

JUST AFRICA



All Africa
Journal of Criminal Justice

Vol 10. No. 1

Editor-in-Chief

Dr Flip Schutte
e-mail: FlipS@stadio.ac.za

Assistant Editor

Annalise Kempen
e-mail: annalise@servamus.co.za

Editorial/Management Committee

Dr Flip Schutte	STADIO
Dr Divya Singh	STADIO
Dr Leah Shibambo	STADIO
Annalise Kempen	SARP Publishers

Editorial Board

South African representatives

Dr Ezeji Chiji	University of Johannesburg
Prof. Nicolene du Preez	UNISA
Prof. Jacob Mofokeng	Tshwane University of Technology
Dr Kobus Schwartz	South African Police Service
Dr Divya Singh	STADIO
Dr Phillip Vuma	STADIO

International Academics

Prof. James Albrecht	Pace University, USA
Prof. Jaco Barkhuizen	Rabdan Academy, Abu Dhabi
Dr Ezeji Chiji	University of Johannesburg
Prof. Ghandi	India
Prof. Rajendra Gunpath	University of Mauritius
Dr Nicholas Pamment	University of Portsmouth
Dr Gráinne Perkins	University of Southern Maine
Dr Stefan Schulz	Namibia University of Science and Technology

JUST AFRICA is a peer-reviewed academic journal that promotes academic and professional discourse and the publishing of research results on the subject of crime and criminal justice and other crime-related phenomena in the broad Criminological Sciences and applied field of criminal justice.

JUST AFRICA was previously published by the ALL AFRICA CRIMINAL JUSTICE SOCIETY (ACJUS) (first published in 2013).

STADIO and SARP Publishers, the publishers of Servamus Community-based Safety and Security Magazine, were granted permission to continue with the publication of **JUST AFRICA** and have joined forces to do so, combining their respective academic and publishing experience.

Copyright: STADIO & SARP Publishers.

Indemnity: The opinions expressed in this Journal are not necessarily those of the Editorial team, STADIO or SARP Publishers.

ISSN: 978-0-620-61064-3

The **JUST AFRICA** Journal can be accessed at:
<https://servamusmagazine.co.za/new/journals/>
or <https://journals.co.za/content/journal/ajcj>



CONTENTS

FOREWORD

THE IMPORTANCE FOR POLICING AND LAW ENFORCEMENT INSTITUTIONS ACROSS THE REGION TO BE MORE EFFECTIVE, ACCOUNTABLE AND RESPONSIVE TO SOCIETY Dr Jeanette Smit	4
---	----------

LEGAL TALK

CASE LAW Dr Marga van Rooyen	6
LEGISLATIVE DEVELOPMENTS Dr Marga van Rooyen	8

ARTICLES

EXAMINING MANAGEMENT PRACTICES IN A MULTICULTURAL NATIONAL POLICE SERVICE IN THE BOLAND REGION Dr Nico Armfield and Dr Hendrik Johannes Christoffel van Zyl	10
AN EXPLORATION OF EMERGENCY COMMUNICATION RESPONSE (ECR) SYSTEMS FOR ENHANCED POLICING IN SOUTH AFRICA Rozain Nicolene Niemand and Dr Hendrik Johannes Christoffel van Zyl	21
FUTURISTIC POLICING FOR WILDLIFE PROTECTION: LEVERAGING GOVERNANCE FOR GLOBAL PROGRESS IN PREVENTING TURTLE WILDLIFE CRIME Dr Jeanette Smit and Dr Phillip Vuma	31
PERFORMANCE MANAGEMENT SYSTEM EFFECTIVENESS AND WORK ENGAGEMENT IN A LAW ENFORCEMENT AGENCY Uetupa Panduleni Nelumbu and Dr Johleen Mouton	42

BOOK REVIEW

CRIME SCENE INVESTIGATION: FROM THE PERSPECTIVE OF THE FIRST RESPONDER, CRIME SCENE EXAMINER AND CRIME INVESTIGATOR Book by Hennie Lochner Review by Chris Botha	49
---	-----------

FOREWORD

The Importance for Policing and Law Enforcement Institutions across the Region to be more Effective, Accountable and Responsive to Society

Dr. Jeanette Smit

Former Head: School of Policing and Law Enforcement
STADIO Institution of Higher Education
e-mail: JeanetteS@stadio.ac.za

The **Just Africa Journal** was the dream of the late Prof Neels Roelofse, who sought to establish an accredited journal for law enforcement in South Africa. He passed away at the beginning of 2019. This non-accredited journal was first published in June 2014, with subsequent editions appearing annually. **Just Africa** is a double-blind peer-reviewed academic journal promoting academic and professional discourse and publishing research results on crime, criminal justice and other crime-related phenomena within the broad criminological sciences and applied field of criminal justice.

In 2019, Southern Business School (SBS) - now **STADIO** - and SARP Publishers, publishers of **Servamus Community-based Safety and Security Magazine**, were granted permission to continue the publication of the **Just Africa Journal**, following Prof Roelofse's passing. Jeanette Smit, the now-retired Head of School of Policing and Law Enforcement, took over the role of Editor-in-Chief, while Annalise Kempen, the editor of **Servamus** became Assistant Editor.

This journal has created an important space for young academics and post-graduate students to publish in academic journals - particularly for those working in the law enforcement environment - highlighting the value of combining academic work with practical experience.

This issue of **Just Africa** brings together a variety of contributions that, taken as a whole, speak to a single underlying concern: how policing and law enforcement institutions across the region can become more effective, accountable and

responsive to the societies and ecosystems they are mandated to protect.

The issue opens with an examination of management practices within a multicultural national police service in the Boland region, a study that foregrounds the human dimension of policing - how diversity, leadership and organisational culture shape service delivery on the ground.

This is followed by an exploration of Emergency Communication Response (ECR) systems, focusing attention on the technological and operational infrastructure that underpins effective policing in South Africa, and the gains to be made when communication systems are strengthened and modernised.

The third article shifts the lens outward, addressing futuristic approaches to wildlife protection through the case of turtle wildlife crime. In doing so, it makes a compelling case for governance innovation as a tool for global progress, reminding readers that policing is not only confined to human communities but extends to protecting biodiversity and natural heritage that transcends national borders.

Rounding out the articles is a descriptive analysis of performance management system effectiveness and work engagement within the Namibian Police Force's Criminal Investigation Directorate, offering valuable comparative insight into how institutional systems shape morale, motivation and outcomes within law enforcement agencies in the region.

Taken together, these articles do not try to offer one specific answer. Instead, they show a field wrestling honestly with its own complexity - from office culture to emergency call centres to conservation crime and staff morale.

This issue of **Just Africa** also features a book review of Dr Hennie Lochner's **Crime Scene Investigation from the Perspective of a First Responder, Crime Scene Examiner and Crime Investigator**, penned by Chris Botha. The review offers readers a practitioner-informed perspective on the realities of crime scene work, complementing the academic contributions in this issue with grounded, field-level insight.

We are grateful to every author and reviewer who contributed their time and expertise to make that possible, and we hope you find as much in these pages as we did.

EDITORIAL UPDATE

With the retirement of Dr Jeanette Smit at the end of 2025 as Head of School for Policing and Law Enforcement, the **Just Africa Journal** and its editorial responsibilities have transitioned into the capable hands of Dr Flip Schutte at **STADIO**. This transition marks a new chapter for the journal while maintaining the strong foundation established through the collaboration between **STADIO** and **Servamus**.

The partnership between **STADIO** and **Servamus** continues to grow and remains committed to creating meaningful opportunities for both established and emerging researchers to share their research findings with a broader community. Through this collaboration, we hope to continue promoting research, encouraging new voices and contributing to informed discussions on matters relevant to policing, safety and the broader community.

LEGAL TALK

Case Law

Dr. (Maj-Gen.) Marga van Rooyen

Legal Services, South African Police Service

KOPANANG AFRICA AGAINST XENOPHOBIA AND OTHERS v OPERATION DUDULA AND OTHERS (2023/044685) [2025] ZAGPJHC1102 (4 NOVEMBER 2025)

The treatment of foreign nationals in South Africa has received a lot of coverage over the years. In 2008, during a spate of xenophobic attacks, more than 60 foreigners lost their lives in South Africa. Sporadic incidents involving hatred of, and attacks on, foreigners have since then regularly been reported.

