real-Time Response and Community Engagement and Transparency envision how crime mapping technology can further contribute to building a safer and more proactive community-policing approach. Enhanced situational awareness and real-time response highlight the potential for law enforcement personnel to anticipate, interpret, and act on emerging incidents with greater precision by leveraging timely and comprehensive crime data, thereby strengthening proactive patrol strategies and rapid interventions (Syed, & Albalawi, 2024). At the same time, community engagement and transparency emphasize how crime mapping can serve as a bridge between police and the public, fostering trust through the open sharing of crime trends, hotspot information, and patrol strategies (Modise, 2025). Together, these themes articulate a forward-looking vision in which crime mapping not only improves operational efficiency but also deepens collaboration with communities, ensuring that policing is both data-driven and participatory in its pursuit of public safety.

Enhanced Situational Awareness and Real-Time Response

This theme relates to the capacity of law enforcement personnel to effectively perceive, interpret, and anticipate events within their operational environment by utilizing accurate, timely, and comprehensive crime data (Stefanidi et al., 2022). This capability enables officers to maintain a heightened understanding of dynamic situations, make informed decisions under pressure, and respond proactively to emerging incidents, thereby strengthening patrol effectiveness and overall public safety (Renner et al., 2025).

The theme of underscores how crime mapping technology enables law enforcement personnel to perceive, interpret, and anticipate events in their operational

environment with greater precision by leveraging accurate, timely, and comprehensive crime data (Mahimkar, 2021). Participants highlighted that daily updates, validated incident encoding, and integration with systems such as the Crime Incident Recording System (CIRS) and dispatch platforms allow officers to maintain a dynamic understanding of crime patterns and adjust patrol routes in real time. This heightened situational awareness ensures that patrol deployment is proactive rather than reactive, while interoperability across platforms provides a shared operational picture that strengthens coordination and tactical decision-making (Griffiths, 2022). Ultimately, the ability to respond swiftly and strategically to emerging incidents enhances patrol efficiency, improves deterrence, and fosters public confidence in policing as a responsive, evidence-based service (Modise, 2024).

The participants' narratives collectively highlight how crime mapping technology has transformed the Philippine National Police's (PNP) capacity to monitor and respond to crime hotspots, emphasizing its dual role in enhancing situational awareness and enabling real-time response. Participant 1 underscored that visualizing crime patterns on maps allows officers to easily identify high-risk areas and emerging trends, while immediate visualization of incident locations supports faster deployment of patrols and response units with greater accuracy. Participant 3 reinforced this by noting that crime mapping enables more efficient deployment of mobile and beat patrols, as adjustments to patrol beats and sectors can be made in real time, resulting in quicker interventions during incidents. Participant 4 expanded the discussion by emphasizing the role of real-time data updates in predictive policing strategies and resource allocation, noting that access to location data, historical records, and suspect information reduces delays and

strengthens operational decision-making. Taken together, these accounts illustrate that crime mapping technology not only improves the monitoring of crime hotspots but also institutionalizes proactive and evidence-based policing practices. Thereby enhancing public safety and reinforcing community trust in policing by integrating timely data with operational workflows, law enforcement agencies can anticipate risks, optimize patrol deployment, and respond swiftly to emerging incidents (Braga et al., 2018).

Thus, the statements of some of the participants said that:

“Crime mapping technology has significantly improved the PNP’s ability to monitor and respond to crime hotspots. By visualizing crime patterns on maps, officers can easily identify high-risk areas and emerging trends... In terms of real-time response, these tools enable immediate visualization of incident locations. This allows officers to quickly identify crime hotspots, assess situations on the ground, and deploy patrols or response units faster and with greater accuracy.” P1

“Crime mapping has significantly improved the ability to monitor and respond to crime hotspots. By identifying high-risk areas, officers can deploy mobile and beat patrols more efficiently, resulting in faster and more effective responses. The technology also enhances real-time response, enabling adjustments to patrol beats and sectors, which allows for quicker intervention during incidents.” P3

“Crime mapping technology has enhanced the ability to monitor and respond to crime hotspots. Real-time data updates allow for faster identification of high-risk areas, enabling predictive policing strategies and efficient resource allocation. It also improves real-time incident response, providing immediate access to location data, historical records, and suspect information, which reduces delays and enhances operational decision-making.” P4

The theme of illustrates how crime mapping technology directly contributes to a safer and more proactive community-policing approach by enabling law enforcement agencies to anticipate risks, respond swiftly, and strengthen public trust. Participants’ narratives consistently emphasized that crime mapping allows officers to visualize crime hotspots, identify emerging trends, and maintain a dynamic understanding of their

operational environment. This heightened situational awareness ensures that patrol strategies are not reactive but proactive, as officers can anticipate where crime is most likely to occur and position resources accordingly (Wooditch, 2021).

Real-time response capabilities further enhance this proactive approach. Officers gain immediate access to incident locations, historical records, and suspect information by integrating crime mapping with dispatch systems and records management platforms (Jr, 2021). This interoperability reduces delays, supports rapid decision-making, and allows for timely adjustments to patrol beats and deployment strategies. Immediate visualization of incident locations enables faster and more accurate deployment of patrols, while adjustments to patrol sectors improve intervention during incidents (Seevatheean & Cadarsaib, 2024). Real-time data updates further support predictive policing strategies and efficient resource allocation, ensuring that responses are both swift and strategically targeted.

From a community-policing perspective, these capabilities translate into greater safety and stronger public confidence. When officers can respond quickly and effectively to emerging incidents, communities perceive policing as responsive and reliable (Blair et al., 2021). Moreover, proactive deployment based on accurate hotspot identification demonstrates that law enforcement is not merely reacting to crime but actively working to prevent it (Malik et al., 2024). This strengthens the collaborative relationship between police and the public, as communities see tangible evidence of data-driven strategies designed to protect them.

The Technology Acceptance Model (TAM) explains how users adopt and effectively utilize technology based on two key perceptions: perceived usefulness and

perceived ease of use (Tao, 2024). This directly supports the theme, as participants emphasized that crime mapping technology improves their ability to monitor hotspots, visualize incident locations, and deploy patrols more efficiently (Ahmad et al., 2024). Officers perceive crime mapping as useful because it enhances operational decision-making, enables predictive policing strategies, and allows for faster, more accurate responses to emerging incidents. At the same time, training programs, system integration, and user-friendly GIS platforms increase the ease of use, making it possible for officers to quickly access real-time data and apply it in daily patrol operations (Md Muzakkir Quamar et al., 2023). These perceptions drive acceptance and reliance on crime mapping tools, ensuring that situational awareness is heightened and responses are strategically targeted.

The theme indicate that crime mapping technology significantly strengthens law enforcement's ability to monitor crime hotspots, anticipate risks, and respond swiftly to emerging incidents (Stolzenberg & D'Alessio, 2025). This has important implications for the study, as it demonstrates that the integration of crime mapping into patrol operations transforms policing from a reactive model into a proactive, intelligence-led approach. By enhancing situational awareness, officers are better equipped to interpret crime trends and allocate resources strategically, which improves patrol efficiency and reduces response times. The capacity for real-time response further ensures that interventions are timely, accurate, and evidence-based, thereby increasing deterrence and reinforcing public trust in police services. For community policing, these findings imply that crime mapping technology not only improves operational effectiveness but also contributes to building safer communities by fostering transparency, accountability, and confidence in law

enforcement. Thus, the study underscores that adopting crime mapping tools is not merely a technological upgrade but a strategic practice that supports proactive policing and strengthens the partnership between law enforcement and the community.

Community Engagement and Transparency

The theme can be understood as the active participation of citizens in public safety initiatives, facilitated through open access to crime-related information and clear, consistent communication between law enforcement and the public (McMaughan et al., 2021). This theme highlights how the visualization and sharing of crime data foster stronger collaboration between police and communities. Law enforcement agencies not only enhance accountability but also empower citizens to take part in co-producing safety by making crime trends, hotspot locations, and patrol strategies visible and understandable. Transparency in data use builds trust, while engagement ensures that policing strategies are responsive to community concerns and expectations (Irvita & Asriani, 2025). Together, these practices reinforce the principles of proactive community policing, where technology serves as both a tool for operational efficiency and a bridge for strengthening relationships between law enforcement and the public.

The narratives of the participants collectively highlight how crime mapping technology serves as a catalyst for community engagement and transparency, strengthening collaboration between law enforcement and citizens. Police officers can openly share information about crime hotspots and emerging trends, fostering public awareness and vigilance by visualizing crime data through tools such as heat maps and pin maps (Ahmad et al., 2024). This transparency not only educates residents about risks in their environment but also empowers them to participate proactively in crime

prevention initiatives (Sapkota, 2024). Beyond visualization, crime mapping is integrated into awareness lectures, symposiums, and community meetings, where citizens are encouraged to report suspicious activities and contribute to local safety programs (Polko, 2022). Such practices build trust and accountability, as communities see policing strategies grounded in evidence and openly communicated. Moreover, the accessibility of crime mapping data enhances police-community relations by helping residents understand crime patterns and recognize their role in co-producing safety (Maswod, & Sayeed Raas, 2021). Taken together, these insights demonstrate that crime mapping technology extends beyond operational efficiency; it becomes a bridge for participatory policing, where transparency fosters trust and engagement transforms communities into active partners in maintaining public safety.

Thus, the statements of some of the participants said that:

“The technology also strengthens collaboration with community members through improved transparency and information sharing. Using crime maps, such as heat maps and pin maps, officers can show citizens where crimes are occurring in real-time or over specific periods. This fosters public awareness, encourages community vigilance, and promotes proactive participation in crime prevention initiatives.” P1

“The technology has strengthened community collaboration by fostering transparency and trust. Through awareness lectures, symposiums, and community meetings, residents are educated about crime trends and encouraged to participate in reporting suspicious activities and crime prevention programs.” P4

“The technology also enhances community collaboration, improving police-community relations by helping residents understand crime patterns and engage proactively in local safety initiatives. Crime mapping data is used to increase public safety awareness, such as identifying areas of concern in the community and informing residents about potential risks.” P6

The theme demonstrates how crime mapping technology extends beyond operational efficiency to become a vital tool for strengthening police-community

relations and fostering proactive safety initiatives. The Philippine National Police can clearly communicate crime patterns, hotspot locations, and emerging trends to the public by providing open access to crime-related information through visual tools such as heat maps and pin maps (Ahmad et al., 2024). This transparency builds trust and accountability, as citizens see that policing strategies are grounded in evidence and openly shared rather than concealed. It also enhances public awareness, enabling residents to better understand risks in their environment and encouraging vigilance in reporting suspicious activities.

Crime mapping further supports structured engagement mechanisms such as awareness lectures, symposiums, and community meetings, where data is presented in accessible formats to educate citizens about crime dynamics (Modise, J. M. 2025). These initiatives empower communities to participate actively in crime prevention programs, reinforcing the principle of co-production of safety. When residents are informed and involved, they become capable guardians in their neighborhoods, complementing police efforts and contributing to deterrence. This collaborative approach aligns with the proactive vision of community policing, where safety is achieved not solely through enforcement but through shared responsibility between law enforcement and the public (Imam, 2022).

From a broader perspective, crime mapping technology institutionalizes transparency and engagement as part of policing practice (Awoyemi et al., 2025). It transforms crime data into a platform for dialogue, collaboration, and trust-building, ensuring that communities are not passive recipients of protection but active partners in shaping safety strategies. This participatory model enhances legitimacy, strengthens

police-community relations, and creates safer environments by combining technological innovation with collective action.

Thus, crime mapping technology contributes to a safer and more proactive community-policing approach by fostering transparency in crime data, encouraging citizen participation, and building trust between law enforcement and the public (Simegnew, 2025). Through these mechanisms, it empowers communities to engage in proactive safety measures, reinforces accountability in policing, and ensures that public safety is achieved through both evidence-based strategies and collaborative partnerships (Modise, 2023).

Routine Activity Theory (RAT) explains that crime occurs when three elements converge in time and space: a motivated offender, a suitable target, and the absence of capable guardians (Vakhitova, 2025). Within this framework, crime mapping technology strengthens the role of capable guardianship by empowering both police and community members with timely and transparent information about crime patterns. The Philippine National Police enhance public awareness and vigilance, enabling citizens to act as proactive guardians in their neighborhoods by openly sharing hotspot maps, incident trends, and risk areas (Nanes et al., 2023).

. This engagement reduces opportunities for crime by increasing guardianship presence and collective responsibility (Zahnow, 2024). turn, police benefit from stronger community partnerships, as crime mapping fosters dialogue and cooperation, ensuring that patrol strategies are responsive to local concerns. Thus, crime mapping technology contributes to a safer and more proactive community-policing approach by operationalizing Routine Activity Theory Transparency in crime data builds trust and

accountability(Ifeanyichukwu et al., 2025), encouraging residents to collaborate with police through reporting suspicious activities, participating in community watch programs, and engaging in safety initiatives: it strengthens guardianship through transparency, mobilizes community participation, and reduces crime opportunities by aligning police and citizen efforts in co-producing safety.

This implies that crime mapping technology contributes to a safer and more proactive community-policing approach by institutionalizing trust, accountability, and citizen participation in public safety (Awoyemi, et al., 2025). The Philippine National Police transparency that strengthens police legitimacy and encourages residents to become active partners in crime prevention by making crime data openly accessible through maps, lectures, and community forums. This engagement transforms citizens into capable guardians, complementing police efforts and reducing opportunities for crime through vigilance and collective responsibility (Sapkota, 2024). The implication for the study is that crime mapping is not only a technical innovation but also a social mechanism that bridges law enforcement and the community, ensuring that policing strategies are co-produced, evidence-based, and responsive to local concerns. Hence, the integration of transparency and engagement into crime mapping practices enhances community trust, empowers citizens, and reinforces the proactive vision of community policing (Awoyemi et al., 2025).

In the *Design* phase of this Appreciative Inquiry, the focus shifts toward translating the envisioned possibilities into practical strategies and structures that can sustain the desired change. Within this study, two key themes emerged: Strengthen Training and Technical Skills and Improve Data Accuracy, Real-Time Updates, and

Supportive Policies. These themes reflect the operational foundations necessary to maximize the potential of crime mapping technology in advancing a safer and more proactive community-policing approach.

Strengthening training and technical skills underscores the importance of equipping law enforcement personnel with the competencies required to effectively utilize crime mapping tools (Haley & Burrell, 2025). Continuous capacity-building ensures that officers not only understand the technical aspects of geographic information systems (GIS) and data visualization but also develop the analytical skills to interpret crime trends and translate them into actionable patrol strategies.

Meanwhile, improving data accuracy, real-time updates, and supportive policies highlights the structural and institutional conditions that enable crime mapping to function reliably. Accurate and timely data entry, integration across systems, and clear policy frameworks ensure that crime maps reflect the realities on the ground and can be trusted as a basis for decision-making (Spyropoulos et al., 2023). Supportive policies also institutionalize accountability and sustainability, embedding crime mapping practices into routine policing operations.

Together, these themes emphasize that the effective design of crime mapping technology requires both human capacity development and systemic reliability. Philippine National Police can institutionalize proactive, evidence-based policing practices that foster community trust and enhance public safety by investing in training and ensuring robust data management supported by clear policies.

Strengthen Training and Technical Skills

The theme of emphasizes the critical role of capacity-building in ensuring that crime mapping technology is effectively utilized within law enforcement operations. Equipping officers with the necessary competencies to operate and interpret geographic information systems (GIS) and crime mapping platforms is essential for transforming raw data into actionable insights (Ifechukwu, 2021). Training initiatives not only enhance technical proficiency but also develop analytical skills that allow personnel to identify crime trends, anticipate risks, and optimize patrol deployment through evidence-based decision-making. Philippine National Police can bridge gaps in technological literacy, reduce reliance on intuition, and foster confidence in data-driven strategies by institutionalizing continuous learning and technical support. This theme underscores that the success of crime mapping technology depends not merely on its availability but on the ability of officers to harness its full potential, ensuring that proactive community-policing approaches are grounded in both technological innovation and human expertise (Ezeji, 2024).

The narratives of the participants reveal that training and technical skill development are indispensable for the effective adoption of crime mapping technology in law enforcement. Participant 1 emphasized that police personnel are trained through a combination of formal seminars, workshops, and hands-on sessions, which provide both theoretical knowledge and practical experience. However, challenges such as limited technical expertise among officers and insufficient equipment or infrastructure were encountered. These were addressed through resource-sharing initiatives, peer mentoring, and continuous training programs designed to enhance technical capabilities.

Similarly, Participant 2 highlighted that training was conducted through both face-to-face seminars and digital platforms like Zoom. Officers initially struggled to familiarize themselves with the technology and operate it effectively. Yet, with consistent use and regular exposure, integration into daily operations became smoother and more efficient, underscoring the importance of sustained practice and adaptation.

Expanding on these insights, Participant 4 noted that training typically involves workshops, online courses, and on-the-job mentoring, with hands-on experience being essential for effectiveness. Challenges such as data integration issues, software glitches, and resistance to change were identified, but these were mitigated through ongoing support, system customization, and continuous practice.

Taken together, these accounts demonstrate that while crime mapping technology offers significant potential, its success depends heavily on capacity-building and technical support. The participants collectively highlight that training must be multifaceted by combining theoretical instruction, practical application, and continuous mentoring to ensure officers are confident and competent in using the tools (Darden & Pesina, 2025). Moreover, addressing challenges through resource-sharing, system improvements, and sustained exposure ensures that crime mapping is not only adopted but fully integrated into routine policing.

It underscores that strengthening training and technical skills is a foundational requirement for maximizing the benefits of crime mapping technology. The Philippine National Police can ensure that crime mapping enhances situational awareness, optimizes patrol operations, and contributes to a safer, more proactive community-policing

approach by investing in officer competencies and providing ongoing support (Simegnew, 2025).

Thus, the statements of some of the participants said that:

"Police personnel are trained to use these tools through a combination of formal seminars, workshops, and hands-on sessions, which provide both theoretical knowledge and practical experience. However, some challenges have been encountered during implementation, such as limited technical expertise among officers and insufficient equipment and technical infrastructure. These challenges have been addressed through resource-sharing initiatives, peer mentoring, and continuous training programs to enhance technical capabilities." P1

"Training for these tools was conducted through face-to-face seminars as well as digital platforms like Zoom. Initially, officers faced challenges in familiarizing themselves with the technologies and learning to operate them effectively. However, with consistent use and regular exposure, integration into daily operations has become much smoother and more efficient." P2

"Training for crime mapping tools typically involves workshops, face-to-face or online courses, and on-the-job mentoring. Hands-on experience is essential for effectiveness. Challenges such as data integration issues, software glitches, and resistance to change are common but can be overcome through ongoing support, system customization, and continuous practice." P4

The theme directly addresses the human capacity dimension of optimizing crime mapping technology in patrol operations. While the availability of advanced tools such as GIS platforms, heat maps, and real-time data systems is essential, their effectiveness ultimately depends on the ability of law enforcement personnel to operate, interpret, and apply them in daily practice.

Participants highlighted that officers are trained through seminars, workshops, online platforms, and hands-on mentoring. These approaches provide both theoretical knowledge and practical experience, ensuring that personnel understand not only how to use the technology but also how to translate data into actionable patrol strategies

(Syahrial, 2025). Continuous training programs are therefore a critical strategy, as they build confidence, reduce reliance on intuition, and foster evidence-based decision-making.

Challenges such as limited technical expertise, insufficient equipment, data integration issues, and resistance to change were consistently noted; however, these barriers can be addressed through targeted strategies (Omowole, 20204). Peer mentoring and resource-sharing initiatives enable experienced officers to support colleagues with less technical proficiency, while system customization and ongoing technical support help minimize frustrations caused by software glitches and integration problems. Moreover, consistent exposure and regular practice allow officers to gradually build confidence and familiarity with crime mapping tools, ensuring smoother integration into routine patrol operations and ultimately enhancing the effectiveness of evidence-based policing (Awoyemi, 2025).

Strengthening technical skills ensures that crime mapping outputs are not merely viewed as static data but are actively interpreted to guide patrol deployment. Officers trained in analytical techniques can identify crime hotspots, anticipate risks, and allocate resources strategically (Ramakrishnan, 2024). This enhances situational awareness, reduces response times, and ensures that patrol operations are proactive rather than reactive.

For long-term optimization, training must be institutionalized as part of organizational policy. Strategies such as mandatory refresher courses, integration of crime mapping into police academies, and partnerships with academic institutions or technology providers can sustain skill development (Pepper, et al., 2025). Embedding

training into policy frameworks ensures that technical proficiency is not dependent on individual initiative but becomes a systemic requirement for effective policing.

