

Technology-Enabled Policing and Crime Control in Calabar Metropolis, Cross River State, Nigeria

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ARTICLE INFORMATION	ABSTRACT
Article history: Published: October 2026 Keywords: Armed Conflicts Cyber Criminal Enterprises Counterterrorism Digitalization CCTV cameras Social Media Policing Technology Crime Control White-Collar Crimes Nigeria	Technological innovations have increasingly become central to contemporary approaches to security and crime control across the world. Advances in information and communication technologies, surveillance systems, biometric identification, and digital communication platforms have transformed how crimes are prevented, detected, and investigated. As criminal activities become more sophisticated and technologically driven, security agencies are compelled to adopt modern technological tools to enhance efficiency, improve response time, and strengthen crime control mechanisms. The study analysed the impact of technology-enabled policing on crime control in Calabar Metropolis, Cross River State, Nigeria. Specifically, the study assessed the relationship between utilization of biometric technology, CCTV cameras, social media policing, and crime control. Using quantitative methods, data were generated from 384 respondents through multi stage sampling technique. The questionnaire was the major instrument of data collection. Simple percentage was used in data presentation and analysis. Findings from this study revealed that the utilization of biometric technology, CCTV cameras, social media policing, relates crime control in Calabar Metropolis. The study, therefore, recommended among others that there is an urgent need to improve the general conditions of service of police officers in Nigeria, this will motivate them to discharge their constitutional responsibilities efficiently and effectively. In addition, government should provide increased funding in equipping officers of the NPF with renewed emphasis on modern policing techniques including training on forensic science, psychology and the use of DNA and Ballistics techniques.

1. Introduction

Technology-enabled policing has become an indispensable part of human interaction and plays an important role in contemporary policing, aiding law enforcement agencies in crime prevention, investigation, and operational efficiency (Omang, et al, 2024; Brancale et al., 2025). Police departments are increasingly adopting a range of emerging technologies in efforts to enhance public safety, including artificial intelligence (AI) tools, predictive analytics, real-time crime centers, body-worn cameras, and automated license plate readers (ALPRs) that support investigative and patrol activities (Brancale et al., 2025; EFF, 2024; Thomson Reuters, 2023; Etobe, Udom, & Etobe, 2024; Odinka, et al, 2026). AI and machine learning applications are being used to process large volumes of data, identify patterns, and forecast high-risk situations, which helps agencies allocate resources more proactively (Okpa, Ajah, & Igbe, 2021; Kaseware, 2025; Gupta & Sayer, 2024; Abang, et al, 2026). Additionally, the integration of mobile apps and digital databases has transformed traditional policing practices, enabling better information sharing, faster identity verification, and more coordinated responses across different units (Thomson Reuters, 2023; Yaya & Etobe, 2022; Times of India, 2026; Chinedu, et al, 2026). Although these technologies hold promise for improving law enforcement outcomes, they also raise important concerns about privacy, data security, potential biases, and the need for regulatory oversight to protect civil liberties (Electronic Frontier Foundation, 2024; Phys.org, 2024; Okpa, et al, 2026; Abang, et al, 2026).

Technology-enabled policing broadly refers to a wide range of digital and electronic tools used for collecting, storing, retrieving, processing, analyzing, and transmitting information. In recent years, such technologies have been extensively adopted by law enforcement agencies worldwide for both administrative functions such as personnel management, payroll, and records keeping and core policing responsibilities, including crime detection, investigation, and control (Interpol, 2023; Ajah, & Okpa, 2019; Mazerolle et al., 2022; Okpa, et al, 2026). As criminals increasingly exploit digital platforms to perpetrate more sophisticated and transnational crimes, law enforcement agencies are correspondingly deploying advanced technological tools to counter these evolving threats (UNODC, 2023; Okpa, et al, 2026). Contemporary policing now relies on diverse technologies such as closed-circuit television (CCTV), social media intelligence, data-mining systems, facial recognition software, thermal and heat sensors, surveillance drones, biometric identification systems, GPS tracking devices, and advanced internet and telecommunication infrastructures. These technologies support crime detection, investigation, prosecution, and prevention across societies (Europol, 2023; Okpa, Ilupeju, & Eshiotse, 2020; Ferguson, 2022). Information and communication technology (ICT), in particular, provides the analytical capacity required for effective security management, coordination of global operations, and real-time intelligence sharing, thereby

transforming policing and security practices at local, national, and international levels (Okpa, et al, 2023; Adejoh & Igbinoia, 2024; Ogar, et al, 2023; United Nations, 2022).