According to reports, the anti-foreign sentiment has been driven by various perceptions: These include that foreigners are to be blamed for the high rate of crime. The levels of unemployment in South Africa have fuelled hatred towards foreigners, as many South Africans believe that illegal foreigners are taking work and positions that belong to South Africans. Foreign shopkeepers have also been blamed for incidents of death as a result of foodborne diseases.

Around 2021, reports surfaced that members of a group, Operation Dudula (meaning "to force out" in isiZulu), were harassing foreigners and taking action to expel foreign nationals from South Africa. Operation Dudula, a voluntary association of private persons, operates mainly in Gauteng. They advocate for the removal of foreign nationals in the country, the closure of foreign-owned shops, the removal of drug dealers and demand that the high crime rate be addressed.

The conduct of members of Operation Dudula to further these demands included the following:

- public protests to gather support for their anti-foreigner sentiment;
- going from house-to-house demanding to see the identification documents of residents. At times, residents have been harassed and their property damaged;
- conducting raids on buildings where residents were threatened, intimidated and forcefully evicted;
- attacks on businesses and informal traders that they believe are owned or managed by foreigners;
- preventing, threatening and forcibly removing foreigners from public health care facilities. This included pregnant women who required health care; and

- demanding the removal of foreign children and teachers from public schools.

The conduct of members of Operation Dudula resulted in another non-governmental organisation, Kopanang Africa (focusing on fighting xenophobia in South Africa), approaching the High Court in Johannesburg to interdict members of Operation Dudula from continuing with their actions.

The judgment in the matter of *Kopanang Africa against Xenophobia and Others v Operation Dudula and Others (2023/044685) [2025] ZAGPJHC1102 (4 November 2025)* contains important directions on illegal immigrants.

The court pointed to various fundamental rights as guaranteed in the Constitution of the Republic of South Africa, 1996 (the Constitution). The court explained that human dignity transcends nationality and every person, irrespective of his or her nationality, is entitled to basic human rights. The court further stated that the violation of basic rights must have consequences.

The right to protest unarmed and peacefully is guaranteed in section 17 of the Constitution. The right affords persons, including members of Operation Dudula, the right to protest and raise their concerns and frustration. However, section 17 does not extend to protests that incite violence and hate speech. Such conduct is criminalised by the Regulation of Gatherings Act 205 of 1993.

The prevention of entry and the forceful removal of foreigners from public health care facilities contravenes section 27(1)(a) of the Constitution. Section 27 guarantees the right of access to health care services and reproductive health care, which imposes an obligation on private persons to refrain from preventing or impairing the right of other persons to access such facilities. Importantly, the right is extended to "everyone" - not only South African citizens.

The same applies to the right to basic education that is also extended to "everyone". Threats against foreign teachers and learners and the forceful removal of foreign children from public schools contravene section 29(1)(a) of the Constitution, which guarantees the right to basic education. Section 28(2) of the

Constitution also provides that the best interests of a child is of paramount importance in every matter concerning the child. This is not limited to South African children only.

The court also highlighted that section 41 of the Immigration Act 13 of 2002 empowers an immigration officer or a police official to request any person to identify him- or herself as a citizen, resident or foreigner. If the immigration officer or police official, on reasonable grounds, is not satisfied that such person is entitled to be in the Republic, the immigration officer or police official may take the person into custody without a warrant and, if necessary, detain him or her in a prescribed manner and place until the identity and status of the person has been determined.

By interpreting section 41 of the Immigration Act, the court explained that this section consists of the following actions:

■ Stop and identification

Any person may be requested by an immigration officer or police official to confirm his or her identity and status to be in the country. There is no limitation placed on the exercise of this power in respect of the time, place or reason to demand a person to confirm his or her identity or status;

■ Interview

If the immigration officer or police official is, on reasonable grounds, not satisfied that the person is lawfully in the country after he or she has been requested to do so, the person may be interviewed about his or her identity or status;

■ Arrest and detention without a warrant

If the immigration officer or police official is not satisfied with the explanation of the person, the person may be arrested and detained without a warrant to verify his or her identity or status;

■ Verification

The immigration officer or police official must take steps to verify the status of the person while he or she is in custody. This may include contacting relatives to prove the identity and status of the arrested person or accessing the records of the Department of Home Affairs to determine such; and

■ Further detention in accordance with section 34 of the Immigration Act

If necessary, the person may be kept in detention to facilitate his or her deportation. Section 34 provides that a person may be arrested and detained, without a warrant, for a period of up to 48 hours and that a court may extend such a period further.

In respect of children younger than 18 years, the court held that an immigration officer or police official may not interrogate, arrest or detain a child, except as a measure of last resort and in a manner that is consistent with section 28(1)(g) of the Constitution. This includes that the child must be kept separate from adults and must be treated in a manner and kept in conditions that consider the age of the child. Considering the constitutional imperative of the best interests of a child, the court held that it is not in the best interests of children to subject them to such questioning under

section 41, which carries criminal sanctions if the child fails or refuses to cooperate with the immigration officer or police official. In addition, the court confirmed that section 41 does not allow for a private person to exercise the powers conferred upon an immigration officer or police official. Therefore, no member of the public may demand that someone produce her or his identity or other document to demonstrate her or his right to be in the country. Furthermore, no member of the public may demand that police officials accompany or escort them to investigate or inquire into the legal status of persons. This power may only be exercised if authorised by law.

Where public protest takes place, SAPS is responsible for monitoring and policing the demonstration or protest in accordance with the Regulation of Gatherings Act and ensuring that participants are unarmed and it takes place without violence.

The court ordered that Operation Dudula and its representatives are prohibited from acting in the following manner:

- demanding that any private person produce his or her passport or other documents to demonstrate her or his right to be in the Republic;
- intimidating, harassing or assaulting any person they identify as a foreign national;
- making public statements that constitute hate speech on the grounds of nationality, social origin or ethnicity at public gatherings, on social media platforms or in any other way;
- interfering with the access of foreign nationals to health care services and their right to such access; interfering with access to, or the operations of, schools and intimidating or harassing learners, teachers or parents at schools;
- unlawfully evicting foreign nationals from their homes;
- unlawfully removing foreign nationals from their trading stalls or interfering with the employment of foreign nationals in shops and businesses; and
- instigating, encouraging or inciting any other person to perform any of the acts prohibited by the order, on social media, at gatherings in terms of the Regulation of Gatherings Act or in any other way.

In terms of its constitutional mandate as set out in section 205(3) of the Constitution, police officials must uphold and enforce the law. Therefore, if members of Operation Dudula commit an offence in their presence, such as by contravening the court order, police officials must act to enforce the law. As an example, if members of Operation Dudula commit an offence in the presence of the police, section 40(1)(a) of the Criminal Procedure Act 51 of 1977 applies. This provision authorises a peace officer to arrest, without a warrant, any person who commits or attempts to commit an offence in his or her presence.

LEGAL TALK

Legislative Developments

Dr. (Maj-Gen.) Marga van Rooyen

Legal Services, South African Police Service

AMENDMENTS BY THE BASIC EDUCATION LAWS AMENDMENT ACT 32 OF 2024 (BELA) ON THE SOUTH AFRICAN SCHOOLS ACT 84 OF 1996 AND THE IMPACT ON POLICING

Safety at schools is an increasing matter of concern. While schools are supposed to be a place for children to learn and prepare for adulthood, incidents of violence and drug use appear to hamper children's ability to learn at schools.

Another issue of concern is the role and responsibility of teachers to maintain discipline in schools and how a teacher, as a responsible person with authority on school premises, may intervene when identified issues could endanger the safety of persons on the school premises (albeit learners or teachers), or when drug use by learners is observed.

Section 28(2) of the Constitution of the Republic of South Africa, 1996 provides that a child's best interests are of paramount importance in every matter concerning the child. This requires that any action planned or executed involving a child must consider what would be in his or her best interest. Schools are places of learning that afford children a platform to learn and grow, socialise and develop skills which will enhance future opportunities for success. Schools must be safe for learning.

The South African Schools Act 84 of 1996 ("the Act") was recently amended by the Basic Education Laws Amendment Act 32 of 2024 (BELA Act) to strengthen safety measures at schools.