Thus, strengthening training and technical skills is a foundational strategy for optimizing the use of crime mapping technology in law enforcement patrol operations (Stolzenberg & D'Alessio, 2025). The Philippine National Police can ensure that patrol strategies are guided by accurate, evidence-based insights by equipping officers with the competencies to operate and interpret crime mapping tools, addressing implementation challenges through mentoring and support, and institutionalizing continuous capacity-building. Finally, this theme underscores that technology alone cannot transform policing; it is the combination of human expertise and technological innovation that enables proactive, efficient, and community-responsive patrol operations.

The Technology Acceptance Model (TAM) provides a useful view for analyzing how training and technical skill development influence the adoption and effective use of crime mapping technology in law enforcement patrol operations (Halford et al., 2025). TAM posits that two primary factors perceived usefulness and perceived ease of use to determine whether individuals accept and integrate new technologies into their work practices (Ibrahim & Shiring, 2022).

The theme directly enhances both dimensions in the context of crime mapping. Training programs, whether through seminars, workshops, or hands-on mentoring, improve officers' confidence and competence in operating GIS platforms and interpreting crime data (Guerette et al., 2020). This increases the perceived ease of use, as officers become more familiar with the technology and less intimidated by its complexity. At the same time, training highlights the practical benefits of crime mapping such as identifying

hotspots, optimizing patrol routes, and improving response times which reinforces the perceived usefulness of the technology in achieving operational efficiency and proactive policing (Kim, et al., 2023).

The narratives from participants illustrate this dynamic. Officers initially faced challenges such as limited technical expertise, resistance to change, and data integration issues (Najari et al., 2025). However, through continuous exposure, peer mentoring, and ongoing support, they gradually recognized the value of crime mapping tools in daily operations. This progression reflects TAM's assertion that acceptance grows when users experience both the utility and usability of a system.

Moreover, TAM underscores the importance of organizational strategies that institutionalize training and technical support (Segbenu et al., 2024). Philippine National Police ensure that officers not only adopt crime mapping technology but also sustain its use over time by embedding continuous learning into policy frameworks (Dugayon et al., 2025). This institutionalization transforms crime mapping from a novel tool into a routine practice, thereby optimizing patrol operations and reinforcing proactive community-policing approaches.

The theme implies that optimizing the use of crime mapping technology in law enforcement patrol operations requires sustained investment in human capacity development. While advanced tools provide the technical foundation for proactive policing, their effectiveness depends on officers' ability to operate, interpret, and apply crime mapping outputs in real-world contexts. This means that strategies must prioritize continuous training programs, hands-on workshops, and peer mentoring to build both technical proficiency and analytical skills. Philippine National Police can overcome

barriers such as limited expertise, resistance to change, and integration challenges by institutionalizing training as a core organizational practice. Ultimately, the implication for the study is that crime mapping technology will only achieve its full potential when paired with a workforce that is confident, competent, and capable of translating data into evidence-based patrol strategies. Strengthening training and technical skills therefore emerges as a foundational strategy for ensuring that crime mapping contributes to more efficient, proactive, and community-responsive policing.

Improve Data Accuracy, Real-Time Updates, and Supportive Policies

The theme underscores the critical importance of ensuring that law enforcement patrol operations are guided by reliable, timely, and well-governed information (Alonge et al., 2021). Crime mapping technology can only be effective if the data it relies upon is accurate, consistently updated, and supported by institutional frameworks that promote accountability and sustainability (Mahimkar, 2021). Inaccurate or outdated data risks misinforming patrol strategies, potentially leading to inefficient resource allocation or diminished public trust. The Philippine National Police law enforcement agencies can ensure that crime maps reflect the realities on the ground and provide a trustworthy foundation for evidence-based decision-making by prioritizing robust data collection processes, integrating real-time updates, and establishing supportive policies (Blair et al., 2021). Moreover, supportive policies institutionalize these practices, embedding data accuracy and transparency into routine policing operations. This theme highlights that technological innovation alone is insufficient; its success depends on the reliability of the information it processes and the governance structures that sustain its use (Awoyemi et al., 2025)

The narratives of the participant collectively highlight that the effectiveness of crime mapping technology in law enforcement patrol operations is contingent upon the accuracy, timeliness, and governance of data systems. Participant 1 emphasized the need to integrate real-time data reporting to overcome delays caused by manual updates. Crime maps can be automatically updated during patrols by adopting GPS-enabled mobile applications, body cameras, and live feeds from CCTV or community reporting apps (Haines et al., 2021). This integration enhances operational responsiveness, allowing officers to react swiftly to emerging incidents and ensuring that patrol strategies are guided by the most current information available.

Participant 3 reinforced this point by stressing the importance of continuous training for personnel to ensure accurate and timely uploading of reported crimes into the system. The participant also highlighted the necessity of a robust and secure database, one that is resistant to hacking or system failures, to maintain reliability and trust in crime mapping outputs. This reflects the broader need for supportive policies that institutionalize data integrity and safeguard technological infrastructure against vulnerabilities. Participant 6 expanded the discussion by recommending the use of high-resolution GIS tools and emphasizing collaboration with community partners. Real-time data collection combined with community engagement ensures that crime maps are not only accurate but also reflective of local realities. This collaborative approach strengthens proactive responses and enhances transparency, fostering trust between law enforcement and the public (Braga et al., 2018).

Taken together, these narratives illustrate that improving data accuracy, ensuring real-time updates, and establishing supportive policies are essential strategies for

optimizing crime mapping technology. Real-time integration enhances responsiveness, secure and reliable databases safeguard system credibility, and collaboration with community partners ensures inclusivity and transparency (Mahmood et al., 2024). These elements collectively reinforce the proactive vision of community policing, where patrol operations are guided by trustworthy information and supported by institutional frameworks that sustain long-term effectiveness.

Thus, the statements of some of the participants said that:

"To further improve effectiveness, it is recommended to integrate real-time data reporting. Currently, crime data is often delayed or manually updated. Integrating GPS-enabled mobile apps, body cameras, and live feeds from CCTV or community reporting apps can allow the crime map to update automatically during patrols, enhancing operational responsiveness." P1

"To make crime mapping technology more effective, continuous training for personnel is recommended. Ensuring accurate and up-to-date data requires timely uploading of all reported crimes into the system. Additional improvements include a robust, secure, and unhackable database to maintain system reliability." P3

"To assess and improve effectiveness over time, high-resolution tools such as GIS should be utilized, with a focus on real-time data collection and collaboration with community partners. This approach ensures more accurate crime mapping, proactive response, and enhanced engagement with the community." P6

The theme highlights the foundational role of reliable information and institutional governance in optimizing crime mapping technology for patrol operations. While advanced tools such as GIS platforms, GPS-enabled devices, and mobile applications provide the technical infrastructure, their effectiveness depends on the quality, timeliness, and credibility of the data they process. Accurate crime data is essential for ensuring that patrol operations are evidence-based and responsive to actual conditions (Maboa et al., 2024). Inaccuracies or delays in reporting can mislead officers,

resulting in inefficient resource allocation or overlooked hotspots. Strategies to strengthen accuracy include standardized data entry protocols, mandatory training for personnel on reporting procedures, and integration of multiple data sources (police reports, CCTV feeds, community reporting apps) to minimize gaps and inconsistencies (Dimitrios, 2024).

Timeliness of information is equally critical. Crime mapping systems that rely on delayed or manually updated data limit the ability of patrol units to respond proactively (Mahimkar, 2021). Integrating real-time reporting mechanisms such as GPS-enabled mobile apps, body cameras, and live CCTV feeds ensures that crime maps are continuously updated during patrols (Shankar & Mohanraj, 2025). This enhances situational awareness, allowing officers to adjust deployment strategies dynamically and respond to emerging incidents with greater efficiency. Beyond technical improvements, supportive policies are necessary to institutionalize best practices and sustain system reliability. Policies that mandate timely data uploads, secure database management, and accountability mechanisms ensure that crime mapping technology remains trustworthy and resilient against misuse or technical vulnerabilities (Dutta et al., 2025). Moreover, policies that encourage collaboration with community partners strengthen transparency and inclusivity, embedding crime mapping within a broader framework of community policing.

Philippine National Police can transform crime mapping from a static tool into a dynamic decision-support system by improving data accuracy, integrating real-time updates, and enacting supportive policies (Magnus et al., 2025). Accurate and timely maps enable officers to identify hotspots, anticipate risks, and allocate patrol resources strategically. Supportive policies ensure that these practices are not ad hoc but embedded

into organizational routines, thereby optimizing patrol operations and reinforcing proactive policing (Dewinter et al., 2024). The analysis shows it is a critical theme for developing strategies to optimize crime mapping technology. Reliable and timely data ensures that patrol operations are guided by trustworthy information, while supportive policies institutionalize accountability and sustainability (Maboa & Horne, 2025). Together, these elements enable law enforcement agencies to maximize the potential of crime mapping, enhancing operational efficiency, strengthening community trust, and advancing the vision of proactive, evidence-based policing.

The theme aligns with Routine Activity Theory (RAT), which emphasizes that crime occurs when a motivated offender, a suitable target, and the absence of a capable guardian converge; by ensuring that patrol operations are guided by reliable, timely, and well-governed information, crime mapping technology strengthens the role of police as capable guardians who can proactively disrupt potential offender-target convergence (Vakhitova, 2025). Accurate data allows officers to identify crime hotspots and allocate resources strategically, while real-time updates from GPS-enabled devices, CCTV feeds, and community reporting apps enhance situational awareness and responsiveness to emerging incidents (Robertas et al., 2023). Supportive policies institutionalize these practices by mandating timely data uploads, securing databases, and fostering collaboration with community partners, thereby embedding accountability and sustainability into policing routines. Together, these elements demonstrate that optimizing crime mapping technology requires not only technical innovation but also robust data governance and institutional support, enabling law enforcement to maximize patrol

efficiency, reduce opportunities for crime, and reinforce proactive community policing (Awoyemi et al., 2025).

The theme implies that strategies to optimize the use of crime mapping technology in law enforcement patrol operations must prioritize the reliability, timeliness, and governance of crime data. Accurate and continuously updated information ensures that patrol deployment is evidence-based, allowing officers to identify hotspots, anticipate risks, and respond proactively to emerging incidents (Welsh & Sebire, 2025). Real-time integration of GPS-enabled devices, CCTV feeds, and community reporting platforms enhances situational awareness, transforming crime mapping into a dynamic tool for operational responsiveness rather than a static record of past events. Supportive policies institutionalize these practices by mandating standardized reporting protocols, securing databases against vulnerabilities, and embedding accountability mechanisms that sustain long-term effectiveness (Edwards, 2024). The implication for the study is that crime mapping technology will only achieve its full potential when paired with robust data management systems and clear institutional frameworks, enabling law enforcement agencies to maximize patrol efficiency, strengthen public trust, and reinforce proactive community-policing approaches.

In the *Destiny* Phase, the focus shifts toward sustaining and institutionalizing the gains achieved through crime mapping technology by embedding them into long-term strategies and collaborative practices. The emerging themes of Ensuring Continuous Funding, Maintenance, and Technological Upgrades and Fostering Inter-Agency Partnerships and Community Collaboration highlight the importance of building resilience and sustainability into law enforcement operations (Harakan et al., 2025).

Continuous funding and regular system maintenance guarantee that crime mapping tools remain reliable, secure, and responsive to evolving technological demands, while strategic upgrades ensure adaptability to future challenges (Stolzenberg & D'Alessio 2025). At the same time, fostering partnerships across agencies and strengthening collaboration with communities expands the reach and inclusivity of crime mapping, enabling shared responsibility, transparency, and collective problem-solving (Buçpapaj, 2024). Together, these themes emphasize that the destiny of crime mapping technology lies not only in its technical innovation but also in its sustained support and collaborative integration, ensuring that patrol operations remain proactive, efficient, and community-centered well into the future.

Ensure Continuous Funding, Maintenance, and Technological Upgrades

The theme underscores the critical importance of sustainability in the long-term use of crime mapping technology within law enforcement patrol operations. As Dahuri et al. (2025) emphasize, the effectiveness of technological systems depends not only on their initial implementation but also on the consistent allocation of financial resources, institutional support, and technical improvements that guarantee reliability and resilience over time. Without adequate funding, systems risk becoming outdated, under-maintained, or vulnerable to breakdowns, which can compromise patrol efficiency and public trust. Regular maintenance ensures that software and hardware remain functional, secure, and responsive to operational demands, while technological upgrades allow agencies to adapt to evolving challenges such as cyber threats, data integration needs (Ajayi et al., 2025), and emerging innovations in geospatial analysis. The Philippine National Police can safeguard the continuity of crime mapping systems, ensuring that patrol operations

remain proactive, evidence-based, and technologically adaptive by embedding these practices into organizational policy (Duraklar, 2025). This theme highlights that sustainability is not a peripheral concern but a central strategy for optimizing crime mapping technology, reinforcing its role as a reliable tool for enhancing situational awareness, resource allocation, and community safety.

The narratives of the participants collectively emphasize that the long-term success of crime mapping technology in law enforcement patrol operations depends on sustained investment, regular system upkeep, and continuous technological advancement. Participant 1 highlighted that the Philippine National Police (PNP) ensure system reliability through regular maintenance practices, including software updates for GIS platforms, database management to preserve data accuracy, and routine hardware checks to maintain functionality. Importantly, continuous funding can be secured by institutionalizing crime mapping within strategic PNP plans, positioning it as indispensable for intelligence-led policing, resource optimization, and community safety. This approach embeds crime mapping into organizational priorities, ensuring that financial support is not ad hoc but systematically allocated.

Participant 3 reinforced the importance of continuous maintenance through ongoing trainings and seminars, which keep personnel proficient in using the technology and prevent skill gaps from undermining system effectiveness. For long-term funding, this participant stressed the need to demonstrate the system's effectiveness to decision-makers, particularly legislators in Congress, thereby justifying budget requests. This underscores the role of evidence-based advocacy in securing institutional support and ensuring that crime mapping remains a funded priority.

Participant 4 expanded the discussion by noting that maintenance and upgrades also involve evaluating emerging tools and collaborating with IT vendors and industry experts to keep the system technologically current. Securing continuous funding, according to this participant, requires a multi-pronged approach: demonstrating effectiveness, applying for grants, and building partnerships with national agencies and local government units (LGUs) (Gupte & Aslam, 2022). This highlights the importance of external collaboration and diversified funding sources to sustain crime mapping initiatives.

Taken together, these narratives illustrate that continuous funding, maintenance, and technological upgrades are interdependent strategies. Regular system upkeep ensures operational reliability, ongoing training sustains personnel proficiency, and technological evaluations keep the system adaptive to new challenges (Ozpinar & Soofastaei, 2025). Meanwhile, securing funding requires institutionalization within strategic plans, evidence-based advocacy to policymakers, and partnerships with external stakeholders (Dopp et al., 2021). This comprehensive approach ensures that crime mapping technology is not only maintained but also evolves as a resilient, future-ready tool for optimizing patrol operations and enhancing community safety.

Thus, the statements of some of the participants said that:

“The PNP maintains and upgrades crime mapping technology through regular system maintenance, including software updates for GIS platforms, database management to ensure data accuracy, and routine hardware checks to support system functionality. Continuous funding can be secured by institutionalizing crime mapping in strategic PNP plans, positioning it as essential for intelligence-led policing, resource optimization, and community safety.” P1

“Continuous maintenance is achieved through ongoing trainings and seminars, ensuring personnel remain proficient in using the technology. Securing long-term funding involves demonstrating the system’s effectiveness to decision-makers,

such as politicians in Congress, allowing the PNP to request an appropriate budget.” P3

“The PNP maintains and upgrades the technology through regular software updates, system maintenance, and evaluations of emerging tools, often in collaboration with IT vendors and industry experts. Securing continuous funding requires demonstrating the system’s effectiveness, applying for grants, and building partnerships with both national agencies and local government units (LGUs).” P4

The theme highlights that sustaining the long-term benefits of crime mapping technology in patrol operations requires consistent financial investment, routine system upkeep, and adaptability to emerging innovations. Continuous funding can be secured by institutionalizing crime mapping within strategic policing plans, demonstrating its effectiveness to policymakers, and diversifying resources through grants and partnerships with national agencies and local government units (Sedgwick et al., 2021). Regular maintenance, including software updates, database management, hardware checks, and ongoing personnel training, ensures system reliability and data accuracy, while technological upgrades such as integrating advanced GIS tools and collaborating with IT vendors enable law enforcement to remain resilient against evolving challenges and cyber threats (Netinant et al., 2023). Together, these measures guarantee that crime mapping technology remains reliable, secure, and future-ready, thereby optimizing patrol efficiency, strengthening proactive policing, and reinforcing community safety.

The Technology Acceptance Model Davis 1989 (Davis & Granić, 2026) explains that the sustained adoption and effective use of technology depend on two key perceptions: perceived usefulness (the belief that the technology improves performance) and perceived ease of use (the belief that the technology is user-friendly and manageable). In the context of crime mapping technology, continuous funding, regular maintenance,

and technological upgrades directly influence these perceptions (Laufs & Borrion, 2021), thereby determining whether law enforcement personnel continue to accept and rely on the system over time.

Applying TAM to this theme shows that continuous funding ensures the availability of resources to keep crime mapping systems functional, secure, and reliable, reinforcing their perceived usefulness in patrol operations (Booker, 2022). When officers consistently experience accurate and timely outputs from the system, they are more likely to view it as essential for intelligence-led policing, resource optimization, and community safety (Leone, 2024). Regular maintenance, such as software updates, database management, and hardware checks, preserves system reliability and usability, reducing technical issues that could otherwise undermine ease of use. Moreover, technological upgrades including the integration of advanced GIS tools, real-time reporting mechanisms, and improved interfaces enhance system capabilities and user experience, making the technology more efficient and adaptable to evolving policing needs (Mwiinga, 2023). These upgrades not only improve operational performance but also sustain user confidence in the system's relevance.

The theme implies that sustaining the long-term benefits of crime mapping technology in patrol operations requires embedding financial stability, system reliability, and technological adaptability into organizational practice. Continuous funding ensures that resources are consistently available to support system upkeep and innovation, while routine maintenance including software updates, database management, and hardware checks preserves accuracy and operational trust. Technological upgrades further guarantee that crime mapping tools remain responsive to evolving policing needs, cyber

threats, and advances in geospatial analysis (Stolzenberg, & D'Alessio, 2025). For this study, this means that effective measures must prioritize institutionalizing crime mapping within strategic plans, securing diversified funding sources, and establishing policies for regular evaluation and modernization. These measures collectively safeguard the sustainability of crime mapping technology, enabling law enforcement agencies to maximize patrol efficiency, reinforce proactive policing, and maintain community safety over time (Duraklar, 2025).

Foster Inter-Agency Partnerships and Community Collaboration

The theme underscores the importance of structured cooperation among law enforcement agencies, government institutions, and local communities in sustaining the long-term benefits of crime mapping technology in patrol operations. Effective crime prevention and patrol optimization cannot be achieved by the police alone; rather, it requires a coordinated approach where multiple stakeholders contribute resources, expertise, and local knowledge (Awoyemi, 2025). Inter-agency partnerships facilitate the integration of intelligence, technical support, and policy alignment across different government units, ensuring that crime mapping systems are consistently updated, strategically applied, and institutionally supported (Longinus, 2024). At the same time, collaboration with communities enhances transparency, builds trust, and encourages citizen participation in reporting and validating crime data, thereby improving the accuracy and relevance of crime maps (Ahmad, 2025). This cooperative framework transforms crime mapping into a shared responsibility, where agencies and communities collectively strengthen proactive policing, reinforce accountability, and promote safer neighborhoods (Springs, 2024).

The narratives of the participants collectively highlight that the sustainability and effectiveness of crime mapping technology in patrol operations are strengthened through structured collaboration between law enforcement agencies, private organizations, and community members. Participant 1 emphasized the role of crime mapping technology in enhancing transparency and information sharing with communities. Officers can visually demonstrate crime patterns in real-time or across specific periods, which fosters public awareness and encourages vigilance by using tools such as heat maps and pin maps. This transparency builds trust between the police and citizens, empowering communities to take proactive roles in crime prevention initiatives. Such collaboration ensures that crime mapping is not only a technical tool but also a participatory mechanism that integrates community knowledge and engagement into patrol operations (Longinus, 20205).

On the other hand, Participant 3 underscored the importance of partnerships with other agencies and private organizations in sustaining crime mapping technology. These collaborations provide additional funding and resources necessary for system maintenance and improvement, reducing the financial burden on law enforcement institutions alone. Agencies can ensure that crime mapping systems remain functional and continuously updated, thereby supporting long-term operational reliability by pooling resources.