The nature of crime has also undergone significant transformation. Recent global crime trends indicate a decline in traditional offenses such as burglary, street theft, and violent crime, while technology-enabled crimes including cyber fraud, identity theft, online scams, and digital financial crimes have increased substantially (Europol, 2024; FBI, 2023; Tiku, et al, 2025). Technology-enabled policing has thus become a powerful instrument for tracing offenders, recovering stolen property, and generating digital evidence admissible in court proceedings (McQuade & Holt, 2022; Antai, et al, 2025). In many cases, offenders leave digital footprints through social media posts, online communications, and electronic transactions, which law enforcement agencies increasingly exploit for investigative purposes. Furthermore, the growing use of social media platforms has enhanced public participation in policing, enabling citizens and victims to report crimes, share information, and interact directly with law enforcement agencies through online channels (Bradford et al., 2023; Ajah, et al, 2025). While criminals continue to harness digital technologies to expand the reach and impact of their activities, advances in Technology-enabled policing simultaneously present law enforcement agencies with unprecedented opportunities to improve crime control strategies, enhance intelligence-led policing, and strengthen accountability and transparency (Ariel et al., 2022; Etobe, et al, 2025). Against this background, this study examines the relationship between technology-enabled policing and crime control in the Calabar Metropolis of Cross River State, Nigeria.

1.1 Research questions

- To what extent does biometric technology influence crime control in Calabar Metropolis?
- To what extent does CCTV surveillance influence crime control in Calabar Metropolis?
- To what extent does social media policing influence crime control in Calabar Metropolis?

1.2 Objectives of the study

The general objective of this study is to examine the relationship between technology-enabled policing and crime control in Calabar Metropolis, Cross River State, Nigeria. Specifically, the study seeks to:

- Analyse the extent to which the utilization of biometric technology and crime control in Calabar Metropolis.
- Determine how utilization of CCTV cameras affect crime control in Calabar Metropolis.
- Examine how social media policing affect crime control in Calabar Metropolis.

2. Theoretical framework

2.1 Routine Activity Theory

Routine Activity Theory, developed by Cohen and Felson (1979), offers a useful framework for understanding how technology-enabled policing relates to crime control. The theory holds that a crime occurs only when three elements converge in time and space: a motivated offender, a suitable target, and the absence of a capable guardian. Guardianship, in this sense, refers to any person or thing whose presence discourages crime and whose absence makes crime more likely, whether that guardian is a police officer, a neighbour, or a surveillance system (Felson & Cohen, 1980). Crime, on this account, is not simply a product of an offender's motivation; it is a product of opportunity, and removing any one of the three elements is sufficient to prevent an offence from taking place. This framework is directly relevant to technology-enabled policing because such technologies function as an extension of capable guardianship. Reynald (2017) argues that surveillance technologies, including CCTV and digital monitoring systems, extend guardianship beyond what human guardians alone can provide, by increasing the coverage, consistency, and visibility of oversight in a given space. Tools such as closed-circuit television, automated licence plate readers, facial recognition software, and real-time crime centres increase the perceived risk of detection for a potential offender, which, according to the theory, reduces the likelihood that a motivated offender will act on an available opportunity. In this sense, technology does not eliminate motivated offenders or suitable targets; it strengthens the third element of the theory, the presence of a capable guardian, at a scale that human patrol alone cannot achieve. Applied to crime control specifically, this theoretical logic explains several of the outcomes examined in this study. Improved response time and arrest effectiveness reflect a reduction in the window during which a target remains unguarded once an offence has occurred. Crime detection and evidence generation reflect an extension of guardianship into the investigative stage, where digital footprints and recorded data serve the same deterrent and disruptive function that a human witness would serve at the scene. Intelligence gathering and predictive tools extend guardianship further still, allowing law enforcement agencies to anticipate where suitable targets and motivated offenders are likely to converge before an offence takes place, rather than responding only after guardianship has already failed. Public safety, understood through this lens, is less a matter of eliminating offenders' motivation and more a matter of sustaining a consistent, technologically reinforced presence of guardianship across the spaces where crime opportunities are most likely to arise. A limitation worth noting is that Routine Activity Theory was developed to explain opportunistic, situational crime, and it has less to say about offences rooted in deeper social or economic causes, such as poverty or inequality (Cohen & Felson, 1979). Technology-enabled policing, understood through this theory, can therefore be expected to reduce crimes of opportunity more effectively than it addresses the underlying conditions that motivate offenders in the first place, which is a distinction worth keeping in mind when interpreting this study's findings on crime control.