The BELA Act inserted section 8A in the Act, providing for random searches and seizures and drug testing at schools. The section contains various measures aimed at protecting learners and school premises. A person is prohibited from bringing or being in possession of a dangerous object or a drug on the school premises or during any school activity. A school activity includes any official educational, cultural, recreational or social activity of the school within or outside the school premises. This may include events such as a school concert or sporting event at a neutral venue or stadium (in other words, not on the school premises).

This prohibition applies to children and adults. The only exception is if a dangerous object or drug has been authorised by the principal for legitimate educational purposes to be on school premises or during a school activity. An example includes when a school arranges with the K9 Unit of the South African Police Service to demonstrate the capabilities of police narcotics dogs to sniff out drugs and actual drugs are brought to a school for demonstration purposes; then such conduct will be lawful.

A "dangerous object" is defined in the Act and includes explosive material or device, a firearm or gas weapon and an article, object or instrument that may be used to cause bodily harm to a person or damage to property.

A "drug" is defined to include an intoxicating or stupefying substance that has a psychological or physiological effect, a substance that may only be possessed or used with a medical prescription or legal authorisation, as well as performance-enhancing drugs or prohibited performance-enhancing substances.

Furthermore, the Act confers extensive powers on a principal or his or her delegate to intervene to protect learners' safety at school or during school activities. If a principal or his or her delegate has a reasonable suspicion that liquor, a dangerous object or a drug may be found or is in the possession of any learner on school premises or during a school activity, they may randomly search a learner or a group of learners and their property for liquor, a dangerous object or drug. This means that powers relating to search and seizure, normally only exercised by police officials, have been extended to authorised school functionaries. A principal may therefore delegate this power to teachers to ensure action is taken when liquor, drugs or a dangerous object is found at a school, even without police intervention.

The extension of the power recognises the need for school management to intervene immediately where liquor, a dangerous object or drugs are suspected to be on school premises or during a school activity. This is critical to secure the safety of learners and school premises.

However, the extension of such powers to a principal and his or her delegates poses risks. Consider, for example, that various fundamental rights, as guaranteed by the Constitution of the Republic of South Africa, 1996, may be infringed during a search operation. This includes the infringement of the rights to dignity, privacy, property and freedom and security.

To limit the infringement of learners' rights, the Act requires that a principal or his or her delegate must consider certain factors before any learner may be searched. This requires consideration of the following:

- the best interests of the learners in question or of any other learner at the school;
- the safety and health of the learners in question or of any other learner at the school;

- reasonable evidence or suspicion that the learner or group of learners are involved in an illegal activity; and
- all relevant evidence received, such as a complaint from another learner, threats made by a learner that he or she will harm someone, etc.

The power of a principal or his or her delegate is further limited by requiring that a search must be executed in a manner that is reasonable and proportional to the suspected illegal activity.

The Act provides certain conditions when a search is executed. A body search of a learner must be conducted by a principal or delegate of the same gender as the learner; it must be done in a private area, not in front of another learner, but an adult witness of the same gender as the learner must be present to witness the search. However, the power to search does not extend to searching a learner's body cavity.

If drugs, liquor or a dangerous object has been seized, the article must be clearly and accurately labelled with details such as the name of the learner from whom it was seized, the names of the person who searched the learner and the witness and the time and date of search and seizure.

The article must be handed over to the police immediately. Police officials are required to dispose of it in terms of section 31 of the Criminal Procedure Act 51 of 1977. Section 31 provides that an article may be returned to the person from whom it was seized, if such person may lawfully possess the article. Otherwise, if such person may not lawfully possess such article, to the person who may lawfully possess it. If no person may lawfully possess such article (for example, a drug such as cocaine), the article must be forfeited to the State.

If the police cannot immediately collect the liquor, dangerous object or drug from the school, the article cannot be left at school. The principal or his or her delegate must take the liquor, dangerous object or drug to the nearest police station; and hand it over to the police for disposal. An official receipt must be issued by the police official to the principal or his or her delegate to acknowledge receipt.

In addition, a principal or his or her delegate may, if he or she on reasonable grounds suspects that the learner or group of learners is using liquor or drugs, administer a urine or other non-invasive test at random to the learner or group of learners. This power must be exercised with the consideration of the same factors as in the case of the searching of a learner, such as the best interests of the learner or learners or any other learner at the school; their safety and health and reasonable evidence that the learner or learners are involved in an illegal activity.

The same conditions as imposed in respect of the conducting of a search, must also be complied with in case of the administration of a urine or other non-invasive test: The test must be conducted by a principal or delegate of the same gender as the learner, it must be done in a private area, not in front of another learner but an adult witness of the same gender as the learner must be present. The sample must be processed and marked similarly to the procedure provided in the case of a search.

The principal or his or her delegate must inform the parent (or care-giver) of the learner involved if a random test or search and seizure was performed and of the result of the test once it is available.

Importantly, no criminal proceeding may be instituted against a learner in whose possession liquor or a dangerous object is found or if the urine test of a learner is positive.

Therefore, the purpose of the intervention of a principal or his or her delegate is not to hold a learner criminally liable, but rather to ensure that the school premises remain a safe place of learning. Disciplinary steps, not criminal steps, may be instituted against the learner in accordance with the relevant code of conduct of the school.

The BELA Act also expands the offences in the Act.

Corporal punishment as a form of discipline in school was abolished around three decades ago. This means that the application of corporal punishment by a teacher on a learner constitutes an offence. However, corporal punishment has traditionally been viewed as physical force only (a beating or hiding). This means that a teacher was not permitted to use or apply physical force as a form of punishment if a learner misbehaves. The definition of "corporal punishment" has now been extended to include any deliberate act against a child that inflicts pain or physical discomfort, however light, to punish or contain the child, which includes, but is not limited to -

- hitting, smacking, slapping, pinching or scratching with the hand or any object;
- kicking, shaking, throwing, throwing objects at, burning, scalding, biting, pulling hair, boxing ears, pulling or pushing children;
- forcing children to stay in uncomfortable positions, forced ingestion, washing children's mouths out with soap, denying meals, heat and shelter, forcing a child to do exercises which are not in accordance with the curriculum applicable to the learner or denying or restricting a child's use of the toilet; and
- any acts which seek to belittle, humiliate, threaten, induce fear or ridicule the dignity and person of a learner.

Therefore, corporal punishment extends beyond physical force. It even includes acts where a teacher does not touch a learner, but forces the child to remain in an uncomfortable position or perform certain actions with the intention to punish or contain the child. Any person who inflicts or imposes corporal punishment in accordance with the definition on a child commits an offence. The scope of the offence has also been expanded to include the place or location where corporal punishment is inflicted. Corporal punishment may not be applied at a school, during a school activity (any official educational, cultural, recreational or social activity of the school within or outside the school premises) or in a hostel accommodating learners of a school.

Another important new offence is contained in section 3(7) of the Act. It provides that any person who unlawfully and intentionally interrupts, disturbs or hinders any official educational activity of a school, or hinders or obstructs any school in the performance of the school's official educational activities commits an offence. This offence promotes the fundamental right of everyone to basic education as guaranteed in section 29 of the Constitution and section 28 that provides that a child's best interests are of paramount importance in every matter concerning the child.

ARTICLE

Examining Management Practices in a Multicultural National Police Service* in the Boland Region

Dr Nico Armfield

Researcher, South African Police Service: Boland Region

E-mail: nico@armfield.co.za

<https://orcid.org/0000-0002-3806-1234>

Dr Hendrik Johannes Christoffel van Zyl

STADIO Institution of Higher Education

E-mail: ChrisZ@stadio.ac.za

<https://orcid.org/0000-00017873-896X>

ABSTRACT

This article explored management practices within the multicultural National Police Service in South Africa in the Boland Area. The purpose of the research was to determine whether and how culture and cultural heritage affect management functions in a multicultural organisation such as the national police service in South Africa.

The National Police Service is responsible for safety and security within South African borders. This is no mean task, and many factors complicate it. Management functions are the basis on which an organisation is built; if an organisation cannot perform these functions adequately, it struggles to fulfil its day-to-day tasks.

Qualitative research was conducted using an ethnographic approach. Semi-structured interviews were held with participants from the national police service in the Boland Area at the Human Resource Development Centre in Paarl.