Also, Participant 4 expanded this perspective by noting that partnerships also provide access to advanced GIS tools, data analytics platforms, and technical expertise. Collaborations with external stakeholders not only secure shared funding but also introduce specialized knowledge and innovative technologies that enhance the analytical capacity of crime mapping systems. This integration of external expertise ensures that

law enforcement agencies remain technologically adaptive and capable of addressing evolving challenges in crime prevention (Awoyemi, et al., 2025).

Taken together, these narratives illustrate that fostering inter-agency partnerships and community collaboration is a multidimensional strategy. Community engagement enhances transparency, vigilance, and trust, while partnerships with agencies and private organizations secure funding, technical expertise, and advanced tools (Sapkota, 2024). This cooperative framework transforms crime mapping into a sustainable, future-ready system that is supported both institutionally and socially. Ultimately, collaboration ensures that crime mapping technology continues to optimize patrol operations, reinforce proactive policing, and strengthen community safety over the long term.

Thus, the statements of some of the participants said that:

“The technology also strengthens collaboration with community members through improved transparency and information sharing. Using crime maps, such as heat maps and pin maps, officers can show citizens where crimes are occurring in real-time or over specific periods. This fosters public awareness, encourages community vigilance, and promotes proactive participation in crime prevention initiatives.” P1

“Partnerships with other agencies and private organizations can support the long-term sustainability of crime mapping technology by providing additional funding and resources to maintain and improve the system.” P3

“Partnerships with other agencies and private organizations support the long-term sustainability of crime mapping technology. Such collaborations provide access to advanced GIS tools, data analytics platforms, and technical expertise, as well as opportunities for shared funding and resources.” P4

The theme emphasizes that sustaining the long-term benefits of crime mapping technology in patrol operations requires structured cooperation among law enforcement agencies, government institutions, private organizations, and local communities. Inter-agency partnerships provide shared funding, access to advanced GIS tools, data analytics

platforms, and technical expertise, ensuring that crime mapping systems remain technologically adaptive and resilient (Mehta, 2025). At the same time, collaboration with communities enhances transparency and trust by allowing officers to share crime maps, such as heat maps and pin maps, which foster public awareness, encourage vigilance, and promote proactive participation in crime prevention initiatives (Modise, 2025). Together, these partnerships and collaborations create a holistic sustainability framework where agencies contribute institutional support and resources while communities provide local knowledge and engagement, ensuring that crime mapping technology remains reliable, socially accepted, and operationally effective in optimizing patrol operations and reinforcing proactive policing.

This is supported with the Routine Activity Theory (RAT), as it situates crime mapping technology within the broader concept of capable guardianship (Benson, 2020). RAT explains that crime occurs when a motivated offender, a suitable target, and the absence of capable guardians converge, and fostering partnerships directly strengthens guardianship by mobilizing multiple stakeholders. Inter-agency cooperation allows law enforcement, government institutions, and private organizations to pool resources, share intelligence, and integrate advanced GIS tools (Leone, 2024), while community collaboration enhances vigilance and trust by empowering citizens through transparent crime maps and participatory reporting (Ahmad & Ramayah, 2022). Together, these partnerships expand the network of capable guardians, reduce opportunities for crime, and ensure that crime mapping technology remains socially accepted, institutionally supported, and operationally effective. Thus, RAT provides a strong theoretical view for

understanding how collaboration sustains the long-term benefits of crime mapping technology in patrol operations (Modise, 2025).

The theme implies that sustaining the long-term benefits of crime mapping technology in patrol operations requires embedding cooperation and shared responsibility into policing strategies. Inter-agency partnerships ensure that law enforcement can access advanced GIS tools, technical expertise, and shared funding from government institutions and private organizations, reducing reliance on limited internal resources and strengthening system sustainability (Nguuri, 2024). At the same time, collaboration with communities enhances transparency and trust by allowing citizens to engage with crime maps, fostering vigilance, and encouraging proactive participation in crime prevention initiatives. Together, these measures create a holistic framework where institutional support and community involvement reinforce one another, ensuring that crime mapping technology remains reliable, socially accepted, and operationally effective. For this study, this means that sustaining crime mapping requires not only technical and financial measures but also structured partnerships and active community collaboration, which collectively guarantee the system's long-term relevance and impact on patrol operations.

CONCLUSIONS/ RECOMMENDATIONS

Conclusion

Based on the findings of the study, the researchers concluded the following:

1. Law enforcement agencies have demonstrated that the effective integration of crime mapping technology into patrol operations relies on practices that ensure strategic resource deployment, enhance situational awareness, and strengthen community trust. Its success is further supported by continuous training, accurate and timely data, supportive policies, and interoperable systems that allow for coordinated decision-making.
2. Crime mapping technology enhances patrol operations by improving resource deployment, situational awareness, and community trust. Its effectiveness is sustained through continuous training, accurate data, supportive policies, reliable funding, system maintenance, technological upgrades, and strong collaboration among agencies and communities, ensuring it remains a proactive tool for safer policing.
3. Optimizing crime mapping technology in patrol operations requires equipping officers with strong technical skills and ensuring reliable, real-time data supported by clear policies. Sustaining its impact depends on continuous training, accurate updates, and institutional support, enabling law enforcement to maximize efficiency and strengthen proactive policing.
4. Sustaining the long-term benefits of crime mapping technology in patrol operations requires consistent funding, regular maintenance, and technological upgrades, alongside strong inter-agency partnerships and community collaboration. These measures ensure the technology remains reliable, adaptive, and effective in supporting proactive policing and safer communities.

Recommendation

Based on the findings and conclusions of the study, the following recommendations are proposed:

1. The **Philippine National Police** (PNP), may establish standardized protocols for integrating crime mapping into patrol planning, supported by continuous officer training and interoperable systems that enable coordinated decision-making across units and agencies.
2. The **Department of the Interior and Local Government** (DILG) may allocate dedicated funding for crime mapping systems, ensuring regular maintenance and technological upgrades, while the PNP strengthens collaboration with local government units and communities to sustain trust and proactive policing.
3. The **Philippine National Police** may partner with academic institutions such as the to provide specialized training in geospatial analysis and data interpretation, while the Department of Information and Communications Technology (DICT) ensures real-time data integration and policy support for system reliability.
4. The **Philippine National Police**, in coordination with the DICT and DILG, may institutionalize long-term funding mechanisms and maintenance schedules for crime mapping systems, while fostering inter-agency partnerships and community collaboration through shared platforms and public-access crime maps to ensure transparency and adaptability.
5. Future researchers are encouraged to investigate the effectiveness of crime mapping across diverse patrol contexts, its influence on community trust and engagement, the integration of emerging technologies such as AI-driven analytics and mobile reporting,

and the ethical implications of data privacy, while also conducting comparative studies across agencies or countries to identify transferable best practices.

DECLARATION OF THE USE OF AI TOOLS

I acknowledge the use of ChatGPT and [<https://chatgpt.com/>] to help create the interview guide of the study.

I used the output as a questionnaire during the interview

I acknowledge the use of ChatPDF and [<https://www.chatpdf.com/>] to help create the theoretical framework of the study.

I used the output as the guide to make the theoretical framework.

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Appendix A

INTERVIEW GUIDE

Introduction

- Introduce self
- Discuss the purpose of the study
- Provides informed consent
- Provides structure of the interview (audio/screen recording and note taking)
- Ask if they have any questions
- Tests virtual and audio recording equipment
- Makes participant feel comfortable Core Questions:

Discover

1. What crime mapping technologies are currently used in your patrol operations?
2. How were you trained to use crime mapping tools, and how effective was the training? What challenges did you encounter when integrating crime mapping technology into patrol operations, and how did you overcome them?
3. What protocols or policies guide the use of crime mapping technology in your department?
4. How has crime mapping technology improved your ability to monitor and respond to crime hotspots?

Dream

1. How has crime mapping technology improved your ability to respond to incidents in real time?

2. In what ways has crime mapping technology helped you collaborate with community members?
3. How do you use crime mapping data to enhance public safety and awareness?
4. Can you share an example of a situation where crime mapping technology played a crucial role in crime prevention?
5. How does crime mapping influence your decision-making when planning patrol routes and community engagement activities?

Design

1. What improvements would you suggest making crime mapping technology more effective in patrol operations?
2. How do you ensure that crime mapping data remains accurate and up to date in your department?
3. What additional training or resources do you need to maximize the benefits of crime mapping technology?
4. How well does crime mapping technology integrate with other tools or systems you use in law enforcement?
5. What policy or budgetary changes do you think are necessary to improve the use of crime mapping in your patrol operations?

Destiny

1. What steps does your department take to maintain and upgrade crime mapping technology?
2. How can law enforcement agencies secure continuous funding for crime mapping technology?

3. What concerns do you have regarding data privacy and security when using crime mapping tools?
4. How do partnerships with other agencies or private organizations support the long-term use of crime mapping technology?
5. What methods should be used to assess and improve the effectiveness of crime mapping technology over time?

Closing Question

- Is there anything else you would like to share about your experiences with crime mapping technology that we have not covered?

Appendix B

TRANSMITTAL LETTER



MISAMIS UNIVERSITY

Ozamiz City, Philippines 7200
Tel. No. +63 88 521 0367 / Telefax No. +63 88 521 2917
E-mail Address: unm@unm.edu.ph



CERTIFIED ISO 21001: 2018 Educational Organizations Management System by DNV
ACCREDITED Philippine Association of Colleges and Universities Commission on Accreditation (PACUCOA)

COLLEGE OF CRIMINOLOGY

September 9, 2025

PCOL ROMMEL B MAGLEO

Provincial Director
Police Provincial Office
Oroquieta City, Misamis Occidental

Dear **PCOL Magleo**,

Greetings of Peace!

As a requirement for the course Criminological Research 1 & 2, we, the Bachelor of Science in Criminology students of Misamis University, Ozamiz City, have been working on our thesis study entitled, *"Positive Impact of Crime Mapping Technology in Patrol Efficiency and Crime Hotspot Identification: An Appreciative Inquiry."*

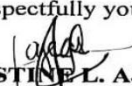
In this regard, we humbly request your good office to allow us to conduct face-to-interview with the Police Station under in your command. Be assured that informed consent will be secured from the participants before the actual interview and the data to be gathered will be used solely for research purposes.

Attached to this request are the background/methodology section of our study.

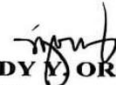
Your approval to this request will contribute to the success of our educational endeavors. For inquiry you may contact at this number +63 908-558-0848.

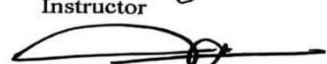
God bless and more power.

Respectfully yours,


JASTINE L. AJEAS
Team Leader

Noted:


MARKDY D. ORONG, DIT
Instructor


JOSE F. CUEVAS JR., PhD
College Dean

Approved by:


PCOL ROMMEL B MAGLEO
Provincial Director

Appendix C

Interview Transcriptions

Police 1

The Philippine National Police (PNP) currently use the E-Blotter System – Crime Reporting and Analysis System (CIRAS) as its primary crime mapping technology. This system allows the police to record, analyze, and visualize crime data efficiently, supporting operational planning and situational awareness. Police personnel are trained to use these tools through a combination of formal seminars, workshops, and hands-on sessions, which provide both theoretical knowledge and practical experience. However, some challenges have been encountered during implementation, such as limited technical expertise among officers and insufficient equipment and technical infrastructure. These challenges have been addressed through resource-sharing initiatives, peer mentoring, and continuous training programs to enhance technical capabilities. The use of crime mapping technology in the PNP is guided by protocols, policies, and operational guidelines designed to ensure proper, ethical, and effective implementation. These frameworks establish standards for data handling, security, and operational use, even though full internal documents are not always publicly accessible. Crime mapping technology has significantly improved the PNP's ability to monitor and respond to crime hotspots. By visualizing crime patterns on maps, officers can easily identify high-risk areas and emerging trends, which is far more effective than analyzing raw data in spreadsheets or textual reports. In terms of real-time response, these tools enable immediate visualization of incident locations. This allows officers to quickly identify crime hotspots, assess situations on the ground, and deploy patrols or response units faster and with greater accuracy. Technology also strengthens collaboration with community members through improved transparency and information sharing. Using crime maps, such as heat maps and pin maps, officers can show citizens where crimes are occurring in real-time or over specific periods. This fosters public awareness, encourages community vigilance, and promotes proactive participation in crime prevention initiatives. Crime mapping data plays a critical role in enhancing public safety and awareness. The PNP uses it to identify crime hotspots, detect trends, and predict potential incidents based on time, location, or crime type. It also supports strategic deployment of resources by optimizing patrol routes and allocating personnel and equipment efficiently. Furthermore, crime mapping enables intelligence-led policing, reducing guesswork and guiding focused operations like Oplan Sita, checkpoints, and anti-drug or anti-gang interventions. Sharing crime data with the public build's transparency, trust, and community engagement, including neighborhood watch programs and social media updates. A practical example of its impact is seen when mapping revealed a rising trend of robberies in a particular area. In response, the Chief of Police deployed additional foot and mobile patrols during peak crime hours, which effectively reduced incidents in that hotspot. Crime mapping also informs decision-making for patrol routes and community engagement. By visually identifying high-crime areas, officers can prioritize high-risk zones, allocate resources efficiently, and adjust patrol timing based on when crimes are most likely to occur, such as during nights or weekends. To further improve effectiveness, it is recommended to integrate real-time data

reporting. Currently, crime data is often delayed or manually updated. Integrating GPS-enabled mobile apps, body cameras, and live feeds from CCTV or community reporting apps can allow the crime map to update automatically during patrols, enhancing operational responsiveness. Ensuring data accuracy and timeliness requires daily updates from precincts, immediate encoding of validated incidents into CIRAS, and proper training for all officers on incident documentation. To maximize the benefits of crime mapping technology, officers also need specialized training in GIS applications, spatial analysis, crime data interpretation, and software-specific platforms such as ArcGIS, QGIS, and CompStat, coupled with hands-on experience using real data. Crime mapping integrates well with other tools and systems in law enforcement. GIS platforms, such as ArcGIS or QGIS, are often linked to the PNP Crime Incident Recording System (CIRS) or the Blotter System, allowing officers to overlay crime hotspots with patrol routes and optimize deployment. Operational planning tools also leverage this data for real-time adjustments, particularly during special events, holidays, or civil unrest. To enhance the use of crime mapping, policy and budgetary improvements are needed. Policies should mandate timely submission of crime data, establish accountability for late or inaccurate reporting, and standardize mapping protocols and formats across precincts. Inter-agency data sharing with barangays.

Police 2

The crime mapping technologies currently used in patrol operations include Google Earth and the Zello Workplace App. These tools enable officers to visualize crime data, coordinate communication, and plan patrols more effectively. Training for these tools was conducted through face-to-face seminars as well as digital platforms like Zoom. Initially, officers faced challenges in familiarizing themselves with the technologies and learning to operate them effectively. However, with consistent use and regular exposure, integration into daily operations has become much smoother and more efficient. The PNP follows the PNP PATROL PLAN 2030, which outlines 12 key features related to information and communication technology. Under this plan, the PNP develops and implements the Integrated Crime Management Information System (CMIS). The CMIS is designed to function as part of the broader criminal justice information system architecture, operating at the police station level with transaction processing modules that feed into a centralized crime database. This system enables crime tracking, monitoring, and analysis, supporting crime mapping at both local and higher geographical levels. Crime mapping has improved the ability to monitor and respond to crime hotspots. By identifying high-risk areas, officers at Tangub CPS were able to be more proactive in crime reduction, as the system highlighted locations and structural characteristics that facilitated criminal activity. Similarly, technology has enhanced real-time response, allowing the PNP to address problems in hotspot areas promptly, preventing crimes before they occur. Crime mapping technology has also strengthened collaboration with community members. By presenting clear visual representations of crime data, it promotes transparency and allows residents easy access to information. This empowers the community to act as proactive partners in improving public safety. Through these tools, communities can remain informed and make smarter decisions to enhance their

safety. A practical example of crime mapping's impact is the integration of the PNP e-Blotter system, also known as the Crime Information Reporting and Analysis System (CIRS). This digital database stores police reports and enables analysis that guides proactive policing strategies. Crime mapping informs decision-making for patrol routes and community engagement. High-risk or crime-prone locations are identified, allowing for optimized patrol routes and targeted community engagement activities. Resources are allocated effectively based on the insights provided by crime maps, ensuring that police presence and initiatives address local issues strategically. To further improve effectiveness, maintaining and upgrading crime mapping technology requires continuous effort. Accuracy and timeliness of data are ensured through constant system improvements and updates. While decisions regarding additional training or resources are handled by analysts and higher offices, ongoing capacity-building efforts remain crucial. Crime mapping technology integrates well with other law enforcement tools and systems. The system has contributed to the success of various PNP operations, demonstrating its practical value in planning and coordination. Policy and budgetary decisions regarding crime mapping are managed at the national level, as local units do not have direct authority over these matters. The PNP maintains and upgrades crime mapping technology through continuous training and seminars for ICT personnel and patrollers. Ensuring sustainable funding is also the responsibility of the national office. Data privacy and security remain important concerns when using crime mapping tools. The PNP addresses these issues carefully to ensure the technology is used ethically and responsibly. Partnerships with other agencies and community organizations further enhance the long-term use of crime mapping. By sharing crime data, police can direct their community efforts to high-risk areas, organize focused neighborhood watch programs, and engage residents in crime prevention. Finally, assessing and improving the effectiveness of crime mapping technology involves gathering feedback from officers and patrol commanders to understand usability and operational impact. Regular audits of the system help ensure that both software and hardware are up-to-date and function efficiently, preventing technical issues that could hinder performance.

Police 3

The crime mapping technologies currently used in patrol operations include CIRAS and the E-Blotter System. These tools allow officers to track, analyze, and visualize crime data, improving situational awareness and operational efficiency. Training for these tools was conducted through face-to-face seminars, providing officers with hands-on experience and guidance. However, challenges such as lack of equipment, limited technical infrastructure, and insufficient technical expertise were initially encountered. These were gradually addressed through continuous exposure, practice, and support, allowing officers to integrate the technology into daily patrol operations more effectively. The use of crime mapping technology is guided by policies such as the Patrol Plan 10-30 and the Police Operations Procedures (POP). These frameworks ensure that the technology is used systematically, ethically, and in alignment with broader operational strategies. Crime mapping has significantly improved the ability to monitor and respond to crime hotspots. By identifying high-risk areas, officers can deploy mobile and beat

patrols more efficiently, resulting in faster and more effective responses. Technology also enhances real-time response, enabling adjustments to patrol beats and sectors, which allows for quicker intervention during incidents. Technology supports community collaboration by promoting transparency and building trust. By sharing information about crime-prone areas, the PNP encourages residents to participate in reporting crimes and staying vigilant, fostering stronger community-police partnerships. Crime mapping data is used to enhance public safety and awareness by analyzing the timing and locations of reported crimes and adjusting patrol operations accordingly. A practical example of its impact is the deployment of patrollers to areas where crimes have occurred, which has helped prevent further incidents. In planning patrol routes and community engagement activities, crime mapping serves as a strategic guide. High-crime areas are prioritized for patrol duties, while community relations activities are targeted to address local concerns based on crime reports. To make crime mapping technology more effective, continuous training for personnel is recommended. Ensuring accurate and up-to-date data requires timely uploading of all reported crimes into the system. Additional improvements include a robust, secure, and unhackable database to maintain system reliability. Crime mapping technology integrates well with other tools, particularly through GIS platforms like QGIS or ArcGIS, which are linked to the PNP Crime Incident Recording System (CIRS) or Blotter System. This integration allows for geographic visualization of crime data, making it easier to identify hotspots and overlay them with patrol routes for better deployment planning. Policy and budgetary improvements are also necessary. Increasing the ICT budget would enable the PNP to maintain a stronger database and support system enhancements. Continuous maintenance is achieved through ongoing training and seminars, ensuring personnel remain proficient in using the technology. Securing long-term funding involves demonstrating the system's effectiveness to decision-makers, such as politicians in Congress, allowing the PNP to request an appropriate budget. Data privacy and security are critical considerations; all databases are used solely for official duties and must be protected against unauthorized access or hacking. Partnerships with other agencies and private organizations can support the long-term sustainability of crime mapping technology by providing additional funding and resources to maintain and improve the system. To assess and improve effectiveness over time, research and feedback from officers are essential. Regular evaluation ensures that the system remains operationally relevant and technologically up to date, allowing the PNP to continue enhancing crime prevention and public safety.