3. Methods

The study adopted a cross-sectional survey research design. This design involves collecting data from a population or sample at a single point in time to describe existing conditions and examine relationships among variables. The study was conducted in Calabar Metropolis, Cross River State, Nigeria. The area covers 274.429 square kilometres and had a population of 371,022 according to the 2006 census, with the Efik, Ejagham, and Bekwarra as the major ethnic groups. The study population consisted of male and female officers aged 20 years and above, serving across selected law enforcement agencies in Calabar Metropolis, Cross River State,

Nigeria: the Nigeria Police Force, the Department of State Services, the Nigeria Customs Service, the Nigeria Immigration Service, and the Nigeria Correctional Service. Both rank-and-file officers and senior officers were included, as they were considered well placed to provide relevant information on how technology-enabled policing are employed and utilised for crime control in the study area. Two sampling techniques were adopted: simple random sampling and purposive sampling. In the first stage, simple random sampling was used to select three security agencies from the five law enforcement agencies operating in Calabar Metropolis, Cross River State, Nigeria. This was done through balloting: the names of the five agencies were written on separate slips of paper, placed in a basket, and three were randomly drawn. This process yielded the Nigeria Police Force, the Department of State Services, and the Nigeria Immigration Service, which formed the three clusters of the study. In the second stage, purposive sampling was used to select 128 respondents from each of the three selected agencies, giving 128 respondents each from the Nigeria Police Force, the Department of State Services, and the Nigeria Immigration Service, for a total sample of 384 respondents. To determine the sample size for officers serving in the Calabar Metropolis, Cross River, Cochran's formula (1963) was adopted. Data were collected using a questionnaire. The questionnaire, titled "Questionnaire on Technology-enabled policing and Crime Control (QTIS)," consisted of 32 items divided into two sections. Section A captured respondents' demographic information, including sex, age, marital status, educational level, years of experience, and place of residence. Section B contained 25 items measuring the relationship between technology-enabled policing and crime control, with responses rated on a four-point Likert scale ranging from Strongly Agree to Strongly Disagree. The statistical tool adopted for this study is simple percentages.

4. Results

4.1 Research question one: To what extent does the utilization of biometric technology contribute to crime control in Calabar Metropolis?

Descriptive statistics (frequency and percentages) were used to answer research question and the result is presented in table 1. Results of analysis as indicated in table 1 shows participants responses as follows; Biometric technology is used by law enforcement officers to verify whether people are who they claim to be; 186 (51.95) respondents' strongly agreed, 118 (32.96) agreed, while 37 (10.33) disagreed 17 (4.74) strongly disagreed. On whether Biometric technology is applied by law enforcement agents to discover the true identity of criminals; 210 (58.65) strongly agreed, 106 (29.60) agreed, 23 (7.82) disagreed and 14 (3.91) strongly disagreed. When asked Criminal elements can be apprehended by law enforcement agents through their fingerprints; 167 (46.84) strongly agreed, 101 (28.21) agreed, 61 (17.03) disagreed, and 29 (8.10) strongly disagreed. Law enforcement agents make use of palm vein to identify criminals; 205 (57.26) strongly agreed, 123 (34.35) agreed, 18 (5.02) disagreed and 12 (3.35) strongly disagreed. The use of facial recognition, makes it easier for law enforcement officials to spot and track dangerous criminals; 191 (53.35) strongly agreed, 114 (31.84) agreed, while 38 (10.61) disagreed and 15 (4.18) strongly disagreed.