It was established that current management theory and practice are generally not adversely affected by the diversity of the National Police Service's multicultural workforce. However, inexperience, ineffective management practices and inadequate leadership ability and knowledge may be detrimental to the National Police Service's organisational efficiency.

It is of the utmost importance that further research be conducted into how the National Police Service's management and leadership can be improved. The National Police Service must address leadership and management inefficiencies to enhance its effectiveness.

KEYWORDS AND PHRASES

Leadership, Management, Management tasks, Multicultural, Policing

AFFILIATION

This article is derived from a thesis in the fulfilment of a Master of Management degree at STADIO Higher Education.

*CLARIFICATION

The term "national police service" is used as a reference to the South African Police Service as the only national police service in South Africa.

INTRODUCTION

Effective management depends on leaders who skilfully implement strategies while balancing the planning, leading, organising and controlling functions to achieve organisational goals (Hellriegel, Slocum, Jackson, Louw, Staude, Amos, Klopper, Louw, Oosthuizen, Perks & Zindiye, 2022:8). Historically, dominant administrative frameworks emerged in Germany, the USA and France to maximise operational efficiency (Hellriegel et al., 2022:105). In South Africa, colonial systems introduced in 1652 institutionalised Western bureaucratic styles, which continue to strongly shape contemporary organisational behaviours (Inyang, 2009:329; Oliver & Oliver, 2017:1).

However, scholars argue that these frameworks remain deeply Eurocentric, fostering a severe demographic and cultural misalignment with a predominantly African workforce (Du Plessis, 2012:90; Nzelibe, 1986:15; Van der Walt, 2000:75). This persistent over-reliance on colonial-era structures acts as an institutional bottleneck, stifling organic administrative growth, decolonial academic benchmarks and local innovation across post-colonial environments (Hlatshwayo, 2022:789; McKenna, 2024:45).

Operational success requires the development of a harmonised regional ontology for management education that respects local realities (Mphahlele, 2024:12; Ochara, 2012:2). This cultural sensitivity is critical in post-apartheid South Africa, where democratic spaces encompass 11 official languages and diverse indigenous groups who often interpret national symbols and corporate practices through distinct cultural lenses (Lauring, Villeseche & Andersen, 2018:269; Mulondo & Thomas, 2021:144).

This tension between Western rigidity and multicultural reality is evident within the South African Police Service (SAPS) (hereinafter referred to as the "National Police Service"). Established in 1995 through the institutional merger of homeland and liberation forces, the SAPS remains anchored in a highly hierarchical, quasi-military structure dominated by top-down communication channels (Govender, 2015:284; Slingers & Obioha, 2015:397). Consequently, this department operates within a systemic "system of failure," characterised by low police member morale, public distrust, corruption and breakdowns in supervisory training (Debalkie & Snyman, 2014:112; Dwela & Howell, 2016:143; Grobler & Prinsloo, 2012:4; Schutte & Meyer, 2004:201; Theletsane, 2014:349).

Despite transitional democratic reforms, policing methods retain authoritarian, apartheid-era remnants amid a complex, politically sensitive landscape (Potgieter, 2014:90). Recent oversight reports indicate that these internal weaknesses are compounded by governance failures and concerns over organisational integrity within policing institutions (IPID, 2023). Resolving these crises requires balancing strategic performance mandates with contextual management frameworks grounded in local cultural identities (SAPS, 2024:15).

PROBLEM STATEMENT

The National Police Service is responsible for crime prevention, investigation, maintaining public order and protecting citizens and property. Despite its diverse workforce, it faces significant management challenges. Early research highlights persistent weaknesses in management capacity, planning and leadership development within policing organisations, compounded by rigid command-and-control leadership that limits flexibility and adaptation to external changes (Govender, 2015:114; Melwich & Mofokeng, 2020:63).

Systemic issues, including police brutality, corruption and unethical conduct, have historically eroded public trust (Theletsane, 2014:58) and continue to undermine organisational integrity (IPID, 2023:14). The policing structure remains a rigid, hierarchical bureaucracy that hampers effective leadership in multicultural settings (Govender, 2015:118).

This study explores how current management training prepares leaders to apply management theories in culturally diverse environments. It further examines the impact of cultural diversity on management effectiveness in the Boland Area and assesses whether inclusive strategies could enhance organisational performance and improve leadership and outcomes.

LITERATURE REVIEW

Policing heritage

Understanding current policing models in South Africa cannot be divorced from their historical context. The legacy of policing in South Africa is deeply intertwined with colonial history, indigenous governance traditions and evolving legal frameworks. To appreciate contemporary policing, it is essential to examine its legal, cultural and operational origins. This section critically reviews the literature on policing heritage, focusing on legal roots, leadership traditions and the colonial impact on policing structures.

Legal roots of South Africa

The evolution of policing in South Africa is inextricably linked to the development of its legal system. According to Lippert (2012), the earliest evidence of written law in Africa dates to between 1550 and 1070 BC, notably the codification of rules during the reign of Darius I in ancient Egypt. This early system is among the continent's earliest formal legal frameworks, yet it is geographically and culturally distinct from Southern Africa.

In Southern Africa, indigenous communities such as the Khoesan operated without formal written laws. De Jongh (2016) describes Khoesan governance as centred on customary laws, norms and accepted behaviours, enforced through communal consensus rather than codified statutes. Disputes were resolved through personal negotiation, with chiefs, headmen and elders convening councils to deliberate on weighty matters. This informal system prioritised social harmony and collective responsibility, in contrast to the formal legal codes introduced later.

The imposition of Roman-Dutch law by European settlers at the Cape in the 17th century significantly disrupted indigenous legal practices (Joubert, 2018). In the 19th century, English law gained

prominence as British colonial influence expanded. The South African legal system thus became a hybrid of Roman-Dutch and English common law, enshrined in the post-apartheid Constitution (1996), which also recognises customary law within constitutional limits (Botha, 2020).

This legal transplantation was not neutral; it marginalised indigenous governance and policing customs, replacing them with foreign systems that often served colonial interests (Botha, 2020). Before colonisation, policing was a communal responsibility embedded in social relationships, whereas colonial legal frameworks introduced formalised, hierarchical institutions with coercive powers. These developments laid the groundwork for policing models that prioritise control and order maintenance, often at the expense of community engagement and cultural sensitivity.

Botha's Rwanda leadership study

While "management" and "leadership" are distinct concepts, Botha's study is relevant to this article. It offers valuable insights into pre-colonial leadership and, by extension, into management in that historical context. This scholar's study of leadership in Rwanda offers valuable comparative insights relevant to South African policing leadership. His research examines leadership across the pre-colonial, colonial and post-colonial periods, focusing on how it was conceptualised and practised (Botha, 2020).

Pre-colonial African leadership, as described by Botha (2020) and De Jongh (2016), centres on chieftaincy systems where leaders are responsible for their communities' welfare and survival. These leaders undertook roles that mirror modern management functions: planning resource allocation, organising social activities, leading communal efforts and managing internal affairs. Leadership was collective and consultative, with elders and headmen involved in decision-making (Botha, 2020). This governance model aligns with the philosophy of Ubuntu, which emphasises interconnectedness, mutual support and communal well-being.

Colonial leadership, in stark contrast, is described as authoritarian, characterised by the imposition of foreign rule and the use of divide-and-rule tactics to maintain dominance (Botha, 2020). Colonial rulers dismantled indigenous governance structures, replacing them with top-down, centralised authorities that suppressed local voices and cultures.

Post-colonial leadership often perpetuates authoritarian colonial legacies, with new regimes adopting similar oppressive strategies to retain power and suppress dissent (Botha, 2020). This trajectory has profound implications for policing leadership in post-colonial African states, including South Africa, where militaristic and hierarchical policing models reflect colonial governance more than indigenous traditions.

The findings from Rwanda highlight the need for a thorough review of policing management and leadership models in South Africa. Therefore, embracing communal, participatory leadership rooted in African traditions can guide reforms to make policing more responsive, culturally sensitive and attuned to community needs.

A brief view of policing history in South Africa

The introduction of formal policing structures in South Africa was a colonial innovation. Botha and Hewitt (2020) trace the term "police" to 16th-century France, where it signified coercive control and domination. Before colonisation, African societies maintained order through social norms and communal governance rather than formal police institutions.