Police 4

The crime mapping technologies currently used in patrol operations include GIS (Geographic Information System) and web-based mapping tools. These technologies help officers visualize crime patterns, analyze hotspots, and predict potential future incidents, improving overall situational awareness. Training for crime mapping tools typically involves workshops, face-to-face or online courses, and on-the-job mentoring. Hands-on experience is essential for effectiveness. Challenges such as data integration issues, software glitches, and resistance to change are common but can be overcome through ongoing support, system customization, and continuous practice. Protocols and policies

guiding the use of crime mapping technology focus on data security, privacy, access controls, and standardized analytical methods. Policies ensure ethical use, accuracy, and legal compliance, emphasizing that the system is used solely for organizational purposes rather than personal advantage. Crime mapping technology has enhanced the ability to monitor and respond to crime hotspots. Real-time data updates allow for faster identification of high-risk areas, enabling predictive policing strategies and efficient resource allocation. It also improves real-time incident response, providing immediate access to location data, historical records, and suspect information, which reduces delays and enhances operational decision-making. The technology has strengthened community collaboration by fostering transparency and trust. Through awareness lectures, symposiums, and community meetings, residents are educated about crime trends and encouraged to participate in reporting suspicious activities and crime prevention programs. Crime maps are used to enhance public safety and awareness, providing safety tips, neighborhood watch information, and practical guidance for residents. A practical example of crime mapping's effectiveness occurred when analyzing theft and robbery patterns revealed a cluster of break-ins near a specific apartment complex. By increasing patrols and conducting community outreach, law enforcement was able to apprehend suspects and reduce crime in the area. Crime mapping guides decision-making for patrol routes and community engagement. High-risk areas are prioritized, resources are allocated efficiently, and community engagement initiatives are targeted to address specific local issues. To improve the effectiveness of crime mapping technology, suggested enhancements include better mobile integration, reliable internet connectivity, user-friendly interfaces, real-time data updates, and advanced analytics capabilities. Ensuring accurate and up-to-date data involves regular audits, automated data feeds, and standardized procedures, supported by continuous training for personnel. Additional training in data analysis, predictive modeling, and spatial statistics is needed, along with resources such as software upgrades, data subscriptions, and dedicated analysts. Crime mapping integrates effectively with other law enforcement systems, including Computer-Aided Dispatch (CAD) systems, records management systems, and intelligence databases, facilitating information sharing and operational coordination. Policy and budgetary changes that could enhance crime mapping include mandating data-driven policing strategies, promoting inter-agency data sharing, and allocating sustainable funding for technology, training, and personnel. The PNP maintains and upgrades the technology through regular software updates, system maintenance, and evaluations of emerging tools, often in collaboration with IT vendors and industry experts. Securing continuous funding requires demonstrating the system's effectiveness, applying for grants, and building partnerships with both national agencies and local government units (LGUs). Data privacy and security are critical; the technology must be used ethically, responsibly, and protected from unauthorized access. Partnerships with other agencies and private organizations support the long-term sustainability of crime mapping technology. Such collaborations provide access to advanced GIS tools, data analytics platforms, and technical expertise, as well as opportunities for shared funding and resources. Finally, the effectiveness of crime mapping technology is assessed through training, regular system updates, and performance monitoring, ensuring it remains operationally relevant and technologically current.

Police 5

The primary crime mapping technology currently used in patrol operations is Google Maps, which assists officers in visualizing crime patterns and analyzing areas prone to criminal activity. Training for crime mapping tools typically involves workshops, face-to-face seminars, and online sessions. While these training courses are effective, challenges such as signal problems and limited access to technology were encountered. Overcoming these obstacles requires ongoing support and practical experience. Protocols guiding the use of crime mapping include Oplan Lambat Sibat and the 5MRP PNP, which establish the framework for strategic planning and operational procedures in crime prevention. Crime mapping technology has enhanced the ability to monitor and respond to crime hotspots. It allows officers to consolidate initial data, identify common crimes in specific areas, determine peak times for incidents, and recognize prevalent types of criminal activity. This information enables more informed deployment of resources and proactive measures. In terms of real-time response, crime mapping allows officers to estimate response times and deploy patrollers efficiently. For instance, it helps determine whether a unit can reach a scene within five minutes, improving operational efficiency and timely intervention. Crime mapping also fosters community collaboration. Through tools like the Barangay Peacekeeping Action Team (BPAT), officers can strategically position community partners to raise awareness and support local crime prevention efforts. Technology enables authorities to advise residents about crime patterns—for example, warning that thefts typically occur at specific hours in certain areas. A practical example of its role in crime prevention is identifying prevalent criminal activities. While mapping cannot eliminate crimes entirely, it enables scheduling of patrols and informing residents, effectively mitigating risks. Crime mapping also informs decision-making for patrol routes and community engagement. Having patrollers, BPAT members, and mapping tools readily available streamlines planning and ensures that resources are allocated efficiently to high-risk areas. To further enhance effectiveness, officers suggest improvements in technology infrastructure, including high-spec computers and reliable internet connectivity, along with the assignment of dedicated cyber patrollers at each station. Ensuring data accuracy relies on consolidating gathered data and received complaints in a timely manner. The integration of crime mapping with other law enforcement tools allows for better allocation of resources and improved operational efficiency. Policy and budgetary changes are necessary to support this, such as providing sufficient funding for high-end computers, continuous air conditioning, and the training of multiple personnel per station. Each station should have three trained staff members and at least one representative reporting to the provincial office. Maintenance of crime mapping technology includes periodic updates, such as Google Maps updates, and continuous training for personnel. Funding can be secured through the Local Government Unit (LGU) and support from the National Headquarters, with the primary source coming from the Maintenance and Other Operating Expenses (MOOE). Constant collaboration with the LGU is essential for sustainable operations. Regarding data privacy and security, there were no major concerns noted, as the system is used exclusively for official police duties. Partnerships with external organizations are limited; support primarily comes from the LGU rather than private entities. Finally, to assess and improve the effectiveness of crime mapping over time, it is recommended to have dedicated personnel—cyber

patrollers—monitoring the system. Not all officers should focus solely on field patrols; some should specialize in analyzing crime data to ensure the technology remains a reliable and actionable tool for proactive policing.

Police 6

The crime mapping technologies currently used in patrol operations include Actual Map Tarpaulin and Google Maps, which help officers visualize crime patterns and plan deployments effectively. Training on these tools is conducted through personal research, seminars, face-to-face sessions, and online platforms. While training is generally effective, challenges such as signal problems and limited access to resources may arise. Overcoming these challenges requires continuous learning, practical experience, and ongoing technical support. The use of crime mapping technology is guided by protocols, policies, and operational guidelines to ensure proper, ethical, and effective implementation. These frameworks help maintain standards in data handling, analysis, and deployment, even though internal documents may not always be publicly available in full. Crime mapping has significantly improved the ability to monitor and respond to crime hotspots. It allows for faster and more accurate assessment of high-risk areas, enabling personnel to plan patrols and allocate resources efficiently. In terms of real-time response, crime mapping assists in identifying the exact location of incidents, allowing officers to respond promptly and conduct proper investigations. The technology also enhances community collaboration, improving police-community relations by helping residents understand crime patterns and engage proactively in local safety initiatives. Crime mapping data is used to increase public safety awareness, such as identifying areas of concern in the community and informing residents about potential risks. For instance, crime patterns like theft occurring during midnight hours can be monitored and preventive measures implemented. Crime mapping plays a critical role in decision-making for patrol routes and community engagement activities, allowing officers to adjust deployments to maximize effectiveness. Suggested improvements include better mobile integration, reliable internet connectivity, user-friendly interfaces, real-time data updates, and advanced analytics capabilities. To ensure data remains accurate and up-to-date, regular audits and feedback mechanisms are employed, alongside continuous training and standardized procedures. Additionally, high-spec computers capable of supporting advanced applications are necessary to maximize the benefits of crime mapping technology. The integration of crime mapping with other tools enhances efficiency and information sharing across law enforcement operations. Policy and budgetary improvements, such as increasing the ICT budget, are recommended to strengthen the system and maintain a robust database. Maintenance and upgrading of crime mapping technology involves IT experts performing software updates, system maintenance, and evaluating new technologies, often in collaboration with IT vendors and through participation in industry conferences. Continuous funding can be secured by demonstrating the effectiveness of crime mapping systems, ensuring that investment is both efficient and sustainable. Data privacy and security concerns were noted to be minimal, as the systems are used strictly for official purposes. Long-term success is supported through continuous communication and coordination with Local Government Units (LGUs) and barangays, ensuring community involvement and operational

sustainability. Finally, to assess and improve effectiveness over time, high-resolution tools such as GIS should be utilized, with a focus on real-time data collection and collaboration with community partners. This approach ensures more accurate crime mapping, proactive response, and enhanced engagement with the community.

Appendix D

THESIS/RESEARCH DATA GATHERING APPROVAL FORM



Misamis University
Ozamiz City



MISAMIS UNIVERSITY RESEARCH CENTER
CERTIFIED: ISO 21001: 2018 Educational Organizations Management System by DNV
ACCREDITED: Philippine Association of Colleges and Universities Commission on Accreditation (PACUCOA)

MU-RC-042/13 November 2024

Thesis/Research Data Gathering Approval Form

Date: _____

Name of Authors: Jea Mae T. Alat, Justine J. Ajeas, Norgie Kyle C. Bayon-on, John Luther C. Dila Vega
College/Department: College of Criminology
Research Title: POSITIVE IMPACT OF CRIME MAPPING TECHNOLOGY IN PATROL EFFICIENCY AND CRIME HOTSPOT IDENTIFICATION: AN APPRECIATIVE INQUIRY.

Data Gathering Procedure:

a. Type of Research: (Kindly check)

☐ Quantitative	☒ Qualitative	☐ Experimental
☐ Approved Research Title & Problem/Objectives	☐ Approved Data Gathering Procedure	☐ Approved Data Gathering Instrument/Data Sheets

b. Respondents/Participants/Subject/Samples to be Collected: _____

c. Procedure:

☐ Survey	☒ Interview	☐ Experimentation	☐ Laboratory Testing
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d. Place of Implementation/Study Area: _____

If to be conducted outside the school campus, indicate the nature of transportation to be used:

☐ Own private vehicle	☒ public utility vehicle	☐ rental	☐ Others, please indicate _____
--	--	---------------------------------	--

e. Date/s of Implementation/Sampling: _____

Attachments:

☒	Approved Letter of Consent from the designated authority in the area/place where the study is to be conducted
☒	Signed Parents' Consent

The thesis proposal mentioned above is hereby recommended for the commencement of data gathering implementation.

Recommended by:

EDUARDO R. CANUEL
Thesis/Research Adviser

MARKDY Y. DRONG, DIT
Thesis/Research Instructor

Approved by: JOSE F. CHEVAS JR., PhD
College Dean

CONTROLLED DOCUMENT

INFORMED CONSENT

Misamis University

B. T. Tellez St., Ozamiz City, 7200 Philippines

MISAMIS UNIVERSITY RESEARCH ETHICS BOARD

Phone: +6383 521 0367 | Fax: +6383 521 7347

Email: researchethics@muis.edu.ph

MSIR-ETH-01010 March 2022

INFORMED CONSENT FORM (PORMA SA NASASUTAN NG PANGAGUTONG)

Name of the Researcher/Investigator
(Nagpatutay): Ahat, Jae Mae T., Ajeas, Jastine L., Hayon-on, Norpie Khlyve, Dela Vega, John Luther C.
Course: Bachelor of Science in Criminology
College: College of Criminology
Email / Contact Number: 090855380348
Thesis Title: “_____”

PART I. INFORMATION SHEET

Introduction
(Paliwanag)

Good day! am I Ahat, Jae Mae T., Ajeas, Jastine L., Hayon-on, Norpie Khlyve, Dela Vega, John Luther C., the principal researcher/investigator of the study entitled “Positive Impact of Crime Mapping Technology in Patrol Efficiency and Crime Hotspot Identification.” An Appreciative Inquiry We are the student under the program of the Criminology at Misamis University in Ozamiz City. We are to conduct the research with Patrol Officer as participant. In this vein, I am respectfully seeking your voluntary participation, being qualified to give your informed consent to take part in this study. Before you decide whether to participate or not in this study, please read the succeeding information about the study and feel free to ask questions anytime should there be anything you do not understand or want to clarify. If you agree to answer the interview, you will be asked to affix your name and signature on this form for which you will be given a copy.

(*Matatagpuan adlaw! ako si Ahat, Jae Mae T., Ajeas, Jastine L., Hayon-on, Norpie Khlyve, Dela Vega, John Luther C., ang nagpapalagay sa pagtutaw kahabaan sa “Positibong Impakto sa Efektibidad ng Patrol sa Paggamit ng Teknolohiya sa Crime Mapping” sa Kolumpiyas sa Ozamiz ng Pagtitatag ng mga Lungsod ng Dagupan ng Kriminolohiya sa Misamis University.” Kami nagpipili kaniinong ipali-partisipant nga magay matutaw sa kriminologiyang nagpapalagay ng informasyon ninung gilingimang pagtutaw. Kami matatagpuanang nagpapalagay sa inyong buluntariang mga pag-apig natin nga pagtutaw. Kikiniganghalan nga ikaw nua sa saktong adlaw ng may kanyakahalang nua mohatag sa pagtutagot aron matatagpuan sa Appreciative Inquiry ng Crime Mapping sa dalip pa ka mahulag sa pag-apig natin nga interview, bago ka magdeside kung magpapalagay sa ubos ng gawainam ka nga magkapagpangalan ka patibag sa pagbabasa sa mga informasyon sa ubos ng gawainam ka nga magkapagpangalan ka adawag nua natin masabutan o gusto ninyong ikilala. Kung matutagot ka sa pagpapalagim nga pagtutaw, pagpapahalaga ka natin nga porma ng tagasaam isab ka ug imong katuganginong kopya.*)

Purpose
(Katuwagan)

The purpose of this study is to explore and highlight the positive contributions of crime mapping technologies to the efficiency of police patrol operations and the accurate identification of crime hotspots, using the Appreciative Inquiry (AI) framework. It aims to uncover best practices, success cases, and transformative experiences of law enforcement personnel who utilize these technologies in patrol operations. The study seeks to shed light on the lens from problem-centric evaluations to a strengths-based understanding of how technology enhances public safety, resource deployment, and situational awareness.

(*Ang katutayan natin nga pagtutaw nua ang Ang tumung ninung pagtutaw nua ang pagtutaw ng pagpapagatagan sa mga positibong kontribusyon sa teknolohiya sa crime mapping alang sa kolumpiyas sa Appreciative Inquiry ng Crime Mapping sa dalip pa ka mahulag sa pag-apig natin nga interview, bago ka magdeside kung magpapalagay sa ubos ng gawainam ka nga magkapagpangalan ka patibag sa pagbabasa sa mga informasyon sa ubos ng gawainam ka nga magkapagpangalan ka adawag nua natin masabutan o gusto ninyong ikilala. Kung matutagot ka sa pagpapalagim nga pagtutaw, pagpapahalaga ka natin nga porma ng tagasaam isab ka ug imong katuganginong kopya.*)

 Misamis University H. T. Feliciano St., Ozam City, 7200 Philippines MISAMIS UNIVERSITY RESEARCH ETHICS BOARD Phone: +6385 521 0367 Fax: +6385 521 2917 Email: researchethics@misa.edu.ph	
ME-RE-EA-0003 March 2022	
Type of Research Intervention (Maging sa Interbinyon sa Pagtutayn)	nga problema ngadto sa usa ka pamangit nga nakasentro sa mga kusog, aron masabtan kung ginisa pagpapalagan sa teknolohiya ang kaluwagan sa publiko, pag-apod-apod sa mga kahanga-hanga, ug kahitabo sa kahumtugan. This study will be conducted through interviews. The gathering of data will be conducted in person. <i>(Kining pagtutayn pagpapalagan pinaagi sa interview. Personal ang pagkukita sa datos.)</i>
Selection of Participants (Pagpili sa mga Partisipante)	The selection of the participants is based on the following inclusion criteria: actively involved in using crime mapping technologies for patrol and hotspot identification, with direct involvement with crime mapping technology at least 1 year, willing to participate in the study. <i>(Ang mga partisipante nini nga pagtutayn mao ang individual nga mga nagpa-angkon sa mosunod: Aktibong nalambigit sa paggamit sa teknolohiya sa crime mapping alang sa patrol ug pag-iila sa mga crime hotspot, nga adunay direktang kasinatian sa paggamit sa crime mapping technology sadot sa labing menos nga ka tuig, ug andam nga magpili sa pagtutayn.)</i>
Voluntary Participation (Bolutaryo nga Partisipasyon)	Your participation will be voluntary and will not affect your situation or status in any way, including your relationship with the researcher. You are free to decide if you will take part or not. If you decide to participate, you are free not to answer any questions that you do not prefer to answer. <i>(Bolutaryo ang imong pag-partisipasyon ug kini dili makuapkepto sa imong sitwasyon o estado apil na imong relasyon sa nagtutayn. Gawasnon ka nga modesisyon kung kung magpili ka nini nga pagtutayn o dili. Kung mo-decision ka nga magpili, gawasnon ka nga dili मतुबा sa bisan usa nga pagtutayn nga nini gusto nga nini gusto nga tubagan.)</i>
Procedure (Pamaghi)	The participants will be given ample time when to undertake the interview. The interviews will be undertaken once or several times when necessary. The researcher will transcribe the interviews to be used for the analysis of the data. The information and data provided by you as a participant will be utilized for this study alone and will be treated with the utmost confidentiality. <i>(Ang mga partisipante pagpapalagan ug iguon panahon sa pag-apod sa interview. Ang interview pwedeng himoon kausa nga higayon o sa makalahang depende sa panginahanglan. Isulat sa nagtutayn ang interviews para sa pag-analisa sa datos. Ang mga impormasyon ug datos nga makaha gikan kaniyo tapo ka partisipante gamiton lamang nining research or batagan ug kung magpili, magpangit nga dili matubag.)</i>
Duration (Guhigayon)	The gathering of data through the interview will last for 45 minutes to 1 hour. <i>(Ang pagkukita sa datos pinaagi sa interview mokabat ngadto sa 45 minutos hangtod 1 ka oras.)</i>
Risks and Discomforts (Risiko ng Kahulas)	The respondents will be protected from physical, social, or economic risks. In case the items in the survey instrument are too personal and make you feel uncomfortable, you may decline to answer any or all questions and may terminate your involvement at any time you choose. <i>(Ang mga partisipante ginsuganog ginsuganog sa pisikal, sosyal o ekonomiko risko. Kung ang mga item sa survey instrument ay too personal and make you feel uncomfortable, you may decline to answer any or all questions and may terminate your involvement at any time you choose.)</i>

