International Journal for Multidisciplinary Research (IJFMR)
E-ISSN: 2582-2160 ● Website: www.ijfmr.com ● Email: editor@ijfmr.com

Crime Monitoring and Operational Efficiency of Selected Police Stations in the National Capital Region: Towards Enhanced Law Enforcement

Paul Dick C. Valencia

Graduate School, Emilio Aguinaldo College, Manila, Philippines

Abstract

This study examined the readiness of law enforcement agencies in the Philippines to implement Real-Time Crime Monitoring and its relationship with operational efficiency in crime prevention. Using a quantitative descriptive–comparative and correlational research design, data were gathered from supervisory and managerial police personnel through a structured survey instrument covering six dimensions of RTCM readiness and ten dimensions of operational efficiency. The study also tested differences in perceptions when grouped according to age, length of service, and educational attainment, and determined the strength of association between readiness and efficiency variables.

Findings indicate that readiness to implement Real-Time Crime Monitoring is generally evident across governance, technological infrastructure, community engagement, human resource capability, operational processes, and sustainability dimensions. Similarly, operational efficiency in crime prevention is assessed as evident in areas such as patrol operations, law enforcement activities, investigation procedures, public safety coordination, efficiency metrics, and governance accountability. While most demographic variables do not produce significant differences in perception, selective differences emerge when grouped according to length of service, particularly in human resource capability and logistical readiness.

Most notably, correlation analysis reveals a very strong and statistically significant positive relationship between RTCM readiness and operational efficiency. Improvements in governance mechanisms, technological integration, personnel competence, operational coordination, and community engagement are strongly associated with enhanced efficiency in crime prevention functions. These findings suggest that strengthening RTCM readiness is central to improving institutional performance outcomes.

Keywords: crime monitoring, operational efficiency, police stations, National Capital Region

INTRODUCTION

The capacity of law enforcement agencies to respond to crime has long been associated with their ability to adapt to new technologies and operational reforms. In the Philippine context, crime prevention and control remain a pressing concern, particularly in urban areas such as Metro Manila where population density and socio-economic disparities often create conditions conducive to criminal activity (Cimene et al., 2022). The Philippine National Police (PNP), as the primary law enforcement agency, has consistently implemented operational activities—such as patrol, traffic management, law enforcement, investigation, internal security, and community relations—to preserve peace and order. Studies, however, reveal that

while these efforts have yielded measurable declines in crime, issues of sustainability, accountability, and readiness to adopt advanced systems persist (Micubo, 2025; Sarcena & Patalinghug, 2021).

The development of a specific policy framework demonstrates the essential value of policing that uses technology for urgent community protection operations. The main operational elements of this initiative include two main components which require police officers to maintain higher visibility while implementing the 5-Minute Response Time Strategy and establishing better command chain procedures and police unit interoperability and community relations efforts which serve as force multipliers. The operational priorities of this organization indicate that they will move away from traditional police work which responds to crime incidents toward proactive crime prevention methods which use data analysis to monitor criminal activities through essential operational systems. General Torre current operational programs show a strong connection to real-time crime monitoring becausethey require immediate response and police unit deployment and individual officers to take responsibility.

The modern implementation of Real-Time Crime Monitoring (RTCM) systems has established new standards for detecting and responding to criminal activities. The system called RTCM enables police forces to track and investigate criminal activities through its combination of surveillance equipment and online platforms and its analytical capabilities which function in real time (Liu et al., 2025). The system includes core components which consist of sensors and databases and geolocation systems together with operational processes that manage emergency situations and direct public safety staff through their accountability systems and their involvement of residents for gathering intelligence (Ndubuisi et al., 2024; Sugiyanti, 2019). The law enforcement agencies need to establish their readiness by assessing their current capabilities which include all required areas for successful RTCM deployment. The success of RTCM to improve public safety depends on the readiness of organizations which includes their technological assets and employee competencies and their organizational structure.