British colonial authorities institutionalised policing in South Africa as a paramilitary force to enforce colonial order and suppress indigenous resistance (Botha & Hewitt, 2020). After the Union of South Africa's establishment in 1910, the colonial policing model persisted, evolving into an apparatus that enforced apartheid repression until 1994 (Van der Spuy, 2006).

Despite South Africa's democratic transition, the National Police Service retains many characteristics of its colonial predecessor. Potgieter (2014) critiques the persistence of authoritarian policing methods, noting that the change from "police" to "police service" was largely symbolic. By 1998, the national police service had reverted to quasi-military structures, including rigid hierarchical ranks and command-and-control leadership (Govender, 2015).

This militaristic model is incompatible with the democratic ideals of service and community partnership. The National Police Service's hierarchical, bureaucratic structure, with clear ranks from constable to general, enforces a top-down flow of information and decision-making (Govender, 2015). This contrasts with traditional African governance systems, where leadership was shared among chiefs, elders and community members and communication was multidirectional (Botha, 2020; De Jongh, 2016).

The colonial policing legacy is thus not merely historical but actively shapes the culture and practice of contemporary South African policing. Addressing this legacy requires acknowledging the cultural dissonance between indigenous leadership models and colonial policing structures and embracing reforms that integrate African communal values.

Cultural sensitivity is critical to this transformation. Hammond and Axelrod (2006) warn against ethnocentrism - the tendency to view one's own culture as superior - which can undermine effective cross-cultural policing. Cultural relativism, which promotes understanding cultures on their own terms, offers a framework for developing policing practices that respect South Africa's diverse communities (Brown, 2008).

Management practice theory and thought

Effective management underpins successful governance in policing institutions. Masuku (2019) emphasises that the absence of sound management systems leads to governance failures, including corruption, resource wastage and institutional weakness, which, in turn, impede national development.

Henri Fayol's seminal management functions - planning, organising, leading and controlling - remain fundamental to understanding managerial roles (Hellriegel et al., 2022). These functions provide a systematic framework for managers to set objectives,

allocate resources, motivate personnel and ensure that performance aligns with goals.

Planning entails defining clear organisational objectives and the strategies to achieve them. It is essential for setting the institution's overall direction and securing resource commitment (Hellriegel et al., 2022; Masuku, 2019). Organising translates these plans into actionable tasks by structuring the workforce and assigning responsibilities, thereby ensuring coordinated efforts (Hellriegel et al., 2022). Leading requires motivating and guiding personnel to perform their tasks effectively while fostering a positive organisational culture. Controlling involves monitoring progress, evaluating performance against standards and implementing corrective actions as needed.

In policing, management and leadership are crucial to operational success and community trust. Swid (2014) advocates transformational leadership models that inspire and motivate police officials beyond transactional exchanges. Schafer (2010) highlights the importance of authentic leadership, where supervisors cultivate self-awareness and foster organisational cultures that nurture future leaders. This contrasts markedly with authoritarian, command-and-control styles prevalent in many policing organisations. Hellriegel et al. (2022) further categorise managerial roles into decisional, interpersonal and informational functions, with the emphasis shifting across managerial levels. Higher-level managers focus more on planning and organising, whereas frontline managers focus more on leading. Competencies such as communication, strategic thinking, teamwork, global awareness and emotional intelligence are critical to effective management and require ongoing development through training and education.

Management is dynamic; it evolves with changes in technology, societal expectations and organisational environments (Hellriegel et al., 2022). This dynamic nature underscores the need for policing institutions, such as the National Police Service, to continually develop managerial and leadership capabilities to address contemporary challenges.

Management thought

Management theories have evolved considerably over the past century, grappling with the fundamental question of how best to manage organisations effectively (Hellriegel et al., 2022). The classical viewpoint, comprising bureaucratic, scientific and administrative management, emphasises hierarchy, rules and division of labour, thereby laying the groundwork for formalised organisational structures.

The behavioural viewpoint emerged to address the human element, focusing on motivation, group dynamics and leadership style. It recognises that employees' social and economic needs influence organisational performance and that effective management must take these factors into account.

The systems viewpoint regards organisations as complex systems comprising inputs, transformation processes, outputs and feedback loops. It distinguishes between closed systems, isolated from external influences, and open systems, which interact dynamically with their environment.

The contingency viewpoint emphasises situational awareness, encouraging managers to adapt their approach to the organisational context, processes and the people involved.

Total Quality Management (TQM) promotes continuous improvement across all aspects of organisational processes, emphasising quality as a strategic priority.

The flexible viewpoint calls for managers who are holistic, proactive and able to integrate strategic planning with daily operations. It emphasises interpersonal networking, negotiation skills, and the fostering of organisational learning cultures that accommodate diverse individual goals.

Emerging principle-led management perspectives prioritise emotional connections, trust and sustainability over traditional cost or speed metrics. Values such as humility, integrity and professional resolve are increasingly recognised as essential to effective leadership.

Culture, police culture, cross-cultural management and ubuntu

Scientifically, culture, as defined by Minkov (2011), comprises values, norms, beliefs, self-perceptions, cognitive abilities and behaviours. Hofstede's six cultural dimensions, namely power distance, uncertainty avoidance, individualism versus collectivism, masculinity versus femininity, long-term versus short-term orientation and indulgence versus restraint, provide a framework to understand cultural differences and their impact on organisational behaviour (Hofstede, 2011).

Police culture, as described by Rosenbaum and McCarty (2017), serves as a coping mechanism for the unique stresses of police work and shapes attitudes and values within the policing agency.

Cross-cultural management requires awareness of stereotypes and the effective use of cultural diversity to foster synergy (Louw & Jackson, 2008). In South Africa, dominant Western management paradigms often overlook indigenous communal practices, such as Ubuntu, which emphasises community, respect and cooperation. Louw and Jackson (2008) advocate a hybrid management approach that integrates indigenous African philosophies with Western methods and is tailored to local contexts.

Lücke, Engstrand and Zander (2018) argue that cultural identity is multifaceted, shaped by nationality, social class and personal experience. They caution against rigid cultural categorisations and encourage managers to understand dynamic cultural interactions. Ubuntu, a core African philosophy, promotes respect, dignity, communalism and humanness (Nzelibe, 1986; Van der Walt, 2000). Inyang (2008) and Nwagbara (2012) argue that Ubuntu-based management can address challenges such as corruption and enhance organisational efficiency. Msila (2015) identifies five pillars of Ubuntu, namely people-centredness, permeable walls, partnership, progeny and production, that can enhance organisational performance.

Leadership in policing

Research into leadership within the National Police Service reveals significant challenges. Melwiche and Mofokeng (2020) find that middle managers often fail to serve as effective role-models, struggle to communicate a vision, and are unable to challenge institutional norms or mentor subordinates. The National Police Service's command-and-control leadership style, rooted in bureaucratic tradition, restricts interaction and stifles innovation (Bellingan-Timmer, 2004).

Organisational restructuring has led to a brain drain and reduced morale within the National Police Service, thereby adversely affecting service delivery (Melwiche & Mofokeng, 2020). They recommend leadership training grounded in theory and tailored to the National Police Service's unique context.

Davis (2017), examining UK police leadership, critiques the overemphasis on rank as a barrier to collaborative and transformational leadership. She proposes leadership development that recognises rank while mitigating its limiting effects and that embraces social constructionist principles.

Botha (2020) calls for a Southern epistemology of policing knowledge that integrates African perspectives alongside Western thought. This approach fosters culturally relevant leadership practices better suited to African policing contexts.

The enduring militaristic colonial legacy within National Police Service leadership calls for reform. Integrating African management philosophies, such as Ubuntu, can revitalise leadership by fostering cooperation, inspiration and community engagement.

METHODOLOGY

Research approach

This study used a qualitative research approach because it enables a deep understanding of participants' perspectives and experiences in their natural environment. Qualitative research is well suited to exploring social behaviours and uncovering insights that quantitative data alone cannot capture.

Data were collected through semi-structured interviews, allowing participants to share their views openly. The study adopted an ethnographic perspective to connect individual experiences with broader organisational contexts. This approach helped to reveal the organisation's dynamics and structures.