 IL T. Deliandau S. Ozmam City, 7280 Philippines MISAMIS UNIVERSITY RESEARCH ETHICS BOARD Phone: +038 521 0101 Fax: +038 521 2917 Email: misamiscollaborative@uism.edu.ph	
MU-REB-010103 March 2022	
Benefits <i>(Kanyohan)</i>	peningkatan aduany mga pangatuna nga personal na kanyo o kung dili ka kompartable, mamamahimong dili ka motubag o mababalas sa pagtugay sa bisan asa o sa tanang mga pangatuna ng moatras sa pag-paqil sa bisan usapang panahon nga imong gusto.) This study will enable you to shed light or provide understanding about Positive Impact of Crime Mapping Technology in Patrol Efficiency and Crime Hotspot Identification. An Appreciative Inquiry. Thus, your responses shall be highly valued being deemed important in the field of <u>Criminology</u>. <i>(Kasi nga pagtugay makapahigama ng panahon paghatag og katin-awon o pagpasabot kabuhat sa Positibong Epekto og Teknolohiya sa Crime Mapping sa Kalusapan ng Pagpapanguna ng Pagtatratrako at Pagkakaala sa mga Lugar na Matatag sa Krimen: Isang Appreciative Inquiry. Ang imong mga tugay hatagan og dakong bili nga gusap nga importante sa linya sa Criminology.)</i>
Reimbursement <i>(Tulup nga bayad)</i>	There will be no monetary expenses or costs on your part as a respondent, nor any monetary compensation for your participation in this study. However, personal protective equipment (PPE) like face masks, alcohol and face shields may be provided during the gathering of the research data. <i>(Wala kay magastos sa imong pag-paqil nini nga pagtugay ug dili wala ka bayaran ug kwapa sa imong pag-paqil nini nga pagtugay. Apang aduany nga personal protective equipment (PPE) sama sa face masks, alcohol ug face shields nga pwede nga mahatag sa panahon sa pagkaha sa mga datos)</i>
Confidentiality of Data <i>(Pagpangamit sa Datos)</i>	Only the researcher will have access to the information and responses of the participants. The personal identifying information of the participants will only be used for research analysis and will be treated with the utmost confidentiality. During the study, all data will be kept in a locked, secure filing cabinet, of which will be discarded 6 months after the publication of the results. <i>(Ang nagtugay lamang ang makakita sa mga impormasyon ug tugay sa respondents. Ang mga datos nga mahatag ipamahala ug hatagan og tamang pagpangamit aron dili ibayag. Sa panahon sa pagtugay, ipamahala sa usa ka sekundayong filing cabinet ang tanang datos nga pagpugay-on human sa 6 kabanlan gikan sa pag-publikar sa resulta.)</i>
Sharing of Findings <i>(Pagpangamit sa Nakapaglatag)</i>	The results of this study will be presented during the thesis/dissertation final defense of the researcher. Also, the research findings may be shared through publications and conferences with the assurance that the identities of the respondents will remain confidential. A printed copy of the completed study will be provided to the participants. <i>(Ang mga resulta nini nga mga pagtugay ipresenta sa panahon sa final defense sa thesis/ dissertation sa nagtugay. Ang mga nakapaglatag sa pagtugay possible nga ipamahit pinagaya ng mga publikasyon ug mga konferensya ng aduany kapangyarihan nga dili mahayag ang pagkakaala sa mga participant. Paghatagan og isa ka giinpiranta nga kopya sa kompletong mga pagtugay on mga participante.)</i>
Rights to Refuse or Withdraw <i>(Katangud sa Refuse o Withdraw)</i>	You are free to withdraw or terminate participation at any stage of the study, without the need to give any reason. You will not be penalized in case of termination of participation. <i>(Gawasan ka nga moatras o moudang sa pag-paqil sa bisan asa nga punto sa pagtugay on sa mga resulta nini nga pagtugay. Dili ka ipinapaghi sa bisan anong o pinapaghi sa bisan anong kasabutan sa pagpugay-on sa imong pagtugay.)</i>

Misamis University

11, T. Jeldano St., Ozamite City, 7200 Philippines

MISAMIS UNIVERSITY RESEARCH ETHICS BOARD

Phone: +6380 521 0367 | Fax: +6388 521 2917

Email: mucresearchethics@um.edu.ph

MUE-REB-0103 March 2022

o Pag-unlad)		
Who	to	Should there be any queries as a parent, you can contact the researcher through the following details:
Contact	ang	(Kung adunaay mga pangutana, mambuno nga mokontak pinaagi aning mga detalye:)
Kontakon)		
Name of the Researchers (Ngalan sa Nagtuon):		Ahat, Jen Mae T., Ajean, Justine L., Bayon, on, Norrie Kyle, Dela Vega, John Luther C.,
Cellphone Numbers: 09085580848		
e-mail ad: jastineajeas@gmail.com		



Misamis University
H. T. Feliciano St., Ozamiz City, 7200 Philippines
MISAMIS UNIVERSITY RESEARCH ETHICS BOARD
Phone: +6388 521 0367 | Fax: +6388 521 2917
Email: muresearchethics@mu.edu.ph

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**STATEMENT BY THE RESEARCHER
(PAGPADAYAG SA NAGTUON)**

I will read the Information sheet to the potential participant. With the best of my ability, I make sure that the participant will understand the interview questions and that possible follow-up interviews may be undertaken.

(Akong pagabasaahin ang mga nasulat niining Information Sheet ngadto sa potensyal nga partisipante. Kitob sa akong mahimo siguroon nako nga masabtan sa partisipante ang mga pangutana sa interview ug ang possible nga follow-up nga interviews.)

I can assure that the participant will be given an opportunity to ask questions about the study, and all the questions raised will be answered fully. I can likewise assure that the participant will not be coerced into giving consent that must be free and voluntary.

(Siguro ko nga ang partisipante mahatagan og panahon sa pagpangutana kabahin niining pagtuon og ang tanang pangutana nga iyang gihatag matubag sa hingpit. Siguroon ko usab ang maong partisipante dili mapugos sa paghatag sa pagtuot nga kmahanglan nga gawason og boluntaryo.)

A copy of this Informed Consent Form will be provided to the participant.
(Ang kopya sa niining Informed Consent Form itatag ngadto sa respondent.)

Print Name of Researchers (Ngalan sa Nagtuon): Ahat, Jea Mae T., Ajeas, Jastine L., Bayon-on, Norpie Khyle, Dela Vega, John Luther C.



Misamis University
H. T. Feliciano St., Ozamiz City, 7200 Philippines
MISAMIS UNIVERSITY RESEARCH ETHICS BOARD
Phone: +6388 521 0367 | Fax: +6388 521 2917
Email: muresearchethics@mu.edu.ph

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PART II. CERTIFICATE OF CONSENT

This research entitled "Positive Impact of Crime Mapping Technology in Patrol Efficiency and Crime Hotspot Identification: An Appreciative Inquiry," by Jea Mae T. Ahat with the aim of gathering information and data pertaining to positive impact on how crime mapping technology enhances police patrol efficiency and accurately identifies crime hotspots through a strength-based approach, has been presented and explained to me clearly. Since the study involves police officers, I am chosen as one of the participants.

(Kini nga pagtuon gitutolohan, "Positibong Epekto ng Teknolohiya sa Crime Mapping sa Kahusayan ng Pagkasagawa ng Pagtatrapiko at Pagkilala sa mga Lugar na Mataas ang Krimen: Isang Appreciative Inquiry" ni Jea Mae T. Ahat, nga adunay tumong sa pagkuha og impormasyon ug datos kabahin sa Positibong epekto sa paggamit sa crime mapping technology sa pagpalambo sa kahusayan sa police patrol ug tukmang pag-ila sa mga crime hotspot gamit ang usa ka pamaagi, gipresenta ug gipasabot og klaro kanako. Tungod kay ang pagtuon kay kabahin sa police officer, ako napilian isip usa sa mga partisipante.)

I have read the foregoing Informed Consent Form, or it has been read to me. I had the opportunity to ask questions, which were subsequently answered fully. I consent voluntarily to be a participant of this study.

(Akong nabasa ang nauna nga Informed Consent Form, o gibasa kini kanako. Natagaan ako og higayon nga makapangutana nga natubag sa hingpit. Ako mosugot nga boluntaryo nga mahimong participant sa niining pagtuon.)

Print Name of Participant (Ngalan sa Partisipante): PJT

Signature of Participant (Pirma sa Partisipante): [Signature]

Date: [MM/DD/YYYY]

If Illiterate (Kung dili makasulat ug makabasa)

If the respondent is illiterate, a witness who is literate will sign. The respondent will choose him/ her and who is without connection with the researcher or the research group to attest this undertaking. The respondent will affix his thumb print.

(Kung ang participant kay dili makabasa o makasulat, mopirma ang usa ka makabasa ug makasulat nga testigo. Ang respondent ang mopili kaniya nga walay koneksyon sa nagtuon o sa iyang grupo para mopamatud sa gimbuhaton. Ang respondent mobutang sa iyang tamlu (thumb print).)

Name and Signature of the Witness
(Ngalan ug Firma sa Testigo)

Thumb mark



MU-REB-01003 March 2022

INFORMED CONSENT FORM
(PORMA SA NASASITAN NGA PAGTUGOT)

Name of the Researcher/Investigator
(Nagtuon): Ahat, Jea Mac T., Ajcas, Justine L., Bayon-on, Norgie Khyle, Dela Vega, John Luther C.
Course: Bachelor of Science in Criminology
College: College of Criminology
Email / Contact Number: 09085580848
Thesis Title: -

PART I. INFORMATION SHEET	
Introduction (Pasiuna)	Good day! I am Ahat, Jea Mac T., Ajcas, Justine L., Bayon-on, Norgie Khyle, Dela Vega, John Luther C., the principal researcher/investigator of the study entitled "Positive Impact of Crime Mapping Technology in Patrol Efficiency and Crime Hotspot Identification: An Appreciative Inquiry." We are the student under the program of the Criminology at Misamis University in Ozam City. We are to conduct the research with Police Officer as participant. In this vein, I am respectfully seeking your voluntary participation, being qualified to give your informed consent to take part in this study. Before you decide whether to participate or not in this study, please read the succeeding information about the study and feel free to ask questions anytime should there be anything you do not understand or want to clarify. If you agree to answer the interview, you will be asked to affix your name and signature on this form for which you will be given a copy. (Mayang adlaw! Ako si Ahat, Jea Mac T., Ajcas, Justine L., Bayon-on, Norgie Khyle, Dela Vega, John Luther C., ang nagpaliyag sa pagtuon kahalan sa "Positive Impact of Crime Mapping Technology in Patrol Efficiency and Crime Hotspot Identification: An Appreciative Inquiry." Kami ang estudyante sa Criminology sa Misamis University. Kami nagpapili kanimo isip participant nga may mabigat sa gikanalaglagang impormasyon nating gihangag pagtuon. Kami matatagpuan naghangyo sa inyong buluntaryo nga pag-apil nini nga pagtuon. Gikanalanghan nga ikaw naa sa sakong edad ug naay kakayahon nga molatang sa pagtugot aron makapili nini nga pagtuon. Sa dili pa ka mohukom sa pag-apil nini nga interview, pailalag sa pagkaka sa mga impormasyon sa ubos ug gawason ka nga makapangitana kon adunay wala nimo nasabian o gusto nimong ikaw. Kung motago ka sa pagditiyoson nga interview, papamahon ka nini nga porma ug tagaan usab ka ug imong kausangang kopya.
Purpose (Katiyaan)	The purpose of this study is to explore and highlight the positive contributions of crime mapping technologies to the efficiency of police patrol operations and the accurate identification of crime hotspots, using the Appreciative Inquiry (AI) framework. It aims to uncover best practices, success cases, and transformative experiences of law enforcement personnel who utilize these tools, particularly within the PNP. The study seeks to shift the lens from problem-centric evaluations to a strengths-based understanding of how technology enhances public safety, resource deployment, and situational awareness. (Ang katayuan nini nga pagtuon mas ang ang tumong nining pagtuon mas ang pagkasit ug pagkasiguro sa mga positibong kontribusyon sa teknolohiya sa crime mapping alang sa kalampusan sa operasyon sa police patrol ug takna nga pag-ila sa mga lugar nga daghan og krimen, gamit ang Appreciative Inquiry (AI) nga pamamag. Tumong usab nini nga mailhan ang mga lubing mayong praktis, malapangong mga kaso, ug mga makapagah-o nga kasinatian sa mga sukop sa kapulisan nga naggamit nini nga mga himan, ilahina adunay sa PNP. Ang tumong matatagpuan nga ibahin ang panan-aw kaban sa.



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Benefits (Katiyaan)	This study will enable you to shed light or provide understanding about Positive Impact of Crime Mapping Technology in Patrol Efficiency and Crime Hotspot Identification: An Appreciative Inquiry. Thus, your responses shall be highly valued being deemed important in the field of Criminology. (Kani nga pagtuon makapahimo kanimo paghatag ug katun-awon o pagpasabat kahalan sa Positive Impact of Crime Mapping Technology in Patrol Efficiency and Crime Hotspot Identification: An Appreciative Inquiry. Ang imong mga tugag hatagan ug dakong bili nga giisip nga importante sa larap sa Criminology.)
Reimbursement (Halap nga bayad)	There will be no monetary expenses or costs on your part as a respondent, nor any monetary compensation for your participation in this study. However, personal protective equipment (PPE) like face masks, alcohol and face shields may be provided during the gathering of the research data. (Wala kay magastos sa imong pag-apil nini nga pagtuon ug dili usab ka bayaran ug kwarta sa imong pag-apil nini nga pagtuon. Apas adunay nga personal protective equipment (PPE) sama sa face masks, alcohol ug face shields nga pwede nga mahatag sa panahon sa pagkaka sa mga datos.)
Confidentiality (Pag-amping sa Datos)	Only the researcher will have access to the information and responses of the participants. The personal identifying information of the participants will only be used for research analysis and will be treated with the utmost confidentiality. During the study, all data will be kept in a locked, secure filing cabinet, of which will be discarded 6 months after the publication of the results. (Ang nagtuon lamang ang makakita sa mga impormasyon ug tugag sa respondents. Ang mga datos nga makaka i-analisa ug tumang pag-amping aron dili ibuhay. Sa panahon sa pagtuon, apamahan sa usa ka selyadong filing cabinet ang tumang datos nga pagagat-on human sa 6 kahulan gikan sa pag-publikar sa resulta.)
Sharing of Findings (Pagpamalit sa Nakaplagan)	The results of this study will be presented during the thesis/dissertation final defense of the researcher. Also, the research findings may be shared through publications and conferences with the assurance that the identities of the respondents will remain confidential. A printed copy of the completed study will be provided to the participants. (Ang mga resulta nini nga pagtuon ipresenta sa panahon sa final defense sa thesis/dissertation sa nagtuon. Ang mga nakaplagan sa pagtuon pwede nga ipamalit pinaagi sa mga publications ug conferences nga adunay kapangarohan nga dili mahayag ang pagkatawo sa mga partisipante. Paghatagan ug isa ka giimprina nga kopya sa kumpleto nga pagtuon ang mga partisipante.)
Rights to Refuse or Withdraw (Katangad sa Pagsalubad)	You are free to withdraw or terminate participation at any stage of the study, without the need to give any reason. You will not be penalized in case of termination of participation. (Gawason ka nga moutan o moutang sa pag-apil sa bisan asa nga punto sa pagtuon nga dili na makatugutan sa usa reason. Dili ka apamahan sa usa-utran o pag-amping.)



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Type of Research Intervention (Matang sa Interbensyon sa Pagtuon)	This study will be conducted through interviews. The gathering of data will be conducted in person. (Kining pagtuon pagabuhatan pinaagi sa interview. Personal ang pagkaka sa datos.)
Selection of Participants (Pagpili sa mga Partisipante)	The selection of the participants is based on the following inclusion criteria: actively involved in using crime mapping technologies for patrol and hotspot identification, with direct involvement with crime mapping technology at least 1 year, willing to participate in the study. (Ang mga partisipante nini nga pagtuon mas ang indibidwal nga naga-angkon sa mosinod: Aktibong nalambigit sa paggamit sa teknolohiya sa crime mapping alang sa patrol ug pag-ila sa mga crime hotspot, nga adunay direkhang kasinatian sa paggamit sa crime mapping technology adunay sa lubing menas usa ka tuig, ug undam nga moapil sa pagtuon.)
Voluntary Participation (Buluntaryo nga Partisipasyon)	Your participation has to be voluntary and will not affect your situation or status in any way, including your relationship with the researcher. You are free to decide if you will take part or not. If you decide to participate, you are free not to answer any questions that you do not prefer to answer. (Buluntaryo ang imong pag-apil ug kini dili makaapekto sa imong sitwasyon o estado apil na imong relasyon sa nagtuon. Gawason ka nga modisiyon kung kung moapil ka nini nga pagtuon o dili. Kung mo-deisyon ka nga moapil, gawason ka nga dili motubag sa bisan asa nga pagditiyoson nga dili nimo gusto nga tubag.)
Procedure (Pamamag)	The participants will be given ample time when to undertake the interview. The interviews will be undertaken once or several times when necessary. The researcher will transcribe the interviews to be used for the analysis of the data. The information and data provided by you as a participant will be utilized for this study alone and will be treated with the utmost confidentiality. (Ang mga partisipante paghatagan ug igong panahon sa pag-apil sa interview. Ang interview pwedeng himoon kasu nga higayon o sa makalaghan depende sa pangimughaan. Isulat sa nagtuon ang interview para sa pag-analisa sa datos. Ang mga impormasyon ug datos nga makaka gikan kanimo isip ka partisipante gamiton lamang nining research ug hatagan ug tumang pag-amping nga dili mahayag.)
Duration (Gadagayon)	The gathering of data through the interview will last for 45 minutes to 1 hour. (Ang pagkaka sa datos pinaagi sa interview mokabat ngadto sa 45 minutes hangtod 1 ka oras.)
Risks and Discomforts (Iisog ug Kulahan)	The respondents will be protected from physical, social, or economic risks. In case the items in the survey instrument are too personal and make you feel uncomfortable, you may decline to answer any or all questions and may terminate your involvement at any time you choose. (Ang mga partisipante ginoprotektahan sa pisikal, sosyal o ekonomikanhang riesgo. Kung



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Who to Contact (Kinsa ang Kontakon)	Should there be any queries as a parent, you can contact the researcher through the following details: (Kung adunay mga pangutana, mamahimong mga mokontak pinaagi using mga detalye.) Name of the Researcher (Ngalan sa Nagtuon): Ahat, Jea Mac T., Ajcas, Justine L., Bayon-on, Norgie Khyle, Dela Vega, John Luther C., Cellphone Numbers: 09085580848 e-mail ad: jactineajcas@gmail.com
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Misamis University
H. T. Feliciano St., Ozamiz City, 7200 Philippines
MISAMIS UNIVERSITY RESEARCH ETHICS BOARD
Phone: +6388 521 0367 | Fax: +6388 521 2917
Email: muresearchethics@mu.edu.ph

MU-REB-01/03 March 2022

**STATEMENT BY THE RESEARCHER
(PAGPADAYAG SA NAGTUON)**

I will read the Information sheet to the potential participant. With the best of my ability, I make sure that the participant will understand the interview questions and that possible follow-up interviews may be undertaken.

(Akong pagbasahon ang mga nasulat niining Information Sheet ngadto sa potensyal nga partisipante. Kutob sa akong mahimo siguroon nako nga masabtan sa partisipante ang mga pangutana sa interview ug ang possible nga follow-up nga interviews.)

I can assure that the participant will be given an opportunity to ask questions about the study, and all the questions raised will be answered fully. I can likewise assure that the participant will not be coerced into giving consent that must be free and voluntary.

(Gisiguro ko nga ang partisipante mahatagan og panahon sa pagpangutana kabahin niining pagtuon og ang tanang pangutana nga iyang gihatag matubag sa hingpit. Siguroon ko usab ang maong partisipante dili mapugos sa paghatag sa pagtuon nga kinahanglan nga gawason og boluntaryo.)

A copy of this Informed Consent Form will be provided to the participant.
(Ang kopya sa niining Informed Consent Form itatag ngadto sa respondent.)

Print Name of Researchers (Ngalan sa Nagtuon): Ahat, Jea Mae T., Ajeas, Jastine L.,
Bavon-on, Norgie Khytle, Dela Vega, John Luther C.,



Misamis University
H. T. Feliciano St., Ozamiz City, 7200 Philippines
MISAMIS UNIVERSITY RESEARCH ETHICS BOARD
Phone: +6388 521 0367 | Fax: +6388 521 2917
Email: muresearchethics@mu.edu.ph

MU-REB-01/03 March 2022

PART II. CERTIFICATE OF CONSENT

This research entitled "Positive Impact of Crime Mapping Technology in Patrol Efficiency and Crime Hotspot Identification: An Appreciative Inquiry," by _____ with the aim of gathering information and data pertaining to positive impact on how crime mapping technology enhances police patrol efficiency and accurately identifies crime hotspots through a strengths-based approach, has been presented and explained to me clearly. Since the study involves police officers, I am chosen as one of the participants.

(Kini nga pagtuon gitutolohan, "Positibong Epekto ng Teknolohiya sa Crime Mapping sa Kahusayan ng Pagsasagawa ng Pagtatrapiko at Pagkilala sa mga Lugar na Mataas ang Krimen: Isang Appreciative Inquiry" ni _____, nga adunay tumong sa pagkuha og impormasyon ug datos kabahin sa Positibong epekto sa paggamit sa crime mapping technology sa pagpalambo sa kahusayan sa police patrol ug tukmang pag-ila sa mga crime hotspot gamit ang usa ka pamaagi, gipresenta ug gipasabot og klaro kanako. Tungod kay ang pagtuon kay kabahin sa police officer, ako napilian isip usa sa mga partisipante.)

I have read the foregoing Informed Consent Form, or it has been read to me. I had the opportunity to ask questions, which were subsequently answered fully. I consent voluntarily to be a participant of this study.

(Akong nabasa ang nauna nga Informed Consent Form, o gibasa kini kanako. Natagan ako og higayon nga makapangutana nga natubag sa hingpit. Ako mosugot nga boluntaryo nga mahimong partisipante sa niining pagtuon.)