Operational efficiency works alongside police implementation, which determines how well law enforcement organizations use their assets to provide fast and efficient crime prevention operations while maintaining low operational costs and response times (Carroll et al., 2010; Micubo, 2025). The process of efficient performance involves multiple components which include patrol deployment and law enforcement operations and investigation procedures and public safety initiatives and police work to reduce crime and police work to develop community relationships. The research demonstrates that organizations which operate their activities efficiently can achieve two goals because they decrease criminal activities while they build public confidence in police organizations (Prince et al., 2021; Coyle, 2024). The Philippine police organizations need to achieve operational efficiency because they face resource limitations and institutional obstacles which prevent them from effectively handling local criminal activities.

The study's value comes from its combination of two essential elements which include RTCM readiness and operational efficiency. The research examines a police district in Metro Manila to fill the existing research gap about how law enforcement agencies prepare for real-time monitoring systems while they continue their everyday operations. The Philippine National Police (PNP) recently introduced reforms which include their 5-Minute Response Time Strategy and the establishment of Kalasag 911 and their shift towards mobile and people-focused policing (Philippine National Police 2025). The research assesses both readiness and efficiency to create a comprehensive view of institutional and technological and human elements which determine successful crime prevention results.

Ultimately, this study is significant for law enforcement agencies, policymakers, and communities. For the PNP, it provides empirical evidence on areas requiring investment and training for RTCM implementation. For policymakers, it offers insights that can inform resource allocation and legislative support. For communities, it underscores the role of citizen engagement in shaping crime prevention strategies. The findings are expected to guide the development of a comprehensive program that strengthens both readiness and efficiency, ensuring that law enforcement agencies are equipped to deliver timely, accountable, and community-oriented public safety services in the evolving landscape of crime prevention.

Statement of the Problem

1. To what degree do the respondents consider their readiness to implement Real-Time Crime Monitoring in law enforcement agencies in the Philippines in terms of:
   1.1. Technological Infrastructure and Data Inputs
   1.2. Operational Processes and Rapid Response
   1.3. Human Resource and Capacity Readiness
   1.4. Governance, Accountability, and Ethics
   1.5. Community Participation and Engagement
   1.6. Sustainability and Adaptability?
2. To what extent do the respondents evaluate the operational efficiency of law enforcement agencies in crime prevention in terms of:

2.1.Patrol Operations
2.2.Law Enforcement Operations
2.3.Internal Security
2.4.Public Safety Operations
2.5.Investigation
2.6.Police–Community Relations
2.7.Crime Rate Indicators
2.8.Efficiency Metrics
2.9.Logistical and Human Resource Readiness
2.10. Governance and Accountability?

3. What is the significant relationship between the Real-Time Crime Monitoring readiness and operational efficiency in crime prevention?

Research Methodology

The study employed a quantitative correlational research design to examine the readiness of law enforcement agencies to implement Real-Time Crime Monitoring and their operational efficiency in crime prevention. Data were gathered from purposefully selected supervisory-level police personnel across three police districts in Metro Manila, ensuring that respondents possessed sufficient experience, training, and access to operational documents relevant to Real-Time Crime Monitoring and policing performance. A researcher-developed evaluative instrument in the form of document-based supervisory rubrics was utilized, consisting of: Real-Time Crime Monitoring readiness, and operational efficiency. The instrument used a four-point scale to assess the presence and quality of documented practices, and it underwent expert validation and pilot testing to ensure clarity, relevance, and reliability.

Data collection followed formal approval from authorities, with coordination undertaken to ensure minimal disruption to police operations. Questionnaires were distributed personally, and informed consent was secured prior to participation. Completed instruments were retrieved promptly, and the data were encoded, tabulated, and analyzed using descriptive and inferential statistical tools. Frequency, percentage, mean, and standard deviation were used to describe the variable. Pearson's Product-Moment Correlation Coefficient was applied to examine the relationship between Real-Time Crime Monitoring readiness and operational efficiency, with all analyses conducted at a 0.05 level of significance using SPSS to ensure accuracy and consistency of results.