Overall, qualitative research suited this study because it focused on capturing detailed, real-world experiences, enabling a clear and direct exploration of the social realities within the police service.

Research setting

The study was conducted within the National Police Service in South Africa, specifically in the Boland region. Participants included members appointed under the South African Police Service Act 68 of 1995, staff at the Human Resource Development Centre in Paarl and individuals attending training programmes at the Centre. Participation was voluntary.

Research procedure

After receiving ethical clearance from STADIO, the National Commissioner of the South African Police Service granted permission to conduct the research within the organisation. The commander of the South African Police Service Human Resource Development Centre in Paarl approved access for South African Police Service (SAPS) members stationed at the Centre. These members, including those attending training, were invited to participate voluntarily and anonymously in non-scheduled, semi-structured one-to-one interviews. The interviews were recorded and transcribed to capture and interpret the data, enabling the researcher to address the research questions.

Sampling

The units of analysis comprised members of the South African Police Service appointed under the South African Police Service Act, who were either attending courses or working at the SAPS Human Resource Development Centre in Paarl. Convenience sampling was used to select available candidates who represented the target population for this qualitative study.

A total of 16 SAPS members were interviewed. In qualitative research, sampling typically continues until no new information emerges - a point known as data saturation. The sample size is usually not set in advance but determined once saturation is reached. However, due to time constraints, this study set the sample size before data collection commenced.

Data collection methods

Interviews were an effective way to collect information, but they required skill and the ability to treat participants with warmth, empathy and respect to ensure data accuracy.

Data were collected through anonymous, unscheduled, semi-structured interviews. A question list, derived from the literature review topics and the research objectives and questions, guided the interviews.

These interviews required direct, personal engagement, with interviewers asking questions relevant to the research problem. The semi-structured format allowed participants to speak openly and elaborate without time constraints. It also gave interviewers the flexibility to adapt questions as needed.

Recording of data

Interviews were recorded using an audio device in accordance with ethical guidelines and participant consent. Memos were also taken during sessions. All interviews were transcribed and relevant data were extracted for analysis. Participants' personal information was not collected. Recordings and data are securely stored and accessible only to the researcher and STADIO staff for verification. Data will be retained for 15 years in line with STADIO's ethical policies.

Data analysis

Thematic analysis, a key method in qualitative research, was used to examine transcripts and memos through coding. This process involved sorting and grouping data segments for easier access and

review. The first stage, open coding, focused on identifying and labelling distinct themes. Through coding, the study not only organised the data but also refined methodological ideas and strengthened the theoretical frameworks guiding the research.

Strategies employed to ensure quality data

The researcher consistently sought to maintain quality by applying key principles.

Qualitative research focuses on understanding specific experiences in complex, natural settings, often without predefined operational definitions.

Quality in qualitative research was assessed through trustworthiness, which encompasses credibility, transferability, dependability, triangulation and confirmability.

Unlike quantitative researchers, qualitative researchers had to be self-critical, thoughtful, curious and trustworthy, as they had been the instruments of the study. The quality of the research depended heavily on the researcher's skills and sensitivity. Detachment and objectivity were neither possible nor desirable in qualitative research.

To ensure the quality of the data collected, the researcher took a hands-on approach throughout the study. Recognising that qualitative research requires deep engagement, the researcher remained actively involved in natural settings, carefully observing and capturing participants' experiences without imposing rigid definitions. This approach enabled the study to reflect the complexity and nuance of real-life situations. Rather than striving for detached objectivity, the researcher embraced his role as the primary instrument, continuously reflecting on his own biases and maintaining a thoughtful, curious stance to enhance sensitivity to the data.

The researcher worked to build trustworthiness by rigorously documenting each step of the process and consistently checking interpretations against participants' perspectives. To strengthen confidence in the findings, multiple methods were used to study the same phenomenon - a technique known as triangulation. For example, interviews, observations and document analyses were cross-checked against one another, while the researcher sought patterns that held across these sources. This approach helped confirm that the data were reliable and grounded in participants' realities.

During data collection, the researcher closely monitored saturation, actively seeking signs that no new, significant information was emerging. Once redundancy in themes and insights became clear, data collection was deemed sufficient, ensuring that conclusions were well-supported. To enhance credibility, the researcher shared preliminary findings with participants for feedback, which helped verify that the interpretations were accurate and meaningful from their perspective.

Dependability was addressed by maintaining a detailed audit trail of the research process, including clear records of decisions,

changes and procedures. This documentation ensured that the study could be followed and understood by others, even those not directly involved. Transferability was supported by providing rich, contextual descriptions of the research setting and participants, enabling readers to judge whether the findings might apply to other similar contexts. Lastly, confirmability was achieved through reflexive journaling and peer debriefing, which helped guard against researcher bias and ensured that the findings were grounded in the data rather than in personal assumptions.

RESEARCH FINDINGS

Findings

This chapter presents, analyses and discusses the themes that emerged from the qualitative analysis of semi-structured interviews conducted within the South African Police Service. The primary objective of this study was to examine management practices, operational challenges and cultural dynamics in a multi-cultural policing environment, with a specific focus on the Boland Area.

Data collection was guided by a structured interview schedule designed to elicit rich qualitative insights from individuals at different hierarchical levels. The raw data were systematically processed through thematic analysis, which involved identifying key participant statements and grouping them into coherent, meaningful themes. The findings are organised chronologically around the core research questions and demographic and contextual factors.

Participant demographic context

To validate the depth, credibility and representativeness of the findings, the study collected demographic data on the sample population's diversity, rank hierarchy and institutional tenure.

Rank and hierarchical distribution

The participant group spanned a broad spectrum of the organisational hierarchy, ranging from the operational entry-level rank of constable to senior management at the rank of lieutenant-colonel. This wide-ranging representation ensured that the data captured both ground-level tactical realities and high-level administrative perspectives on management efficacy.

Service tenure and experience

The participants' institutional experience varied significantly, with service histories ranging from three to more than 30 years. The sample reflected a diverse tenure profile, balancing the fresh perspectives of relatively new recruits with the deep institutional memory of highly experienced, veteran members. This variation in service years strongly shaped the range of opinions expressed on leadership consistency and evolution.

Gender and ethnic composition

The sample group exhibited the following structural characteristics:

Gender balance: The sample included both male and female participants, achieving a more balanced ratio than the typical National Police Service demographic in the Western Cape. This provided comprehensive representation of perspectives across genders.

Ethnic representation: To authentically reflect the broader regional makeup of the National Police Service, the sample included major population groups. However, individuals of Indian descent were entirely unrepresented, mirroring their statistical underrepresentation on the regional level.

To provide a comprehensive, structured overview of the empirical data collected during the semi-structured interviews, the raw findings were systematically categorised into themes.

Exploration of identified themes

Table 1: Matrix of Emerging Qualitative Themes presents the qualitative matrix for these emerging themes, mapping the primary analytical focus, key findings extracted from the text and the corresponding verbatim perspectives from participants. This matrix serves as an analytical framework for the nuanced, granular discussion of the management practices, systemic competencies, and cultural dynamics within the National Police Service that follows.

Table 1: Matrix of Emerging Qualitative Themes			
Theme number & title	Core analytical focus	Key qualitative findings	Representative participant perspective
Theme 1: Polarisation of management efficacy	Consistency of daily management practices and structural workplace environments at station level.	■ Extreme variance between well-run stations and dysfunctional ones. ■ Negative environments feature poor communication and insular, "cliquey" behaviour. ■ Quality of leadership is highly station-dependent rather than standardised.	"There is a total lack of proper communication from management here. It feels like an exclusive club where decisions are made by a 'clique'..."
Theme 2: Dominant versus Adaptive Leadership Styles	The direct causal relationship between a commander's leadership style and workplace morale.	■ High reliance on single rigid styles (autocratic, bureaucratic or laissez-faire) severely damages morale. ■ Democratic or blended management styles foster healthier, more productive station dynamics.	"Our commander relies purely on a strict, autocratic approach. There is no room for suggestions, and this rigid style heavily damages station morale."
Theme 3: Systemic gaps in core competencies	Evaluation of managers' abilities to execute foundational tasks: planning, organising, leading and controlling.	■ Participants are evenly split on manager competence. ■ High prevalence of skill-to-role mismatches. ■ Deficiencies are structural, extending upward to provincial and national levels.	"The lack of competency is not just a local station problem. It extends right up to the provincial and national levels ..."
Theme 4: The supremacy of "blue culture"	The intersection of multiculturalism, diversity management and operational effectiveness.	■ Cultural differences do not significantly hinder organisational effectiveness. ■ An overarching institutional "Blue culture" supersedes individual backgrounds on duty. ■ Ongoing inclusion barriers persist regarding female leadership and male dominance.	"When you put on the uniform, your personal cultural background takes a backseat. The shared 'Blue culture' takes over ..."
Theme 5: Frameworks for Strategic Enhancement	Viabilities and actionable interventions required to improve organisational capacity.	■ Near-universal agreement that structural management reforms are urgent. ■ Critical need for early-career targeted training and mentorship pipelines. ■ Mandate for skill-and-merit-based appointments over arbitrary promotional metrics.	"We need structured management training programmes from an early stage. You cannot just promote someone based on years served and expect them to know how to lead ..."