Table 1: Responses on utilization of biometric technology and crime control

S/N	STATEMENTS	SA	A	D	SD
1	Biometric technology is used by law enforcement officers to verify whether people are who they claim to be	186 (51.95)	118 (32.96)	37 (10.33)	17 (4.74)
2	Biometric technology is applied by law enforcement agents to discover the true identity of criminals	210 (58.65)	106 (29.60)	23 (7.82)	14 (3.91)
3	Criminal elements can be apprehended by law enforcement agents through their fingerprints	167 (46.84)	101 (28.21)	61 (17.03)	29 (8.10)
4	Law enforcement agents make use of palm vein to identify criminals	205 (57.26)	123 (34.35)	18 (5.02)	12 (3.35)
5	The use of facial recognition, makes it easier for law enforcement officials to spot and track dangerous criminals	191 (53.35)	114 (31.84)	38 (10.61)	15 (4.18)

Source: Field survey, 2025

4.2 Research question two: To what extent does CCTV surveillance influence crime control in Calabar Metropolis?

Descriptive statistics (frequency and percentages) were used to answer research question and the result is presented in table 2. Results of analysis as indicated in table 2 shows participants responses as follows; CCTV camera has been used by law enforcement agents to track the movement of criminals; 196 (54.74) respondents' strongly agreed, 118 (32.96) agreed, while 24 (6.70) disagreed 20 (5.58) strongly disagreed. On whether Law enforcement agents have identified criminal suspects through the use of CCTV camera; 215 (60.05) strongly agreed, 91 (25.41) agreed, 41 (11.45) disagreed and 11 (3.07) strongly disagreed. Law enforcement agents have been able to provide surveillance of critical locations through the use of CCTV cameras; 199 (55.58) strongly agreed, 116 (32.40) agreed, 28 (7.82) disagreed, and 15 (4.18) strongly disagreed. CCTV camera footage provide corroborative evidence during the prosecution of criminal cases in court; 202 (56.42) strongly agreed, 120 (33.51) agreed, 27(7.54) disagreed and 9 (2.54) strongly disagreed. Victims of crime can easily be identified through the use of CCTV camera; 166 (46.36) strongly agreed, 128 (35.75) agreed, while 42 (11.73) disagreed and 22 (6.14) strongly disagreed.

Table 2: Responses on utilization of CCTV camera and crime control

S/N	STATEMENTS	SA	A	D	SD
6	CCTV camera has been used by law enforcement agents to track the movement of criminals	196 (54.74)	118 (32.96)	24 (6.70)	20 (5.58)
7	Law enforcement agents have identified criminal suspects through the use of CCTV camera	215 (60.05)	91 (25.41)	41 (11.45)	11 (3.07)

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8	Law enforcement agents have been able to provide surveillance of critical locations through the use of CCTV cameras	199 (55.58)	116 (32.40)	28 (7.82)	15 (4.18)
9	CCTV camera footage provide corroborative evidence during the prosecution of criminal cases in court	202 (56.42)	120 (33.51)	27 (7.54)	9 (2.54)
10	Victims of crime can easily be identified through the use of CCTV camera	166 (46.36)	128 (35.75)	42 (11.73)	22 (6.14)

Source: Field survey, 2025

4.3 Research question three: To what extent does social media policing influence crime control in Calabar Metropolis?

Descriptive statistics (frequency and percentages) were used to answer research question and the result is presented in table 3. Results of analysis as indicated in table 3, shows participants responses as follows; as for whether face book has been used by law enforcement agents to lure suspects to location where they are arrested; 218 (60.89) respondents' strongly agreed, 122 (34.07) agreed, while 8 (2.23) disagreed 10 (2.79) strongly disagreed. On whether Law enforcement agents provide tips on crime prevention to citizens on social media; 194 (54.18) strongly agreed, 107 (29.88) agreed, 32 (8.93) disagreed and 25 (6.98) strongly disagreed. Social media provide one of the easiest and cheapest ways for law enforcement agencies to obtain and access evidence in any criminal event; 211 (58.93) strongly agreed, 98 (27.37) agreed, 27 (7.54) disagreed and 22 (6.14) strongly disagreed. Social media provide law enforcement agents with intelligent information, which facilitates the arrest of criminals; 164 (45.81) strongly agreed, 144 (40.22) agreed, 31 (8.65) disagreed, and 19 (5.30) strongly disagreed. As for if the most frequently used social media platform by law enforcement agents in their investigation is Facebook; 177 (49.44) strongly agreed, 138 (38.54) agreed, while 23 (6.42) disagreed and 20 (5.58) strongly disagreed.