Results and Discussion

Table 1. Summary of Readiness to Implement Real-Time Crime Monitoring (RTCM)

Sub-variable	Weighted Mean	Standard Deviation	Qualitative Description
Governance, Accountability, and Ethics	2.74	.572	Evident
Technological Infrastructure and Data Inputs	2.74	.560	Evident
Community Participation and Engagement	2.72	.581	Evident
Human Resource and Capacity Readiness	2.72	.587	Evident
Operational Processes and Rapid Response	2.70	.578	Evident
Sustainability and Adaptability	2.70	.565	Evident
Overall Readiness to Implement RTCM	**2.72**	**.534**	**Evident**

Legend: 3.51–4.00 (Highly Evident); 2.51–3.50 (Evident); 1.51–2.50 (Partially Evident); 1.00–1.50 (Not Evident)

Table 2 consolidates RTCM readiness across subvariables, showing that all six subdimensions fall within the "Evident" category and the overall readiness mean is 2.72 with SD of 0.534. Governance, Accountability, and Ethics and Technological Infrastructure and Data Inputs share the highest mean at 2.74, while Operational Processes and Rapid Response and Sustainability and Adaptability share the lowest at 2.70. The differences are small, suggesting balanced development across components rather than extreme strengths or weaknesses. This near-uniformity is important because it indicates that readiness is not being propped up by a single domain. Instead, each part appears moderately in place, which supports the idea of system-wide implementation rather than isolated improvements.

What is striking in Table 8 is the absence of any subvariable reaching "Highly Evident." The highest mean is still only 2.74, which may suggest that respondents see RTCM as established but not yet operating at an advanced or consistently optimized level. In practice, a readiness mean in the mid-2.70s implies that implementation is functioning but still vulnerable to inconsistencies in workflow discipline, staffing continuity, coordination strength, or sustainability planning. This interpretation aligns with earlier tables where items involving inter-agency sharing, triage thresholds, and partnerships trend lower. If the RRL

you provided frames readiness as multidimensional and dependent on governance and capacity alongside technology, Table 8 supports that view by demonstrating that readiness is distributed across governance, infrastructure, human resources, operations, community engagement, and sustainability.

Table 2. Summary of Operational Efficiency in Crime Prevention

Subvariable	Weighted Mean	Standard Deviation	Qualitative Description
Police–Community Relations	2.76	.546	Evident
Law Enforcement Operations	2.75	.573	Evident
Patrol Operations	2.75	.564	Evident
Efficiency Metrics	2.75	.548	Evident
Public Safety Operations	2.74	.547	Evident
Investigation	2.72	.591	Evident
Crime Rate Indicators	2.72	.546	Evident
Governance and Accountability	2.70	.569	Evident
Internal Security	2.67	.580	Evident
Logistical and Human Resource Readiness	2.65	.548	Evident
Overall Operational Efficiency	**2.72**	**.517**	**Evident**

Legend: 3.51–4.00 (Highly Evident); 2.51–3.50 (Evident); 1.51–2.50 (Partially Evident); 1.00–1.50 (Not Evident)

Table 2 consolidates operational efficiency findings and reveals an overall mean of 2.72 with SD 0.517, categorized as Evident. Police–Community Relations ranks highest at 2.76, followed closely by Law Enforcement, Patrol Operations, and Efficiency Metrics at 2.75. Logistical and HR Readiness ranks lowest at 2.65, with Internal Security slightly above at 2.67.

The narrow spread between 2.65 and 2.76 suggests balanced development across operational domains rather than isolated strengths. However, the absence of any "Highly Evident" rating across subvariables indicates that operational efficiency remains functional rather than optimized. Variability patterns across tables consistently point to uneven documentation and implementation across units.