As illustrated in Table 1: Matrix of Emerging Qualitative Themes, the qualitative architecture of the Boland Area's National Police Service environment reveals a complex interplay between rigid structural dynamics and adaptive personal experiences.

The data compiled in this matrix demonstrates a clear consensus: while operational practices and competency levels remain deeply polarised across stations, individual cultural differences are effectively neutralised by a unifying institutional identity.

The themes outlined above collectively underscore a critical institutional mandate for formalised early-career leadership development, shifting the organisational focus from managing cultural diversity to addressing acute deficits in managerial skills.

Discussion of themes

Theme 1: Polarisation of current management practices and structural environments

The feedback on daily management practices at the station level revealed a starkly polarised operational landscape. Experiences were heavily dependent on station-specific contexts and individual perceptions.

Positive operational perceptions: A segment of the sample reported highly favourable views of their stations, citing effective leadership, sound management practices and supportive supervisory frameworks.

"At our station, management practices are sound. The leadership is supportive, and we have a clear line of direction that helps us perform our daily duties safely."
- Participant 3.

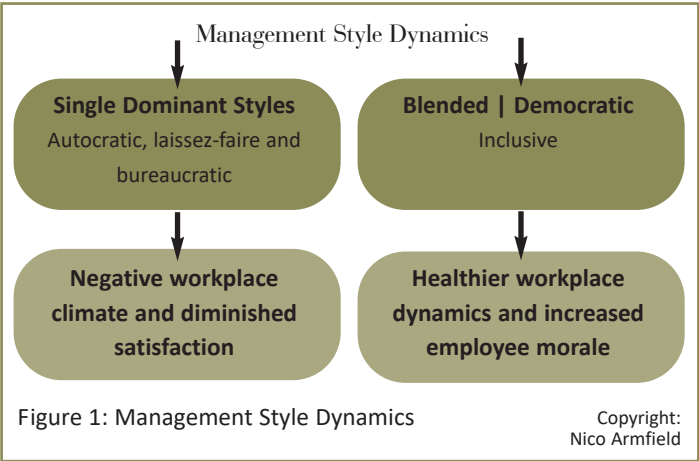
Negative operational perceptions: Conversely, a significant proportion of participants expressed deep dissatisfaction. They identified acute systemic deficiencies, including inadequate management skills, insufficient practical leadership experience, poor internal communication and exclusionary behaviour.

"There is a total lack of proper communication from management here. It feels like an exclusive club where decisions are made by a 'clique' behind closed doors, leaving the rest of us isolated." - Participant 11.

Theme 2: Dominant leadership styles versus workplace dynamics

The data highlighted a strong correlation between the specific leadership styles employed by station commanders and the resulting organisational climate.

Figure 1, entitled Management Style Dynamics, maps how different leadership strategies directly shape the overall work environment. The left side of the chart focuses on Single Dominant Styles, which include rigid approaches such as Autocratic, laissez-faire and bureaucratic management. According to the framework, relying solely on one of these rigid methods consistently triggers a downward trend, resulting in a negative workplace climate and diminished satisfaction among team members.



The right side of Figure 1 highlights a more adaptive leadership strategy centred on a Blended/democratic framework. This approach prioritises being highly inclusive, actively combining elements of different leadership methods to suit the team's needs rather than adhering to a single rulebook. The diagram shows that choosing this collaborative path yields highly positive organisational outcomes, directly fostering healthier workplace dynamics and increased employee morale.

Many participants reported that management structures frequently relied on a single dominant style - typically autocratic, laissez-faire or highly bureaucratic. These rigid, unyielding approaches were universally perceived as detrimental, actively hindering the development of a positive, productive and motivating work environment.

"Our commander relies purely on a strict, autocratic approach. There is no room for suggestions, and this rigid style heavily damages station morale." - Participant 7.

A smaller subset of participants reported using democratic or blended management styles. These adaptable approaches were closely linked to healthier workplace dynamics, open communication and higher overall employee satisfaction.

"We are fortunate to have a station commander who blends different styles. They are democratic when planning but firm during operations, which creates a healthy and productive workplace." - Participant 14.

Theme 3: Evaluation of core managerial competencies

Participants were almost evenly split on whether current managers effectively implement the four foundational pillars of management theory: planning, organising, leading and controlling.

Praise versus critique: While some participants praised their managers' functional capabilities, an equal number of critiques emerged. These focused on severe mismatches between assigned managerial roles and individuals' actual skill sets.

"There is an obvious mismatch between leadership roles and actual capabilities. We have managers who simply do not understand basic planning or organising functions."
- Participant 2.

Systemic scope: Crucially, these performance critiques were not confined to local stations; several participants extended their observations to the provincial and national levels. This widespread consensus indicates systemic competency issues that transcend individual commands, highlighting an urgent need for institutional leadership development and capacity building across the entire hierarchy.

"The lack of competency is not just a local station problem. It extends right up to the provincial and national levels, showing a systemic failure in how leadership is built." - Participant 9.

Theme 4: Multiculturalism, equity and the supremacy of "Blue culture"

A major finding of this study concerns how diversity and cultural friction operate in the South African policing context.

Diversity management: The vast majority of participants reported that multiculturalism is well-managed within the organisation. Concerns about equity or the misapplication of legislation were rare, although isolated perceptions of racial bias or disproportionate advantages for certain groups were noted.

"On the ground, diversity is handled quite well. Most of us get along fine and cultural differences don't really interfere with how we view daily station leadership."
- Participant 5.

Inclusion barriers: Minorities within the sample highlighted distinct institutional ceilings. Specific callouts included the diminished role of religion in the organisational space, the persistent under-representation of women in senior leadership and the enduring reality that the National Police Service is a strictly male-dominated institution.

"As a woman, it is clear this remains a heavily male-dominated institution. Women are still significantly under-represented in senior management spaces."
- Participant 12.

The "blue culture" phenomenon: A notable finding was the identification of a distinct organisational culture, often referred to as "blue culture".

Figure 2 outlines an organisational framework called "The blue culture" superiority, which presents a structured approach to managing diversity. It sets up a direct comparison between two forces: the personal cultural identity of individual employees - encompassing their unique ethnic, religious and linguistic backgrounds - and the shared norms and values of the institution, labelled as "The institutional 'blue'".

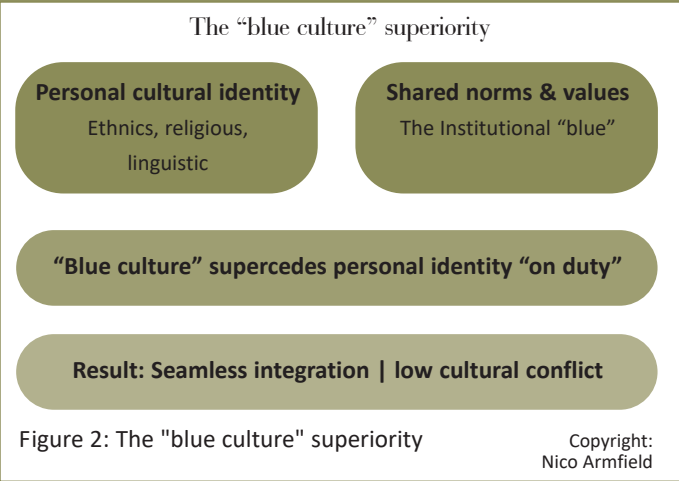


Figure 2 illustrates how the organisation resolves this tension by stating that the "blue culture" supersedes personal identity on duty. This means that during working hours, individual cultural backgrounds are set aside in favour of a single, unifying institutional standard. According to the diagram, the ultimate goal of prioritising this collective corporate identity over individual differences is to achieve seamless integration and minimise cultural conflict, fostering a uniform and frictionless working environment.