Print Name of Participant (Ngalan sa Partisipante): Pol. Chari Mark Anthony P. Solatonia
Signature of Participant (Pirma sa Partisipante): _____
Date: [MM/DD/YYYY] _____

If Illiterate (Kung dili makasulat ug makabasa)

If the respondent is illiterate, a witness who is literate will sign. The respondent will choose him/ her and who is without connection with the researcher or the research group to attest this undertaking. The respondent will affix his thumb print.

(Kung ang participant kay dili makabasa o makasulat, mopirma ang usa ka makabasa ug makasulat nga testigo. Ang respondent ang mopili kaniya nga walay koneksyon sa nagtuon o sa iyang grupo para mopamatuod sa gimbuhaton. Ang respondent mobutang sa iyang tamlà (thumb print)).

Name and Signature of the Witness
(Ngalan ug Firma sa Testigo)

Thumb mark



MU-REB-01001 March 2022

INFORMED CONSENT FORM
(FORMA SA NASADITAN NGA PAGTUGOT)

Name of the Researcher/Investigator
(Nagtuon): Ahat, Jea Mae T., Ajcas, Justine L., Bayon-on, Norgie Khyle, Dela Vega, John Luther C.
Course: Bachelor of Science in Criminology
College: College of Criminology
Email / Contact Number: 09085580848
Thesis Title: "

PART I. INFORMATION SHEET	
Introduction (Pasiuna)	Good day! I am Ahat, Jea Mae T., Ajcas, Justine L., Bayon-on, Norgie Khyle, Dela Vega, John Luther C., the principal researcher/investigator of the study entitled "Positive Impact of Crime Mapping Technology in Patrol Efficiency and Crime Hotspot Identification: An Appreciative Inquiry." We are the student under the program of the Criminology at Misamis University in Ozam City. We are to conduct the research with Police Officer as participant. In this vein, I am respectfully seeking your voluntary participation, being qualified to give your informed consent to take part in this study. Before you decide whether to participate or not in this study, please read the succeeding information about the study and feel free to ask questions anytime should there be anything you do not understand or want to clarify. If you agree to answer the interview, you will be asked to affix your name and signature on this form for which you will be given a copy. (Nayong adlaw! Ako si Ahat, Jea Mae T., Ajcas, Justine L., Bayon-on, Norgie Khyle, Dela Vega, John Luther C., ang nagpahigayon sa pagtuon kahalun sa "Positive Impact of Crime Mapping Technology in Patrol Efficiency and Crime Hotspot Identification: An Appreciative Inquiry." Kami usa ka estudyante sa Criminology sa Misamis University sa Ozam City. Kami magpapili kanimo isip participant nga may maulang sa gikinahanglang impormasyon nining gihimong pagtuon. Kami matutuhang maghugyo sa imong balunaryo nga pag-apil nini nga pagtuon. Gikinahanglan nga ikaw na sa saktong edad ug naay kakayahon nga mohatag sa pagtugot aron makapili nini nga pagtuon. Sa dili pa ka mohikom sa pag-apil nini nga interview, palibing sa pagkusa sa mga impormasyon sa uban ug gawason ka nga makapangutana kon adunay wala nimo nahatun o gusto nimong ikaw. Kung matatag ka sa paghimoan nga interview, papirmahan ka nini nga porma ug tagaan usab ka ug imong kangalingong kopya.
Purpose (Patiyuan)	The purpose of this study is to explore and highlight the positive contributions of crime mapping technologies to the efficiency of police patrol operations and the accurate identification of crime hotspots, using the Appreciative Inquiry (AI) framework. It aims to uncover best practices, success cases, and transformative experiences of law enforcement personnel who utilize these tools, particularly within the PNIP. The study seeks to shift the lens from problem-centric evaluations to a strengths-based understanding of how technology enhances public safety, resource deployment, and situational awareness. (Ang katayuan nini nga pagtuon mas ang Ang tumong nining pagtuon mao ang pagpasi na pagpangayon sa mga positibong kontribusyon sa teknolohiya sa crime mapping alang sa kalampusan sa operasyon sa police patrol ug takna nga pag-ila sa mga lugar nga daghan ug krimen, gamit ang Appreciative Inquiry (AI) nga pamuag. Tumong usab nini nga mailhan ang mga lubng maayong praktis, malapungon mga kaso, ug mga makapag-ig nga kasinatian sa mga nakap sa kapulisan nga naggamit nini nga mga himon. Ibabina silad sa PNIP. Ang pagtuon matutuhang nga ibahin ang estatu sa uban sa.



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Benefits (Kapiyuan)	This study will enable you to shed light or provide understanding about Positive Impact of Crime Mapping Technology in Patrol Efficiency and Crime Hotspot Identification: An Appreciative Inquiry. Thus, your responses shall be highly valued being deemed important in the field of Criminology. (Kini nga pagtuon makapahimo kanimo paghatag ug kum-awan o pagpanghat kahalun sa Positive Impact of Crime Mapping Technology in Patrol Efficiency and Crime Hotspot Identification: An Appreciative Inquiry. Ang imong mga tubag hatagan ug dakong bali nga giayon nga importante sa linya sa Criminology.)
Reimbursement (Halip nga bayad)	There will be no monetary expenses or costs on your part as a respondent, nor any monetary compensation for your participation in this study. However, personal protective equipment (PPE) like face masks, alcohol and face shields may be provided during the gathering of the research data. (Wala kay magasto sa imong pag-apil nini nga pagtuon ug dili usab ka bayaran ug kwarta sa imong pag-apil nini nga pagtuon. Apan adunay nga personal protective equipment (PPE) sama sa face masks, alcohol ug face shields nga pwede nga mahatag sa panahon sa pagkusa sa mga datos.)
Confidentiality of Data (Pag-amping sa Datos)	Only the researcher will have access to the information and responses of the participants. The personal identifying information of the participants will only be used for research analysis and will be treated with the utmost confidentiality. During the study, all data will be kept in a locked, secure filing cabinet, of which will be discarded 6 months after the publication of the results. (Ang nagtuon lamang ang nakakita sa mga impormasyon ug tubag sa respondents. Ang mga datos nga nakula sa analisis ug hatagan ug tumong pag-amping aron dili ibayag. Sa panahon sa pagtuon, ipahimutang sa usa ka sekuradong filing cabinet ang tanang datos nga pagaghat-on human sa 6 kahalun gikan sa pag-publikar sa resulta.)
Sharing of Findings (Pagpanghat sa Nakapaghat)	The results of this study will be presented during the thesis/dissertation final defense of the researcher. Also, the research findings may be shared through publications and conferences with the assurance that the identities of the respondents will remain confidential. A printed copy of the completed study will be provided to the participants. (Ang mga resulta nini nga pagtuon ipresenta sa panahon sa final defense sa thesis/dissertation sa nagtuon. Ang mga nakapaghat sa pagtuon pwede nga ipanghat pinaagi sa mga publications ug conferences nga adunay kapangiyaran nga dili mahayag ang pagkatwag sa mga partisipante. Pagpahatagan ug usa ka giyermata nga kopya sa kompletong mga pagtuon ang mga partisipante.)
Rights to Refuse or Withdraw (Karagad sa Pagsalubad)	You are free to withdraw or terminate participation at any stage of the study, without the need to give any reason. You will not be penalized in case of termination of participation. (Gawason ka nga moatras o mowatag sa pag-apil sa bisan usa nga punto sa pagtuon nga dili na makahatagan sa sa reason. Dili ka ipenalis sa pag-awas sa pag-amping.)



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Type of Research Intervention (Matang Interbasyon sa Pagtuon)	This study will be conducted through interviews. The gathering of data will be conducted in person. (Kining pagtuon pagahatagan pinaagi sa interview. Personal ang pagkusa sa datos.)
Selection of Participants (Pagpili sa mga Partisipante)	The selection of the participants is based on the following inclusion criteria: actively involved in using crime mapping technologies for patrol and hotspot identification, with direct involvement with crime mapping technology at least 1 year, willing to participate in the study. (Ang mga partisipante nini nga pagtuon mao ang indibidwal nga naga-angkon sa mosimod: Aktibong nalambigit sa paggamit sa teknolohiya sa crime mapping alang sa patrol ug pag-ila sa mga crime hotspot, nga adunay direkto kasinatian sa paggamit sa crime mapping technology silad sa lubng menos usa ka tuig, ug andam nga moapil sa pagtuon.)
Voluntary Participation (Boluntaryo nga Partisipasyon)	Your participation has to be voluntary and will not affect your situation or status in any way, including your relationship with the researcher. You are free to decide if you will take part or not. If you decide to participate, you are free not to answer any questions that you do not prefer to answer. (Boluntaryo ang imong pag-apil ug kini dili makapag-ig sa imong sitwasyon o estado apil na imong relasyon sa nagtuon. Gawason ka nga modesisyon kung kung moapil ka nini nga pagtuon o dili. Kung mo-deisyon ka nga moapil, gawason ka nga dili motubag sa bisan usa nga pangutana nga dili nimo gusto nga tubagan.)
Procedure (Pamagay)	The participants will be given ample time when to undertake the interview. The interviews will be undertaken once or several times when necessary. The researcher will transcribe the interviews to be used for the analysis of the data. The information and data provided by you as a participant will be utilized for this study alone and will be treated with the utmost confidentiality. (Ang mga partisipante pagahatagan ug igong panahon sa pag-apil sa interview. Ang interview pwedeng lumoon kausa nga ligayon o sa makadaghan depende sa pangimanghatagan. Inulad sa nagtuon ang interview para sa pag-analisa sa datos. Ang mga impormasyon ug datos nga nakula gikan kanimo isip ka partisipante gamiton lamang nining research ug hatagan ug tumong pag-amping nga dili mahayag.)
Duration (Gidagayon)	The gathering of data through the interview will last for 45 minutes to 1 hour. (Ang pagkusa sa datos pinaagi sa interview mokabat ngadto sa 45 minutos hangtod 1 ka oras.)
Risks and Discomforts (Risiko ng Kahalad)	The respondents will be protected from physical, social, or economic risks. In case the items in the survey instrument are too personal and make you feel uncomfortable, you may decline to answer any or all questions and may terminate your involvement at any time you choose. (Ang mga partisipante gipaprotektahan sa pisikal, sosyal o ekonomikanhang risiko. Kung ang mga item sa survey instrument mas personal ug make you feel uncomfortable, you may decline to answer any or all questions and may terminate your involvement at any time you choose.)



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Who to Contact (Kina ang Kontaktan)	Should there be any queries as a parent, you can contact the researcher through the following details: (Kung adunay mga pangutana, mamahimong mga mowatag pinaagi using mga detalye.)
Name of the Researcher (Ngalan sa Nagtuon)	Ahat, Jea Mae T., Ajcas, Justine L., Bayon-on, Norgie Khyle, Dela Vega, John Luther C., Cellphone Numbers: 09085580848 e-mail: jastineajcas@gmail.com



Misamis University
H. T. Feliciano St., Ozamiz City, 7200 Philippines
MISAMIS UNIVERSITY RESEARCH ETHICS BOARD
Phone: +6388 521 0367 | Fax: +6388 521 2917
Email: muresearchethics@mu.edu.ph

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**STATEMENT BY THE RESEARCHER
(PAGPADAYAG SA NAGTUON)**

I will read the Information sheet to the potential participant. With the best of my ability, I make sure that the participant will understand the interview questions and that possible follow-up interviews may be undertaken.

(Akong pagbasahon ang mga nasulat nining Information Sheet ngadto sa potensyal nga partisipante. Kutob sa akong mahimo siguroon nako nga masabtan sa partisipante ang mga pangutana sa interview ug ang possible nga follow-up nga interviews.)

I can assure that the participant will be given an opportunity to ask questions about the study, and all the questions raised will be answered fully. I can likewise assure that the participant will not be coerced into giving consent that must be free and voluntary.

(Siguro ko nga ang partisipante mahatagan og panahon sa pagpangutana kabahin nining pagtuon og ang tanang pangutana nga iyang gihatag matubag sa hingpit. Siguroon ko usab ang maong partisipante dili mapugos sa paghatag sa pagtugot nga kinahanglan nga gawason og boluntaryo.)

A copy of this Informed Consent Form will be provided to the participant.
(Ang kopya sa nining Informed Consent Form ihatag ngadto sa respondent.)

Print Name of Researchers (Ngalan sa Nagtuon): Ahat, Jea Mae T., Ajeais, Justine L.,
Bavon-on, Norgie Khyte, Dela Vega, John Luther C.



Misamis University
H. T. Feliciano St., Ozamiz City, 7200 Philippines
MISAMIS UNIVERSITY RESEARCH ETHICS BOARD
Phone: +6388 521 0367 | Fax: +6388 521 2917
Email: muresearchethics@mu.edu.ph

MU-REB-01/03 March 2022

PART II. CERTIFICATE OF CONSENT

This research entitled "Positive Impact of Crime Mapping Technology in Patrol Efficiency and Crime Hotspot Identification: An Appreciative Inquiry," by Dr. Jea Mae T. Ahat with the aim of gathering information and data pertaining to positive impact on how crime mapping technology enhances police patrol efficiency and accurately identifies crime hotspots through a strengths-based approach, has been presented and explained to me clearly. Since the study involves police officers, I am chosen as one of the participants.

(Kini nga pagtuon gitutolohan, "Positibong Epekto ng Teknolohiya sa Crime Mapping sa Kahusayan ng Pagsasagawa ng Pagtatrapiko at Pagkilala sa mga Lugar na Mutaas ang Krimen: Isang Appreciative Inquiry" ni _____, nga adunay tumong sa pagkuha og impormasyon ug datos kabahin sa Positibong epekto sa paggamit sa crime mapping technology sa pagpalambo sa kahusayan sa police patrol ug tukmang pag-ila sa mga crime hotspot gamit ang usa ka pamaagi, gipresenta ug gipasabot og klaro kanako. Tungod kay ang pagtuon kay kabahin sa police officer, ako napilian isip usa sa mga partisipante.)

I have read the foregoing Informed Consent Form, or it has been read to me. I had the opportunity to ask questions, which were subsequently answered fully. I consent voluntarily to be a participant of this study.

(Akong nabasa ang nauna nga Informed Consent Form, o gihasa kini kanako. Natagaan ako og higayon nga makapangutana nga natubag sa hingpit. Ako mosugot nga boluntaryo nga mahimong partisipante sa nining pagtuon.)

Print Name of Participant (Ngalan sa Partisipante): _____

Signature of Participant (Pirma sa Partisipante): _____

Date: [MM/DD/YYYY] 11/21/2021

If Illiterate (Kung dili makasulat ug makabasa)

If the respondent is illiterate, a witness who is literate will sign. The respondent will choose him/ her and who is without connection with the researcher or the research group to attest this undertaking. The respondent will affix his thumb print.

[Kung ang participant kay dili makabasa o makasulat, mopirma ang usa ka makabasa ug makasulat nga testigo. Ang respondent ang mopili kaniya nga walay koneksyon sa nagtuon o sa iyang grupo para mopamatuod sa gimbuhaton. Ang respondent mobutang sa iyang tamla (thumb print)].

Name and Signature of the Witness
(Ngalan ug Firma sa Testigo)

Thumb mark



MU-REB-01003 March 2022

INFORMED CONSENT FORM
(FORMA SA NASABITAN NGA PAGTUGOT)

Name of the Researcher/Investigator (Nagtuon): **Ahat, Jea Mac T., Ajeas, Justine L., Bayon-on, Norgie Khyle, Dela Vega, John Luther C.**
Course: **Bachelor of Science in Criminology**
College: **College of Criminology**
Email / Contact Number: **09085580848**
Thesis Title: "

PART I. INFORMATION SHEET	
Introduction (Pasiuna)	Good day! I am Ahat, Jea Mac T., Ajeas, Justine L., Bayon-on, Norgie Khyle, Dela Vega, John Luther C., the principal researcher/investigator of the study entitled "Positive Impact of Crime Mapping Technology in Patrol Efficiency and Crime Hotspot Identification: An Appreciative Inquiry." We are the student under the program of the Criminology at Misamis University in Ozamiz City. We are to conduct the research with Police Officer as participant. In this vein, I am respectfully seeking your voluntary participation, being qualified to give your informed consent to take part in this study. Before you decide whether to participate or not in this study, please read the succeeding information about the study and feel free to ask questions anytime should there be anything you do not understand or want to clarify. If you agree to answer the interview, you will be asked to affix your name and signature on this form for which you will be given a copy.
	(Maayong adlaw! Ako si Ahat, Jea Mac T., Ajeas, Justine L., Bayon-on, Norgie Khyle, Dela Vega, John Luther C., ang nagpapahigayon sa pagtuon kahalun sa "Positive Impact of Crime Mapping Technology in Patrol Efficiency and Crime Hotspot Identification: An Appreciative Inquiry." Kami ang estudyante sa Criminology sa Misamis University. Kami nagpipili kanimo isip participant nga maay mutabag sa ginkahangiang impormasyon nining gihimong pagtuon. Kami matinalahang nanghugayon sa inyong buluntaryo nga pag-apil nini nga pagtuon. Ginkahangiang nga ikaw nua sa saktong edad ug maay kakayahon nga mabuhag sa pagtugot aron makaapil nini nga pagtuon. Sa dili pa ka mohukon ka pag-apil nini nga interview, palihag sa pagbasu sa mga impormasyon sa ubos ug gawason ka nga makapangitana kon adunay wala nimo nuanahan o gusto nining ikilaw. Kang motugot ka sa pagpahimong kon interview, pagpamahan ka nini nga forma ug taguan sa ka ug imong kagadagang kopya.
Purpose (Katiyaan)	The purpose of this study is to explore and highlight the positive contributions of crime mapping technologies to the efficiency of police patrol operations and the accurate identification of crime hotspots, using the Appreciative Inquiry (AI) framework. It aims to uncover best practices, success cases, and transformative experiences of law enforcement personnel who utilize these tools, particularly within the PNP. The study seeks to shift the lens from problem-centric evaluations to a strength-based understanding of how technology enhances public safety, resource deployment, and situational awareness. (Ang katiyaan nini nga pagtuon mao ang Ang tumong nining pagtuon mao ang pagusi ug pagpangarbo sa mga positibong kontribusyon sa teknolohiya sa crime mapping alang sa kalampusan sa operasyon sa police patrol ug takna nga pag-apil sa mga lugar nga daghan ug krimen, gamit ang Appreciative Inquiry (AI) nga pamamagi. Tumong tsab nini nga mailhan ang mga lubag maayong praktis, malangasong mga kaso, ug nga makapuhag-o nga kusinahan sa mga nakop sa kapulisan nga naggamit nini nga mga himon. Ilibitin sulod sa PNP. Ang tumong matinalahang nua libitin una tsab-on aksion sa



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Type of Research (Matang sa Interbeneyon sa Pagtuon)	This study will be conducted through interviews. The gathering of data will be conducted in person. (Kining pagtuon pagpahubaton pinaagi sa interview. Personal ang pagkaha sa datos.)
Selection of Participants (Pagpili nga Participant)	The selection of the participants is based on the following inclusion criteria: actively involved in using crime mapping technologies for patrol and hotspot identification, with direct involvement with crime mapping technology at least 1 year, willing to participate in the study. (Ang mga partisipante nini nga pagtuon mao ang indibidwal nga nag-aangkon sa mosimod: Aktibong nalambigan sa paggamit sa teknolohiya sa crime mapping alang sa patrol ug pag-apil sa mga crime hotspot, nga adunay direktang kusinahan sa paggamit sa crime mapping technology sulod sa lubag meen usa ka taag, ug undam nga mosupil sa pagtuon.)
Voluntary Participation (Buluntaryo nga Partisipasyon)	Your participation has to be voluntary and will not affect your situation or status in any way, including your relationship with the researcher. You are free to decide if you will take part or not. If you decide to participate, you are free not to answer any questions that you do not prefer to answer. (Buluntaryo ang imong pag-apil ug kini dili makaapekto sa imong sitwasyon o estado apil na imong relasyon sa nagtuon. Gawason ka nga mosaksiyon kang kung mosupil ka nini nga pagtuon o dili. Kang mo-deisyon ka nga mosupil, gawason ka nga dili mutabag sa bisan asa nga pangatana nga dili nimo gusto nga tubagyon.)
Procedure (Pamamagi)	The participants will be given ample time when to undertake the interview. The interviews will be undertaken once or several times when necessary. The researcher will transcribe the interviews to be used for the analysis of the data. The information and data provided by you as a participant will be utilized for this study alone and will be treated with the utmost confidentiality. (Ang mga partisipante pagpahubaton ug igong panahan sa pag-apil sa interview. Ang interview puding himon kausa nga higayon o sa makalaghan depende sa pangangahaton. Isulat sa nagtuon ang interview para sa pag-analisa sa datos. Ang mga impormasyon ug datos nga nakaha gikan kanimo isip ka partisipante gamiton lamang nining research ug hotugon ug tumong pag-amping nga dili mabuhag.)
Duration (Kidagayon)	The gathering of data through the interview will last for 45 minutes to 1 hour. (Ang pagkaha sa datos pinaagi sa interview makabat ngadto sa 45 minutos hangtod 1 ka oras.)
Risks and Discomforts (Bisyo ug Kahasad)	The respondents will be protected from physical, social, or economic risks. In case the items in the survey instrument are too personal and make you feel uncomfortable, you may decline to answer any or all questions and may terminate your involvement at any time you choose. (Ang mga partisipante ginpaprotektahan sa pisikal, sosyal o ekonomikanhang risgo. Kang