In summary, operational efficiency in crime prevention is structurally in place and broadly recognized, yet remains in a consolidation phase. Stronger domains involve documentation-heavy activities such as community programs and clearance reporting, while weaker domains involve lifecycle tracking, communication audits, internal security coordination, and HR optimization. The overall pattern aligns with RRL insights that modernization initiatives often establish procedural compliance first, with deeper analytic integration and institutional consistency developing gradually over time.

Table 3. Correlation Between Real-Time Crime Monitoring (RTCM) Readiness Dimensions and Operational Efficiency in Crime Prevention

Real-Time Crime Monitoring	Operational Efficiency	Computed r	Sig.	Decision	Interpretation
Governance,	Patrol Operations	.84**	.000	Reject	Very strong positive

Accountability, and Ethics				Ho	relationship
	Law Enforcement Operations	.812**	.000	Reject Ho	Very strong positive relationship
	Internal Security	.871**	.000	Reject Ho	Very strong positive relationship
	Public Safety Operations	.800**	.000	Reject Ho	Very strong positive relationship
	Investigation	.859**	.000	Reject Ho	Very strong positive relationship
	Police–Community Relations	.760**	.000	Reject Ho	Strong positive relationship
	Crime Rate Indicators	.817**	.000	Reject Ho	Very strong positive relationship
	Efficiency Metrics	.820**	.000	Reject Ho	Very strong positive relationship
	Logistical and HR Readiness	.824**	.000	Reject Ho	Very strong positive relationship
	Governance and Accountability	.799**	.000	Reject Ho	Very strong positive relationship
Technological Infrastructure and Data Inputs	Patrol Operations	.812**	.000	Reject Ho	Very strong positive relationship
	Law Enforcement Operations	.808**	.000	Reject Ho	Very strong positive relationship
	Internal Security	.853**	.000	Reject Ho	Very strong positive relationship
	Public Safety Operations	.794**	.000	Reject Ho	Very strong positive relationship
	Investigation	.835**	.000	Reject Ho	Very strong positive relationship
	Police–Community Relations	.740**	.000	Reject Ho	Strong positive relationship
	Crime Rate Indicators	.851**	.000	Reject Ho	Very strong positive relationship
	Efficiency Metrics	.834**	.000	Reject Ho	Very strong positive relationship
	Logistical and HR Readiness	.840**	.000	Reject Ho	Very strong positive relationship
	Governance and Accountability	.850**	.000	Reject Ho	Very strong positive relationship
Community	Patrol Operations	.852**	.000	Reject	Very strong positive

Participation and Engagement				Ho	relationship
	Law Enforcement Operations	.877**	.000	Reject Ho	Very strong positive relationship
	Internal Security	.849**	.000	Reject Ho	Very strong positive relationship
	Public Safety Operations	.805**	.000	Reject Ho	Very strong positive relationship
	Investigation	.854**	.000	Reject Ho	Very strong positive relationship
	Police–Community Relations	.815**	.000	Reject Ho	Strong positive relationship
	Crime Rate Indicators	.872**	.000	Reject Ho	Very strong positive relationship
	Efficiency Metrics	.868**	.000	Reject Ho	Very strong positive relationship
	Logistical and HR Readiness	.861**	.000	Reject Ho	Very strong positive relationship
	Governance and Accountability	.882**	.000	Reject Ho	Very strong positive relationship
Human Resource and Capacity Readiness	Patrol Operations	.860**	.000	Reject Ho	Very strong positive relationship
	Law Enforcement Operations	.871**	.000	Reject Ho	Very strong positive relationship
	Internal Security	.860**	.000	Reject Ho	Very strong positive relationship
	Public Safety Operations	.858**	.000	Reject Ho	Very strong positive relationship
	Investigation	.826**	.000	Reject Ho	Very strong positive relationship
	Police–Community Relations	.791**	.000	Reject Ho	Very strong positive relationship
	Crime Rate Indicators	.846**	.000	Reject Ho	Very strong positive relationship
	Efficiency Metrics	.841**	.000	Reject Ho	Very strong positive relationship
	Logistical and HR Readiness	.860**	.000	Reject Ho	Very strong positive relationship
	Governance and Accountability	.808**	.000	Reject Ho	Very strong positive relationship
Operational Processes and Rapid Response	Patrol Operations	.838**	.000	Reject Ho	Very strong positive relationship