Table 3: Responses on utilization of social media policing and crime control

S/N	STATEMENTS	SA	A	D	SD
11	Facebook has been used by law enforcement agents to lure suspects to location where they are arrested	218 (60.89)	122 (34.07)	8 (2.23)	10 (2.79)
12	Law enforcement agents provide tips on crime prevention to citizens on social media	194 (54.18)	107 (29.88)	32 (8.93)	25 (6.98)
13	Social media provide one of the easiest and cheapest ways for law enforcement agencies to obtain and access evidence in any criminal event	211 (58.93)	98 (27.37)	27 (7.54)	22 (6.14)
14	Social media provide law enforcement agents with intelligent information, which facilitates the arrest of criminals	164 (45.81)	144 (40.22)	31 (8.65)	19 (5.30)
15	The most frequently used social media platform by law enforcement agents in their investigation is Facebook	177 (49.44)	138 (38.54)	23 (6.42)	20 (5.58)

Source: Field survey, 2025

4.4 Discussion of findings

The findings of the first hypothesis indicate a statistically significant relationship between the utilization of biometric technology and crime control in Calabar Metropolis, Cross River State, Nigeria. This result suggests that the increasing adoption of biometric technologies by security agencies such as the Nigeria Police Force, Department of State Services (DSS), and Nigeria Immigration Service has enhanced crime prevention, detection, and investigation within the study area. Biometric technologies have gained prominence among law enforcement institutions due to their capacity to improve the accuracy, reliability, and efficiency of identification and authentication processes, particularly in criminal investigations and intelligence-led policing (Interpol, 2023; UNODC, 2022; Etobe, Etobe. & Plang, 2019).

The results of the second hypothesis reveal a statistically significant relationship between the utilization of closed-circuit television (CCTV) cameras and crime control in Calabar Metropolis, Cross River State, Nigeria. This finding indicates that the installation of CCTV systems by corporate organizations, business premises, and commercial outlets has contributed to crime reduction by limiting criminal opportunities and increasing the perceived risk of detection and apprehension among offenders. The study further shows that law enforcement agencies actively encourage the installation of CCTV cameras as a preventive strategy to deter criminal activities and enhance situational surveillance within the metropolis.

The results of the statistical analysis for the third hypothesis indicate a significant relationship between social media policing and crime control in Calabar Metropolis, Cross River State, Nigeria. This finding demonstrates that the use of social media platforms by law enforcement agencies has enhanced surveillance, communication, and information exchange, thereby strengthening crime control efforts within the study area. Social media policing provides law enforcement officers with real-time tools for gathering intelligence, disseminating information, and engaging directly with citizens, which improves responsiveness to crime and public safety concerns. The study reveals that social media platforms facilitate proactive policing by enabling law enforcement agencies to reach wider audiences, solicit public assistance, and receive instant reports, images, videos, and audio evidence related to criminal activities. This supports earlier assertions that social media has become a critical resource for police–community interaction and collaborative crime control (Stuart, 2013)

5. Conclusion and Recommendations

5.1 Conclusion

Technology-enabled policing is widely used by law enforcement agencies worldwide to detect, prevent, and respond to crime. Agencies such as the Police Force, the Department of State Services, and the Immigration Service rely on these innovations daily to

handle both routine and unexpected situations, including theft and other serious criminal incidents. Such technologies support routine patrol, criminal investigation, intelligence gathering, surveillance, and improved service delivery to the public.

This suggests that the quality and quantity of security equipment available to law enforcement agents significantly affect their operational performance. Operating with obsolete equipment limits their ability to respond promptly to distress calls and resolve criminal incidents efficiently. The rise in violent crimes, including armed robbery, ritual killings, murder, political assassinations, kidnapping, ethno-religious violence, and electoral violence, underscores the need to equip law enforcement agents with modern security technology, since an ill-equipped and ineffective force cannot guarantee public safety.

5.2 Recommendations

- Government and relevant security agencies should prioritise the replacement of obsolete security equipment with modern technological innovations, to improve law enforcement agents' capacity to respond promptly to distress calls and resolve criminal incidents.
- Government should provide increased funding in equipping officers of the NPF with renewed emphasis on modern policing techniques including training on forensic science, psychology and the use of DNA and Ballistics techniques.
- Government should establish good diplomatic relationship with countries with well-equipped security forces with the aim of these nations helping the Nigeria security outfits in training and developing necessary skills to handle and operate sophisticated Technology-enabled policing

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