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Benefits (Kasiyahan)	This study will enable you to shed light or provide understanding about Positive Impact of Crime Mapping Technology in Patrol Efficiency and Crime Hotspot Identification: An Appreciative Inquiry. Thus, your responses shall be highly valued being deemed important in the field of Criminology. (Kini nga pagtuon makapahimo kanimo paghatag ug katun-awan o pagpangarbo kahalun sa Positive Impact of Crime Mapping Technology in Patrol Efficiency and Crime Hotspot Identification: An Appreciative Inquiry. Ang imong mga tubag hatagan ug dakong bili nga ginap nga importante sa linya sa Criminology.)
Reimbursement (Pulap nga bayad)	There will be no monetary expenses or costs on your part as a respondent, nor any monetary compensation for your participation in this study. However, personal protective equipment (PPE) like face masks, alcohol and face shields may be provided during the gathering of the research data. (Wala kay magastos sa imong pag-apil nini nga pagtuon ug dili tsab ka bayaran ug kusaria sa imong pag-apil nini nga pagtuon. Apas adunay nga personal protective equipment (PPE) sama sa face masks, alcohol ug face shields nga pwede nga mahatag sa panahan sa pagkaha sa mga datos.)
Confidentiality of Data (Pag-amping Datos)	Only the researcher will have access to the information and responses of the participants. The personal identifying information of the participants will only be used for research analysis and will be treated with the utmost confidentiality. During the study, all data will be kept in a locked, secure filing cabinet, of which will be discarded 6 months after the publication of the results. (Ang nagtuon lamang ang makaha sa mga impormasyon ug tubag sa respondents. Ang mga datos nga makaha tsab-on ug hatagan ug tumong pag-amping aron dili mabuhag. Sa panahan sa pagtuon, ipahimang sa usa ka sekuradong filing cabinet ang tanang datos nga pagapod-on hanan sa 6 kabilan gikan sa pag-publish sa results.)
Sharing of Findings (Pagpamhat sa Nakaplagan)	The results of this study will be presented during the thesis/dissertation final defense of the researcher. Also, the research findings may be shared through publications and conferences with the assurance that the identities of the respondents will remain confidential. A printed copy of the completed study will be provided to the participants. (Ang mga results nini nga pagtuon ipresenta sa panahan sa final defense sa thesis dissertation sa nagtuon. Ang mga nakaplagan sa pagtuon possible nga ipamhat pinaagi sa mga publications ug conferences nga adunay kapangarohan nga dili mabuhag ang pagkatwag sa mga partisipante. Pagpahubaton ug isa ka gimpirina nga kopya sa kompleto nga pagtuon ang mga partisipante.)
Rights to Refuse or Withdraw (Kongrad sa Pagsulubad)	You are free to withdraw or terminate participation at any stage of the study, without the need to give any reason. You will not be penalized in case of termination of participation. (Gawason ka nga mosatras or mosulang sa pag-apil sa bisan asa nga punto sa pagtuon nga dili ka makatunahanan sa sa reason. Dili ka apamhat sa pas-otras o pas-undang.)



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Who to Contact (Kinsa ang Kontaktan)	Should there be any queries as a parent, you can contact the researcher through the following details: (Kang adunay mga pangatana, mamatras nga mosulatka pinaagi among mga detalye:)
Name of the Researcher (Naglan sa Nagtuon)	Ahat, Jea Mac T., Ajeas, Justine L., Bayon-on, Norgie Khyle, Dela Vega, John Luther C.
Cellphone Number:	09085580848
e-mail id:	justineajeas@gmail.com



Misamis University
 Il. T. Feliciano St., Ozamiz City, 7200 Philippines
MISAMIS UNIVERSITY RESEARCH ETHICS BOARD
 Phone: +6388 521 0367 | Fax: +6388 521 2917
 Email: muresearchethics@mu.edu.ph

MS-REB-01/03 March 2022

**STATEMENT BY THE RESEARCHER
 (PAGPADAYAG SA NAGTUON)**

I will read the Information sheet to the potential participant. With the best of my ability, I make sure that the participant will understand the interview questions and that possible follow-up interviews may be undertaken.

(Akong pagbabasahon ang mga nasulat nining Information Sheet ngadto sa potensiyal nga partisipante. Kutob sa akong mahimo siguroon nako nga masabtan sa partisipante ang mga pangutana sa interview ug ang possible nga follow-up nga interviews.)

I can assure that the participant will be given an opportunity to ask questions about the study, and all the questions raised will be answered fully. I can likewise assure that the participant will not be coerced into giving consent that must be free and voluntary.

(Gisiguro ko nga ang partisipante mahatagan og panahon sa pagpangutana kabahin niining pagtuon og ang tanang pangutana nga iyang gihatag matubag sa hingpit. Siguroon ko usab ang maong partisipante dili mapugos sa paghatag sa pagtuon nga kinahanglan nga gawason og boluntaryo.)

A copy of this Informed Consent Form will be provided to the participant.
(Ang kopya sa nining Informed Consent Form itatag ngadto sa respondent.)

Print Name of Researchers (Ngalan sa Nagtuon): Ahat, Jea Mae T., Ajeas, Jastine L., Bayon-on, Norgie K'wle, Dela Vega, John Luther C.



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MS-REB-01/03 March 2022

PART II. CERTIFICATE OF CONSENT

This research entitled "Positive Impact of Crime Mapping Technology in Patrol Efficiency and Crime Hotspot Identification: An Appreciative Inquiry" by Patricia Dela Cruz with the aim of gathering information and data pertaining to positive impact on how crime mapping technology enhances police patrol efficiency and accurately identifies crime hotspots through a strengths-based approach, has been presented and explained to me clearly. Since the study involves police officers, I am chosen as one of the participants.

(Kini nga pagtuon gitutolohan, "Positibong Epekto ng Teknolohiya sa Crime Mapping sa Kahusayan ng Pagsasagawa ng Pagtatrapiko at Pagkilala sa mga Lugar na Mataas ang Krimen: Isang Appreciative Inquiry" ni Patricia Dela Cruz, nga adunay tumong sa pagkuha og impormasyon ug datos kabahin sa Positibong epekto sa paggamit sa crime mapping technology sa pagpalambo sa kahusayan sa police patrol ug tukmang pag-ila sa mga crime hotspot gamit ang usa ka pamaagi, gipresenta ug gipasabot og klaro kanako. Tungod kay ang pagtuon kay kabahin sa police officer, ako napilian isip usa sa mga partisipante.)

I have read the foregoing Informed Consent Form, or it has been read to me. I had the opportunity to ask questions, which were subsequently answered fully. I consent voluntarily to be a participant of this study.

(Akong nabasa ang nauna nga Informed Consent Form, o gibasa kini kanako. Nakagan ako og higayon nga makapangutana nga natubag sa hingpit. Ako mosugot nga boluntaryo nga mahimong participant sa nining pagtuon.)

Print Name of Participant (Ngalan sa Partisipante): Patricia Dela Cruz - Asst. OPN PHCO
 Signature of Participant (Pirma sa Partisipante): [Signature]
 Date: [MM/DD/YYYY] Sept 25, 2025

If Illiterate (Kung dili makasulat ug makabasa)

If the respondent is illiterate, a witness who is literate will sign. The respondent will choose him/ her and who is without connection with the researcher or the research group to attest this undertaking. The respondent will affix his thumb print.

[Kung ang participant kay dili makabasa o makasulat, mopirma ang usa ka makabasa ug makasulat nga testigo. Ang respondent ang mopili kaniya nga wala koneksyon sa nagtuon o sa iyang grupo para mopamatuod sa gimuhaton. Ang respondent mohutang sa iyang tamlà (thumb print)].

Name and Signature of the Witness
 (Ngalan ug Firma sa Testigo)

Thumb mark



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INFORMED CONSENT FORM
 (FORMA SA NASABTAN NGA PAGTUGOT)

Name of the Researcher/Investigator
 (Nagtuon): Ahat, Jea Mae T., Ajcas, Justine L., Bayon-on, Norgie Khyle, Dela Vega, John Luther C.
 Course: Bachelor of Science in Criminology
 College: College of Criminology
 Email / Contact Number: 09085580848
 Thesis Title: "

PART I. INFORMATION SHEET	
Introduction (Pasiuna)	Good day! I am Ahat, Jea Mae T., Ajcas, Justine L., Bayon-on, Norgie Khyle, Dela Vega, John Luther C., the principal researcher/investigator of the study entitled "Positive Impact of Crime Mapping Technology in Patrol Efficiency and Crime Hotspot Identification: An Appreciative Inquiry." We are the student under the program of the Criminology at Misamis University in Ozam City. We are to conduct the research with Police Officer as participant. In this vein, I am respectfully seeking your voluntary participation, being qualified to give your informed consent to take part in this study. Before you decide whether to participate or not in this study, please read the succeeding information about the study and feel free to ask questions anytime should there be anything you do not understand or want to clarify. If you agree to answer the interview, you will be asked to affix your name and signature on this form for which you will be given a copy. (Nayong adlaw! Ako si Ahat, Jea Mae T., Ajcas, Justine L., Bayon-on, Norgie Khyle, Dela Vega, John Luther C., ang nagpahigayon sa pagtuon kahalun sa "Positive Impact of Crime Mapping Technology in Patrol Efficiency and Crime Hotspot Identification: An Appreciative Inquiry." Kami usa ka estudyante sa programa ng Criminology sa Misamis University. Kami nagapili kanimo isip participant nga may maulang sa ginkahagulang impormasyon nining gihimong pagtuon. Kami matuhabang nagtugay sa imong balunaryo nga pag-apil nini nga pagtuon. Ginkahagulan nga ikaw nua sa saktong edad ug naay kakaayahan nga mohatag sa pagtugot aron makasip nini nga pagtuon. Sa dili pa ka mohikom sa pag-apil nini nga interview, palibag sa pagkusa sa mga impormasyon sa uban ug gawason ka nga makapangutana kon adunay wala nimo nabat-an o gusto nimong iklaro. Kung matag ka sa paggihimong nga interview, papirmahan ka nini nga porma ug tagaan usab ka ug imong kangalingong kopya.
Purpose (Pasiyuan)	The purpose of this study is to explore and highlight the positive contributions of crime mapping technologies to the efficiency of police patrol operations and the accurate identification of crime hotspots, using the Appreciative Inquiry (AI) framework. It aims to uncover best practices, success cases, and transformative experiences of law enforcement personnel who utilize these tools, particularly within the PNP. The study seeks to shift the lens from problem-centric evaluations to a strengths-based understanding of how technology enhances public safety, resource deployment, and situational awareness. (Ang katayuan nini nga pagtuon mas ang Ang tumong nining pagtuon mao ang pagpasi ng pagpangarho sa mga positibong kontribusyon sa teknolohiya sa crime mapping alang sa kalampusan sa operasyon sa police patrol ug takna nga pag-ila sa mga lugar nga daghan ug krimen, gamit ang Appreciative Inquiry (AI) nga pamuag. Tumong usab nini nga mailhan ang mga lubng maayong praktis, malapnasong mga kaso, ug mga makapangutana nga kasinatian sa mga nakap sa kapulisan nga naggamit nini nga mga himon. Ibabina silad sa LNP. Ang kasutun matuhabang nua ibat-an ang estatin sa uban sa.



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Benefits (Kasiyahan)	This study will enable you to shed light or provide understanding about Positive Impact of Crime Mapping Technology in Patrol Efficiency and Crime Hotspot Identification: An Appreciative Inquiry. Thus, your responses shall be highly valued being deemed important in the field of Criminology. (Kini nga pagtuon makapangutana kanimo paghatag ug kasin-awan o pagpanghat kahalun sa Positive Impact of Crime Mapping Technology in Patrol Efficiency and Crime Hotspot Identification: An Appreciative Inquiry. Ang imong mga tubag hatagan ug dakong bali nga giap nga importante sa linya sa Criminology.)
Reimbursement (Halap nga bayad)	There will be no monetary expenses or costs on your part as a respondent, nor any monetary compensation for your participation in this study. However, personal protective equipment (PPE) like face masks, alcohol and face shields may be provided during the gathering of the research data. (Wala kay magasto sa imong pag-apil nini nga pagtuon ug dili usab ka bayaran ug kwarta sa imong pag-apil nini nga pagtuon. Apun adunay nga personal protective equipment (PPE) sama sa face masks, alcohol ug face shields nga pwede nga mahatag sa panahon sa pagkusa sa mga datos.)
Confidentiality of Data (Pag-amping sa Datos)	Only the researcher will have access to the information and responses of the participants. The personal identifying information of the participants will only be used for research analysis and will be treated with the utmost confidentiality. During the study, all data will be kept in a locked, secure filing cabinet, of which will be discarded 6 months after the publication of the results. (Ang nagtuon lamang ang nakakita sa mga impormasyon ug tubag sa respondents. Ang mga datos nga nakakita sa imong hatagan ug tumong pag-amping aron dili ibatag. Sa panahon sa pagtuon, ipahimutang sa usa ka sekuradong filing cabinet ang tanang datos nga pagagad-on human sa 6 kabanhan gikan sa pag-publikar sa resulta.)
Sharing of Findings (Pagpanghat sa Nakapanghat)	The results of this study will be presented during the thesis/dissertation final defense of the researcher. Also, the research findings may be shared through publications and conferences with the assurance that the identities of the respondents will remain confidential. A printed copy of the completed study will be provided to the participants. (Ang mga resulta nini nga pagtuon ipresenta sa panahon sa final defense sa thesis/dissertation sa nagtuon. Ang mga nakapanghat sa pagtuon pwede nga ipanghat pinaagi sa mga publications ug conferences nga adunay kasinagutan nga dili mahatag ang pagkatwag sa mga partisipante. Pagpahatagan og usa ka giimprina nga kopya sa kompleto nga pagtuon ang mga partisipante.)
Rights to Refuse or Withdraw (Karagad sa Pagsababab)	You are free to withdraw or terminate participation at any stage of the study, without the need to give any reason. You will not be penalized in case of termination of participation. (Gawason ka nga moatras og mowatag sa pag-apil sa bisan asa nga punto sa pagtuon nga dili ka makahanghan sa ika-reason. Dili ka ipenalis sa kasatras sa kasatras.)



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Type of Research Intervention (Matang Interbensyon sa Pagtuon)	This study will be conducted through interviews. The gathering of data will be conducted in person. (Kining pagtuon pagabuhatan pinaagi sa interview. Personal ang pagkusa sa datos.)
Selection of Participants (Pagpili sa mga Partisipante)	The selection of the participants is based on the following inclusion criteria: actively involved in using crime mapping technologies for patrol and hotspot identification, with direct involvement with crime mapping technology at least 1 year, willing to participate in the study. (Ang mga partisipante nini nga pagtuon mao ang indibidwal nga naga-angkon sa mosimod: Aktibong nalambigit sa paggamit sa teknolohiya sa crime mapping alang sa patrol ug pag-ila sa mga crime hotspot, nga adunay direkhang kasinatian sa paggamit sa crime mapping technology silad sa lubng menos usa ka tuag, ug andam nga mosip sa pagtuon.)
Voluntary Participation (Boluntaryo nga Partisipasyon)	Your participation has to be voluntary and will not affect your situation or status in any way, including your relationship with the researcher. You are free to decide if you will take part or not. If you decide to participate, you are free not to answer any questions that you do not prefer to answer. (Boluntaryo ang imong pag-apil ug kini dili makapangutana sa imong sitwasyon o estado apil na imong relasyon sa nagtuon. Gawason ka nga modesisyon kung kung mosip ka nini nga pagtuon o dili. Kung mo-deisyon ka nga mosip, gawason ka nga dili motubag sa bisan asa nga pangutana nga dili nimo gusto nga tubagan.)
Procedure (Pamuag)	The participants will be given ample time when to undertake the interview. The interviews will be undertaken once or several times when necessary. The researcher will transcribe the interviews to be used for the analysis of the data. The information and data provided by you as a participant will be utilized for this study alone and will be treated with the utmost confidentiality. (Ang mga partisipante pagahatagan og igong panahon sa pag-apil sa interview. Ang interview pwedeng himoon kausa nga higayon o sa maktadaghan depende sa pangimanghatan. Inul sa nagtuon ang interviews para sa pag-analisa sa datos. Ang mga impormasyon ug datos nga nakakita gikan kanimo isip ka partisipante gamiton lamang nining research ug hatagan og tumong pag-amping nga dili mahatag.)
Duration (Gidagayon)	The gathering of data through the interview will last for 45 minutes to 1 hour. (Ang pagkusa sa datos pinaagi sa interview mokabat ngadto sa 45 minutos hangtod 1 ka oras.)
Risks and Discomforts (Risiko ng Kahalad)	The respondents will be protected from physical, social, or economic risks. In case the items in the survey instrument are too personal and make you feel uncomfortable, you may decline to answer any or all questions and may terminate your involvement at any time you choose. (Ang mga partisipante ginpangpanghat sa pisikal, sosyal o ekonomikanhang risiko. Kung



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MISAMIS UNIVERSITY RESEARCH ETHICS BOARD
 Phone: +6388 521 0367 / Fax: +6388 521 2917
 Email: muresarchethics@mu.edu.ph

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Who to Contact (Kinsa ang Kontakon)	Should there be any queries as a parent, you can contact the researcher through the following details: (Kung adunay mga pangutana, mamamo nga mokontak pinaagi among mga detalye.)
Name of the Researchers (Naglan sa Nagtuon)	Ahat, Jea Mae T., Ajcas, Justine L., Bayon-on, Norgie Khyle, Dela Vega, John Luther C.
Contact Number (Numero sa Kontakon)	09085580848
e-mail address (e-mail address)	jatiniscas@gmail.com



Misamis University
 Il. T. Feliciano St., Ozamiz City, 7200 Philippines
MISAMIS UNIVERSITY RESEARCH ETHICS BOARD
 Phone: +6388 521 0367 | Fax: +6388 521 2917
 Email: muresearchethics@mu.edu.ph

MU-RES-01003 March 2022

**STATEMENT BY THE RESEARCHER
 (PAGPADAYAG SA NAGTUON)**

I will read the Information sheet to the potential participant. With the best of my ability, I make sure that the participant will understand the interview questions and that possible follow-up interviews may be undertaken.

(Akong pagbasahon ang mga nasulat nining Information Sheet ngadto sa potensyal nga partisipante. Kutob sa akong mahimo siguroon nako nga masabtan sa partisipante ang mga pangutana sa interview ug ang possible nga follow-up nga interviews.)

I can assure that the participant will be given an opportunity to ask questions about the study, and all the questions raised will be answered fully. I can likewise assure that the participant will not be coerced into giving consent that must be free and voluntary.

(Gisiguro ko nga ang partisipante mahatagan og panahon sa pagpangutana kabahin nining pagtuon og ang tanang pangutana nga iyang gihatag matubag sa hingpit. Siguroon ko usab ang maong partisipante dili mapigos sa paghatag sa pagtuon nga kinahanglan nga gawason og boluntaryo.)

A copy of this Informed Consent Form will be provided to the participant.
(Ang kopya sa nining Informed Consent Form itatag ngadto sa respondent.)

Print Name of Researchers (Ngalan sa Nagtuon): Ahat, Jea Mae T., Ajeas, Justine L., Bayon-on, Norgie Kivle, Dela Vega, John Luther C.



Misamis University
 Il. T. Feliciano St., Ozamiz City, 7200 Philippines
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 Phone: +6388 521 0367 | Fax: +6388 521 2917
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MU-RES-01003 March 2022

PART II. CERTIFICATE OF CONSENT

This research entitled "Positive Impact of Crime Mapping Technology in Patrol Efficiency and Crime Hotspot Identification: An Appreciative Inquiry," by Dr. Jea Mae T. Ahat with the aim of gathering information and data pertaining to positive impact on how crime mapping technology enhances police patrol efficiency and accurately identifies crime hotspots through a strengths-based approach, has been presented and explained to me clearly. Since the study involves police officers, I am chosen as one of the participants.