	Law Enforcement Operations	.866**	.000	Reject Ho	Very strong positive relationship
	Internal Security	.846**	.000	Reject Ho	Very strong positive relationship
	Public Safety Operations	.841**	.000	Reject Ho	Very strong positive relationship
	Investigation	.850**	.000	Reject Ho	Very strong positive relationship
	Police–Community Relations	.790**	.000	Reject Ho	Strong positive relationship
	Crime Rate Indicators	.837**	.000	Reject Ho	Very strong positive relationship
	Efficiency Metrics	.828**	.000	Reject Ho	Very strong positive relationship
	Logistical and HR Readiness	.843**	.000	Reject Ho	Very strong positive relationship
	Governance and Accountability	.863**	.000	Reject Ho	Very strong positive relationship
Sustainability and Adaptability	Patrol Operations	.835**	.000	Reject Ho	Very strong positive relationship
	Law Enforcement Operations	.835**	.000	Reject Ho	Very strong positive relationship
	Internal Security	.832**	.000	Reject Ho	Very strong positive relationship
	Public Safety Operations	.836**	.000	Reject Ho	Very strong positive relationship
	Investigation	.837**	.000	Reject Ho	Very strong positive relationship
	Police–Community Relations	.753**	.000	Reject Ho	Strong positive relationship
	Crime Rate Indicators	.822**	.000	Reject Ho	Very strong positive relationship
	Efficiency Metrics	.838**	.000	Reject Ho	Very strong positive relationship
	Logistical and HR Readiness	.812**	.000	Reject Ho	Very strong positive relationship
	Governance and Accountability	.817**	.000	Reject Ho	Very strong positive relationship
Overall Real-Time Crime Monitoring	**Overall Operational Efficiency**	.972**	**.000**	**Reject Ho**	**Extremely strong positive relationship**

Table 3 presents the correlation analysis between Real-Time Crime Monitoring readiness and operational efficiency dimensions, and the results are striking. All computed correlation coefficients are positive, statistically significant at the 0.01 level, and largely fall within the very strong range. Significance values are consistently reported at 0.000, indicating that the observed relationships are unlikely due to chance. What immediately stands out is the overall correlation between total RTCM readiness and overall operational efficiency, which yields an r value of 0.972. This reflects an extremely strong positive relationship. In practical terms, as readiness for real-time crime monitoring increases, operational efficiency in crime prevention appears to increase almost proportionally. Such a high coefficient suggests near-linear alignment between monitoring readiness and operational outcomes.

Looking more closely at the individual readiness dimensions, Governance, Accountability, and Ethics demonstrates very strong correlations with nearly all operational efficiency indicators. For example, its relationship with Internal Security is r = 0.871, with Investigation at r = 0.859, and with Efficiency Metrics at r = 0.820. Even its lowest association, with Police–Community Relations, remains strong at r = 0.760. These figures suggest that governance structures and ethical enforcement mechanisms are deeply intertwined with frontline and investigative effectiveness. This pattern aligns with literature emphasizing that accountability systems and ethical oversight strengthen institutional performance by clarifying standards and reinforcing procedural discipline.

Technological Infrastructure and Data Inputs also exhibit very strong positive relationships across operational domains. Correlations range from r = 0.740 with Police–Community Relations to r = 0.853 with Internal Security and r = 0.851 with Crime Rate Indicators. These results may indicate that the presence of functional surveillance systems, reliable data storage, and real-time connectivity directly enhances operational monitoring and crime trend management. It appears that technological readiness is not isolated from field operations; rather, it may serve as an enabling backbone for patrol responsiveness, investigative tracking, and performance metrics. This supports theoretical discussions in the RRL that data-driven policing environments rely heavily on integrated technological ecosystems.

Community Participation and Engagement yields some of the highest correlations in the table. Its association with Governance and Accountability reaches r = 0.882, and with Law Enforcement Operations r = 0.877. Even relationships with Efficiency Metrics and Crime Rate Indicators remain above r = 0.868 and r = 0.872 respectively. This suggests that community involvement is not peripheral but central to operational performance. When stakeholders actively report incidents, participate in awareness programs, and engage in feedback mechanisms, operational units appear to function more effectively. The strong link with governance outcomes may imply that transparency and public trust reinforce institutional discipline and measurable results.

Human Resource and Capacity Readiness similarly demonstrates consistently high coefficients, such as r = 0.871 with Law Enforcement Operations and r = 0.860 with both Patrol Operations and Logistical and HR Readiness. This reinforces the idea that competent personnel, ICT literacy, and structured training programs are directly associated with operational success. Operational Processes and Rapid Response also maintain strong correlations, including r = 0.866 with Law Enforcement and r = 0.850 with Investigation. These findings suggest that procedural clarity and centralized coordination are closely connected to measurable efficiency.

Sustainability and Adaptability, though slightly lower than some other dimensions, still records very strong associations, typically ranging from r = 0.812 to r = 0.838. Its lowest correlation appears with Police–Community Relations at r = 0.753, which remains strong. This indicates that long-term funding,

upgrade planning, and adaptive strategies contribute meaningfully to operational outcomes. The slightly lower coefficient in community relations may suggest that sustainability mechanisms influence operational structure more directly than relational engagement.

Taken together, Table 26 presents a coherent and compelling pattern. Every readiness dimension is positively and significantly correlated with every operational efficiency dimension. The consistency of coefficients above 0.75 across nearly all pairings suggests systemic interdependence rather than isolated influence. The extremely strong overall correlation of 0.972 may indicate that RTCM readiness functions as a foundational determinant of operational efficiency. At the same time, such a high value invites cautious interpretation. While it strongly supports the conceptual linkage proposed in the framework, it may also suggest overlapping constructs or closely aligned measurement indicators.

In summary, the results strongly reject the null hypotheses across all pairings. Readiness to implement Real-Time Crime Monitoring is not merely associated with operational efficiency; it appears deeply embedded within it. As governance strengthens, technology improves, personnel competence rises, and community participation expands, operational efficiency correspondingly increases. The evidence from Table 26 supports the argument that RTCM readiness and crime prevention efficiency are mutually reinforcing dimensions within a unified institutional system.

Conclusion

The study results demonstrate that the police districts maintain operational capacity for both Real-Time Crime Monitoring (RTCM) implementation and crime prevention activities which they have established as their operational standards. The system processes and structures which exist at present need to reach their maximum performance level because organizations cannot prove their systems work at a "highly evident" level. The current pattern that exists shows institutional development has reached a point where agencies undergo modernization but need to develop their operations through better internal procedures and systemwide implementation. The organization requires dedicated resources to develop its logistical operations and sustainability strategies and internal team collaboration because these elements will determine the success and effectiveness of both RTCM operations and their routine activities.

The study demonstrates that RTCM readiness establishes a strong operational efficiency relationship which both variables operate together within a single police organization. The combination of better governance and increased technological capabilities and improved staff skills and greater community involvement leads to better operational efficiency results. The study results show that investing in RTCM readiness through infrastructure upgrades and personnel training and interagency cooperation will enhance crime prevention results. The study results show a strong connection between two elements who perform similar functions across different organizational systems.

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