(Kini nga pagtuon gitutuhan, "Positibong Epekto ng Teknolohiya sa Crime Mapping sa Kahusayan ng Pagasagawa ng Pagtatrapiko at Pagkilala sa mga Lugar na Mataas ang Krimen: Isang Appreciative Inquiry" ni _____, nga adunay tumong sa pagkuha og impormasyon ug datos kabahin sa Positibong epekto sa paggamit sa crime mapping technology sa pagpalambo sa kahusayan sa police patrol ug tukmang pag-ila sa mga crime hotspot gamit ang usa ka pamaagi, gipresenta ug gipasabot og klaro kanako. Tungod kay ang pagtuon kay kabahin sa police officer, ako napilian isip usa sa mga partisipante.)

I have read the foregoing Informed Consent Form, or it has been read to me. I had the opportunity to ask questions, which were subsequently answered fully. I consent voluntarily to be a participant of this study.

(Akong nabasa ang nauna nga Informed Consent Form, o gibasa kini kanako. Natagaan ako og higayon nga makapangutana nga natubag sa hingpit. Ako mosugot nga boluntaryo nga mahimong participant sa nining pagtuon.)

Print Name of Participant (Ngalan sa Partisipante): POLICE OFFICER
 Signature of Participant (Pirma sa Partisipante): [Signature]
 Date: [MM/DD/YYYY]

If Illiterate (Kung dili makasulat ug makabasa)

If the respondent is illiterate, a witness who is literate will sign. The respondent will choose him/ her and who is without connection with the researcher or the research group to attest this undertaking. The respondent will affix his thumb print.

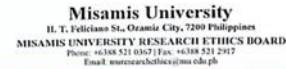
[Kung ang participant kay dili makabasa o makasulat, mopirma ang usa ka makabasa ug makasulat nga testigo. Ang respondent ang mopili kaniya nga walay koneksyon sa nagtuon o sa iyang grupo para mopamatuod sa gimbuhaton. Ang respondent mobutang sa iyang tamlu (thumb print)].

Name and Signature of the Witness
 (Ngalan ug Firma sa Testigo)

Thumb mark



Name of the Researcher/Investigator
(Nagtuon): Ahat, Jea Mae T., Ajeas, Justine L., Bayon-on, Norgie Khyle, Dela Vega, John Luther C.
Course: Bachelor of Science in Criminology
College: College of Criminology
Email / Contact Number: 09085580848
Thesis Title: "

[illegible]

		<i>(Ang problema ngunit sa isa ka pinangagang naglulawak sa mga kung, aron masabtan kung giyana pagpalambo sa teknolohiya ang kahulugan sa publiko, pag-apod-apod sa mga kahingalan, ng kahuluga sa hahamtang.)</i>
Type of Research Intervention	of	This study will be conducted through interviews. The gathering of data will be conducted in person. <i>(Kininig pagtomo pagbabatulan pinaagi sa interview. Personal ang pagkuha sa datos.)</i>
Selection of Participants	of	The selection of the participants is based on the following inclusion criteria: actively involved in using crime mapping technologies for patrol and hotspot identification, with direct involvement with crime mapping technology at least 1 year, willing to participate in the study. <i>(Ang mga partisipante nini nga pagtomo mao ang individual nga naga-angkon sa mousnad: Aktibong nalambigit sa paggamit sa teknolohiya sa crime mapping alang sa patrol ng pag-ila sa mga crime hotspot, nga adunay direkting kasinatian sa paggamit sa crime mapping technology sadal sa labing muno sa isa ka tuig, ng anduna nga mosupil sa pagtomo.)</i>
Voluntary Participation	of	Your participation has to be voluntary and will not affect your situation or status in any way, including your relationship with the researcher. You are free to decide if you will take part or not. If you decide to participate, you are free not to answer any questions that you do not prefer to answer. <i>(Buhatarayon ang imong pag-opag ng kini dili makaapekto sa imong sitwasyon o estado opiti sa imong relasyon sa pagtomo. Gumanoo ka nga modesisyon kung kung mosupil ka nitong mga pagtomo o dili. Kung mo-deisyon ka nga mosupil, gumanoon ka nga dili sa mairang sa basan usa nga pagtutanga nga muna gusto nga tabagan.)</i>
Procedure	of	The participants will be given ample time when to undertake the interview. The interviews will be undertaken once or several times when necessary. The researcher will transcribe the interviews to be used for the analysis of the data. The information and data provided by you as a participant will be utilized for this study alone and will be treated with the utmost confidentiality. <i>(Ang mga partisipante paghahagan og igong panahon sa pag-opag sa interview. Ang interview pwedeng himoon kusa nga higayon o sa makadaghang depende sa pangimungihagan. Isulat sa natagan ang interviews para sa pag-analisa sa datos. Ang mga impormasyon og datos nga natagan gikan kaniimo ngay ka partisipante gamitin lamang nining research and labing og tumong. pag-pamagang ng dili mabutyag.)</i>
Duration	of	The gathering of data through the interview will last for 45 minutes to 1 hour. <i>(Ang pagkuha sa datos pinaagi sa interview molabot ngusto sa 45 minutos hangtod 1 ka oras.)</i>
Risks and Discomforts	of	The respondents will be protected from physical, social, or economic risks. In case the respondents feel uncomfortable, they may terminate their involvement at any time they decide to answer any or all questions and may terminate your involvement at any time you choose. <i>(Ang mga partisipante ginaprotektahan sa pisikal, sosyal o ekonomikanhong risiko. Kung</i>



	<i>pinangalanan adunay mga pangkatang mga personalidad na kayo o kung di ka komportable, maramang di ka mabigay o unalalala sa paghubog sa bisan anu o sa tanging mga pangkatang ng moatras sa pag-apil sa bisan unsang panahon nga imong gusto.)</i>
Benefits (Kicapahan)	This study will enable you to shed light or provide understanding about Positive Impact of Crime Mapping Technology in Patrol Efficiency and Crime Hotspot Identification. An Appreciative Inquiry. Thus, your responses shall be highly valued for deemed important in the field of Criminology. <i>(Kini nga pagtuon mapakatipon kasama paghubog ng katan-awan o pagpapahaluhahan sa Positive Impact ng Teknolohiya sa Crime Mapping sa Kalayaan ng Pagpapalaganap ng Disertasyon ng Pangkatang mga Pagsisiyap sa Marikina, Juma Tagaytay, Imbitan sa Ikalimang distrito ng Pangasinan nga tubag hubog ng dulong di nga ginay ng importante sa lepra sa Criminology.)</i>
Reimbursamen to (Halap nga bayad)	There will be no monetary expenses or costs on your part as a respondent, nor any monetary compensation for your participation in this study. However, personal protective equipment (PPE) like face masks, alcohol and face shields may be provided during the gathering of the research data. <i>(Wala kay magastos sa imong pag-apil nini nga pagtuon. Ang adunay mga personal protective equipment (PPE) sama sa face masks, alcohol ng face shields nga pwede nga mahatag sa panahon sa pagkula sa mga datos)</i>
Confidentiality of Data (Pag-ampay sa Datos)	Only the researcher will have access to the information and responses of the participants. The personal identifying information of the participants will only be used for research analysis and will be treated with the utmost confidentiality. During the study, all data will be kept in a locked, secure filing cabinet, of which will be discarded 6 months after the publication of the results. <i>(Ang nagtatan lang ang makakita sa mga impormasyon ng tubag sa respondents. Ang mga datos nga makata i-safelisa ng hatagan ng tumang pag-ampay aron dili ibayag. Sa panahon sa pagtuon, pagmamagnum sa usa ka selyongong filing cabinet ang tumang datos nga pagpaganap-tan kasama sa i-kanilang ginay sa pag-publik sa resulta.)</i>
Sharing of Findings (Pagpapahayag sa Nakuapagan)	The results of this study will be presented during the thesis/dissertation final defense of the respondent. Also you may be shared through publications and conferences with the assurance that the identities of the respondents will remain confidential. A printed copy of the completed study will be provided to the participants. <i>(Ang mga resulta nini nga pagtuon ipapresenta sa panahon sa final defense sa thesis/dissertation sa nagtatan. Ang mga nakuapagan sa pagtuon possible nga ipapublik paman sa mga publications ng conferences nga adunay kapangyarihan nga dili mabiyag ang pagkatwara sa mga partisipante. Pagpapalaganap ng usa ka gimprina nga kopya sa kompletong mga pagtuon ung mga partisipante.)</i>
Rights to Refuse or Withdraw (Katawagan sa Pagpapahaluhahan)	You are free to withdraw or terminate participation at any stage of the study, without the need to give any reason. You will not be penalized in case of termination of participation. <i>(Gawason ka nga moatras or maramdang sa pag-apil sa bisan anu nga punto sa pagtuon nga di ka moakompanyan sa pagtuon. Dili ka ipapenal sa kasat-awan o pag-pagulang.)</i>



to <i>Pang-unang</i>	
Who	
Contact	Should there be any queries as a parent, you can contact the researcher through the following details:
(Utiwa ang Kontakon)	(Kung mayroon ninyo pangutana, maaaring rito mokontak pinagay uning mga detalye.)
	Name of the Researchers (Ngalan sa Naghanap) Ahat, Jea Mae T., Ajena, Justine L., Bayon;
	on, Norrie Khylie, Dela Vera, John Luther C.,
	Cellphone Number(s) (09)5550848
	e-mail ad: justinecas@gmail.com



Misamis University

H. T. Feliciano St., Ozamiz City, 7200 Philippines

MISAMIS UNIVERSITY RESEARCH ETHICS BOARD

Phone: +6388 521 0367 / Fax: +6388 521 2917

Email: muresearchethics@mu.edu.ph

MT-010-01003 March 2022

STATEMENT BY THE RESEARCHER (PAGPADAYAG SA NAGTUON)

I will read the Information sheet to the potential participant. With the best of my ability, I make sure that the participant will understand the interview questions and that possible follow-up interviews may be undertaken.

(Akong pagbabasa ang mga nasulat niining Information Sheet ngadto sa potensyal nga partisipante. Kutob sa akong mahimo siguroon nako nga masabtan sa partisipante ang mga pangutana sa interview ug ang possible nga follow-up nga interviews.)

I can assure that the participant will be given an opportunity to ask questions about the study, and all the questions raised will be answered fully. I can likewise assure that the participant will not be coerced into giving consent that must be free and voluntary.

(Gisiguro ko nga ang partisipante mahatagan og panahon sa pagpangutana kabahin niining pagtuon og ang tanang pangutana nga iyang gihatag matubag sa hingpit. Siguroon ko usab ang maong partisipante dili mapugos sa paghatag sa pagtuon nga kinahanglan nga gawason og boluntaryo.)

A copy of this Informed Consent Form will be provided to the participant.
(Ang kopya sa niining Informed Consent Form itatag ngadto sa respondent.)

Print Name of Researchers (Ngalan sa Nagtuon): Aht, Jea Mae T., Ajeas, Justine L., Bayon-on, Norgie Khyle, Dela Vega, John Luther C.



Misamis University

H. T. Feliciano St., Ozamiz City, 7200 Philippines

MISAMIS UNIVERSITY RESEARCH ETHICS BOARD

Phone: +6388 521 0367 / Fax: +6388 521 2917

Email: muresearchethics@mu.edu.ph

MT-010-01003 March 2022

PART II. CERTIFICATE OF CONSENT

This research entitled "Positive Impact of Crime Mapping Technology in Patrol Efficiency and Crime Hotspot Identification: An Appreciative Inquiry," by _____ with the aim of gathering information and data pertaining to positive impact on how crime mapping technology enhances police patrol efficiency and accurately identifies crime hotspots through a strengths-based approach, has been presented and explained to me clearly. Since the study involves police officers, I am chosen as one of the participants.

(Kini nga pagtuon gitutolohan, "Positibong Epekto ng Teknolohiya sa Crime Mapping sa Kahusayan ng Pagsasagawa ng Pagtatratipiko at Pagkilala sa mga Lugar na Mataas ang Krimen: Isang Appreciative Inquiry" ni _____, nga adunay tumong sa pagkuha og impormasyon ug datos kabahin sa Positibong epekto sa paggamit sa crime mapping technology sa pagpalambo sa kahusayan sa police patrol ug tukmang pag-ila sa mga crime hotspot gamit ang usa ka pamaagi, gipresenta ug gipasabot og klaro kanako. Tumod kay ang pagtuon kay kabahin sa police officer, ako napilian isip usa sa mga partisipante.)

I have read the foregoing Informed Consent Form, or it has been read to me. I had the opportunity to ask questions, which were subsequently answered fully. I consent voluntarily to be a participant of this study.

(Akong nabasa ang nauna nga Informed Consent Form, o gihasa kini kanako. Natagaan ako og hugayon nga makapangutana nga natubag sa hingpit. Ako mosugot nga boluntaryo nga mahimong partisipant sa niining pagtuon.)

Print Name of Participant (Ngalan sa Partisipante): NVP Non-Uniformed Personnel / ICT Arching
Signature of Participant (Pirma sa Partisipante): _____
Date: [MM/DD/YYYY] 7-25-2025

If Illiterate (Kung dili makasulat ug makabasa)

If the respondent is illiterate, a witness who is literate will sign. The respondent will choose him/ her and who is without connection with the researcher or the research group to attest this undertaking. The respondent will affix his thumb print.

(Kung ang participant kay dili makabasa o makasulat, mopirma ang usa ka makabasa ug makasulat nga testigo. Ang respondent ang mopili kaniya nga walay koneksyon sa nagtuon o sa iyang grupo para mopamatuod sa gimbuhaton. Ang respondent mobutang sa iyang tamlu (thumb print)).

Name and Signature of the Witness
(Ngalan ug Firma sa Testigo)

Thumb mark

Appendix F

PARENT'S CONSENT

 **MISAMIS UNIVERSITY**
Ozamiz City
Department of Student Affairs & Services
MU-DSAS-006/02 June 2026

PARENT'S CONSENT
COLLEGE OF CRIMINOLOGY
Sponsoring Group/Organization

I am allowing my son/daughter/ward, Norgie Khyle C. Bayon-on, to join the Conduct of Research Interview (activity) to be held on October 2025 at Misamis Occidental Police Station under the supervision of Prof. Edmar R. Daniel (Adviser/Faculty).

I understand that Misamis University exercises the necessary safety precautions in this activity.

In consideration of the benefits to be derived from the above activity, I expressly waive any and all claims against the administration or any member of the faculty and staff of the Misamis University on account of any unforeseen accident or injury that my son/daughter/ward might incur in connection with the aforementioned activity.

Rogelio B. Bayon-on
Signature over printed name of
Parent/Guardian 10/3/25
Date

Norgie Khyle C. Bayon-on
Signature over printed name of
Student 10/3/25
Date

Important: This form shall be submitted to the DSAS Office at least two (2) days before the conduct of the activity.

SUBSCRIBED AND SWORN to before me, this 12 MAY 2026 day of MAY at CITY OF OZAMIS Philippines, that the herein affiant personally came and appeared with his/her valid ID as evidence of his/her personal identity.

Doc. No. 525
Page No. 113
Book No. 4
Series of 2026

ATTY. SOPHIA APRIL C. SANES - CPA
Notary Public
Notarial Commission No. 2025-14
valid until Dec 31, 2027
Attorney's Roll RR-00343
IBP No. INV 559157 Nov 2026
PTR No. 60077 Roll NO. 5/2026 Ozamiz City
MCLE Compliance No. VIII-0025371
valid until April 14, 2028

(For DSAS Personnel only)

Attested by:

RODEL L. BALDADO, MHist, MAEd
OIC, Department of Student Affairs & Services
Date: _____

Appendix

DOCUMENTATION



A personal interview with the selected participants.

Appendix H

CERTIFICATE OF PUBLICATION



Certificate of Publication

This is to certify that

Jea Mae T. Ahat

Has published an article entitled

Positive Impact of Crime Mapping Technology in Patrol Efficiency and Crime Hotspot

Identification: An Appreciative Inquiry

In

Volume 10, Issue 1, January-March 2026

Mediterranean Journal of Basic and Applied Sciences



Certificate of Publication

This is to certify that

Jastine L. Ajeas

Has published an article entitled

Positive Impact of Crime Mapping Technology in Patrol Efficiency and Crime Hotspot

Identification: An Appreciative Inquiry

In

Volume 10, Issue 1, January-March 2026

Mediterranean Journal of Basic and Applied Sciences



Certificate of Publication

This is to certify that

Norgie Khyle C. Bayon-on

Has published an article entitled

Positive Impact of Crime Mapping Technology in Patrol Efficiency and Crime Hotspot

Identification: An Appreciative Inquiry

In

Volume 10, Issue 1, January-March 2026

Mediterranean Journal of Basic and Applied Sciences



Certificate of Publication

This is to certify that

John Luther C. Dela Vega

Has published an article entitled

Positive Impact of Crime Mapping Technology in Patrol Efficiency and Crime Hotspot

Identification: An Appreciative Inquiry

In

Volume 10, Issue 1, January-March 2026

Mediterranean Journal of Basic and Applied Sciences



CURRICULUM VITAE

PERSONAL INFORMATION

Name : Jea Mae T.Ahat
Address : P-4 Sibugon, Lopez Jaena Mis. Occ.
Date of Birth : June 16, 2004
Place of Birth : Oroquieta City
Father's Name : Ralph T. Ahat
Mother's Name : Jonna Lou T. Ahat
Religion : PIC



EDUCATION

College : Bachelor of Science in Criminology
Misamis University
December 2025
H.T. Feliciano St., Aguada, Ozamiz City
Senior High School : Misamis University
Oroquieta City
Junior High School : Looc National High School
Looc, Plaridel Mis. Occ.
Elementary : Sibugon Integrated School
Sibugon, Lopez Jaena Mis. Occ.

SEMINARS AND TRAINING ATTENDED

- Mental Health and Awareness Seminar
- Seminar-Workshop in Dactyloscopy

CURRICULUM VITAE

PERSONAL INFORMATION

Name : Jastine L. Ajeas
Address : P-Malipayon, Maningcol, Ozamiz City Mis Occ.
Date of Birth : August 18, 2003
Place of Birth : Ozamiz City
Father's Name : Quirico P. Ajeas
Mother's Name : Vilma L. Ajeas
Religion : Catholic



EDUCATION

College : Bachelor of Science in Criminology
Misamis University
December 2025
H.T. Feliciano St., Aguada, Ozamiz City
Senior High School : Misamis University
H.T. Feliciano St., Aguada, Ozamiz City
Junior High School : Ozamiz City School of Arts and Trades (OCSAT)
Maningcol, Ozamiz City
Elementary : Maningcol Central School
Maningcol Ozamiz City

SEMINARS AND TRAINING ATTENDED

- Mental Health and Awareness Seminar
- Seminar-Workshop in Dactyloscopy

CURRICULUM VITAE

PERSONAL INFORMATION

Name : Norgie Khyle C. Bayon-on
Address : P-2 Cogon, Ozamiz City
Date of Birth : August 5,2003
Place of Birth : Ozamiz City
Father's Name : Rogelio B. Bayon-on
Mother's Name : Leonor C. Bayon-on
Religion : Assembly of God



EDUCATION

College : Bachelor of Science in Criminology
Misamis University
December 2025
H.T. Feliciano St., Aguada, Ozamiz City
Senior High School : Ozamiz City National High School
Bernard St., Ozamiz City
Junior High School : Cogon Integrated School
Cogon, Ozamiz City
Elementary : Cogon Integrated School
Cogon, Ozamiz City

SEMINARS AND TRAINING ATTENDED

- Mental Health and Awareness Seminar
- Seminar-Workshop in Dactyloscopy

CURRICULUM VITAE

PERSONAL INFORMATION

Name : John Luther C. Dela Vega
Address : P-5 Pulot, Ozamiz City Mis Occ.
Date of Birth : October 12, 2004
Place of Birth : Tubod Lanao Del Norte
Father's Name : Jason M. Dela Vega
Mother's Name : Lorelie C. Dela Vega
Religion : Catholic



EDUCATION

College : Bachelor of Science in Criminology
Misamis University
December 2025
H.T. Feliciano St., Aguada, Ozamiz City
Senior High School : Pulot National High School
Pulot Ozamiz City
Junior High School : Pulot National High School
Pulot Ozamiz City
Elementary : Dimaluna Elementary School
Dimaluna Ozamiz City

SEMINARS AND TRAINING ATTENDED

- Mental Health and Awareness Seminar
- Seminar-Workshop in Dactyloscopy