This institutional framework effectively supersedes individual ethnic, linguistic or personal cultural identities during duty hours. It mandates that all members conform to shared organisational norms and values. Strikingly, participants did not perceive this conformity as conflicting with their personal values, indicating a high degree of cultural integration that prevents diversity from undermining operational effectiveness.

"When you put on the uniform, your personal cultural background takes a backseat. The shared 'blue culture' takes over, forcing everyone to align with identical values while on duty." - Participant 1.

Theme 5: Frameworks for strategic enhancement

The empirical data indicate near-universal agreement that structural enhancements to management theory and practice are necessary. The research confirms that developing a definitive strategy to enhance management effectiveness within the national policing agency is entirely feasible.

To address the observed deficiencies in management capacity, the strategy must focus on two key interventions:

Early-career targeted training: Implementing targeted, comprehensive management training programmes and mentorship interventions from the earliest stages of a member's career.

"We need structured management training programmes from an early stage. You cannot just promote someone based on years served and expect them to know how to lead automatically." - Participant 8.

Merit-based appointments: Reforming promotional structures to ensure that appointments to critical managerial positions are strictly based on relevant skills, proven competencies and leadership experience, rather than on arbitrary metrics.

This strategic direction aligns closely with established policing literature. Notably, Van der Merwe and Van Graan (2020:18) demonstrate that implementing effective strategic management and leadership frameworks within the National Police Service is the decisive factor directly influencing public service delivery.

Managerial implications

This study enhanced understanding of the critical need within the National Police Service in South Africa to appoint managers with the requisite skills, knowledge and experience to perform their roles effectively. Contrary to concerns that a multicultural workforce might complicate management functions, the findings revealed that diversity was, in fact, an asset to National Police Service management.

The importance of targeted training focused on management roles and responsibilities became clear. Early career development through mentorship and training programmes was essential to prepare National Police Service members for future leadership positions. The organisation was responsible for ensuring that its members acquired the skills and experience necessary to strengthen the management capacity of its leadership corps. Appointments to managerial positions had to be based on candidates' relevant expertise and competencies aligned with the demands of their specific roles within the National Police Service.

LIMITATIONS

The research was limited by its small sample, drawn exclusively from the Boland Area, which restricted the generalisability of the findings across the broader South African Police Service organisation in South Africa. Notably, no participants of Indian descent were included, reflecting their minimal representation (approximately 1%) within the National Police Service in the Western Cape. This absence limited insight into how their perspectives might have influenced the overall findings.

Additional challenges included participants' reluctance to engage, driven by fears of repercussions despite assurances of anonymity and confidentiality. Language barriers also posed difficulties: although English was the National Police Service's official language, it was not the first language of many members, which likely hindered communication. Furthermore, the digital recording of interviews deterred some individuals from participating.

RECOMMENDATIONS

Future research should extend to include provincial or national samples within the National Police Service to assess whether these findings hold across different contexts. Subsequent studies must ensure representation from all ethnic groups within the Service to provide comprehensive insights.

Addressing language barriers should be a priority in future research designs to facilitate clearer communication and richer data collection, where feasible.

CONCLUSION

Qualitative data were collected through semi-structured, one-on-one interviews guided by a predetermined interview schedule. Interviews were digitally recorded, transcribed and systematically analysed to identify key themes. The participant pool comprised SAPS members attending training interventions at the Human Resource Development Centre in Paarl.

The collected data provided a solid foundation for drawing informed conclusions about the managerial competencies required within the National Police Service and the roles of diversity and training in strengthening organisational leadership.

LIST OF REFERENCES

- Botha, C.J. (2020). Politics and policing in South Africa: A knowledge leadership Inquiry. Master's dissertation. University of Johannesburg.
- Botha, C.J. & Hewitt, L.M.M. (2020). Alternative thinking about policing: Arguing a case for a southern policing epistemology from a historical perspective. *Just Africa*, 5(1): 6-13.
- Brown, M.F. (2008). Cultural relativism 2.0. *Current Anthropology*, 49(3): 363-383.
- Davis, C. (2017). Police leadership: An exploratory study of the perceptions of police officers. Doctoral thesis. Nottingham Trent University.
- Debalkie, G. & Snyman, H.F. (2014). Corruption within the South African Police Service (SAPS): The extent and impact on service delivery. *Acta Criminologica: African Journal of Criminology and Victimology*, 27(1): 112-126.
- De Jongh, M. (2016). *A forgotten first people: The Southern Cape Hessequa*. Cape Town: Watermark Press.
- Dwela, S. & Howell, C. (2016). Policing corruption or corrupt policing? Systemic vulnerabilities inside the South African Police Service. *South African Journal of Criminal Justice*, 29(2): 143-159.
- Govender, D. (2015). Changing policing back to basics in the 21st century: Is this a fallacy? *Acta Criminologica: African Journal of Criminology and Victimology*, 28(2): 1-V.
- Govender, I. (2015). The impact of military-style ranks on professional policing in the South African Police Service. *Journal of Public Administration*, 50(2): 284-297.
- Grobler, S. & Prinsloo, J. (2012). Anti-corruption strategies within the South African Police Service: An appraisal. *African Security Review*, 21(1): 4-18.
- Hammond, R.A. & Axelrod, R. (2006). The evolution of ethnocentrism. *Journal of Conflict Resolution*, 50(6): 926-936.
- Hellriegel, D., Slocum, J.W., Jackson, S.E., Louw, L., Staude, G., Amos, T., Klopper, R., Louw, M., Oosthuizen, T., Perks, S. & Zindiye, S. (2022). *Management*. 6th South African edition. Cape Town: Oxford University Press.
- Hlatshwayo, M.N. (2022). The rise of neoliberalism, Eurocentrism, and the alienation of African ontologies in South African higher education. *Higher Education*, 84(4): 789-805.
- Hofstede, G. (2011). Dimensionalizing cultures: The Hofstede model in context. *Online Readings in Psychology and Culture*, 2(1).
- Independent Police Investigative Directorate (IPID). (2023). *Annual Report 2022/2023*. Pretoria: South African Government.
- Inyang, B.J. (2008). The challenges of evolving and developing indigenous management thought. *International Journal of Business and Management*, 3(12): 122-132.
- Inyang, B.J. (2009). Nurturing leadership infrastructure for organisational success and sustainability in Nigeria. *African Journal of Business Management*, 3(8): 329-340.
- Joubert, C. (2018). *Applied law for police officials*. 5th edition. Cape Town: Juta.
- Lauring, J., Villeseche, F. & Andersen, L.T. (2018). Sensitivity to cultural identities and symbols in multicultural environments. *International Journal of Cross-Cultural Management*, 18(3): 265-282.
- Lippert, S. (2012). Law: Definitions and codification. *UCLA Encyclopedia of Egyptology*, 1: 1-15.
- Louw, L. & Jackson, T. (2008). Managing culture and change in South African organisations: The way forward for sub-Saharan Africa? *Africanus*, 38(1): 29-42.
- Masuku, M.M. (2019). Effective governance in South Africa: Reality or myth? *African Journal of Democracy and Governance*, 6(2-3): 118-134.
- McKenna, S. (2024). Academic benchmarks and the decolonial struggle in Southern African institutional spaces. *Journal of Education*, 92(1): 45-61.
- Melwich, W.A. & Mofokeng, J.T. (2020). Middle managers' influence as role-models upon employees' morale in the South African Police Service. *Acta Criminologica: African Journal of Criminology and Victimology*, 33(1): 59-74.
- Minkov, M. (2011). *Cultural differences in a globalising world*. Bingley: Emerald Group Publishing.
- Msila, V. (2015). Shape your workspace with Ubuntu. *HR Future*, 10: 22-23.

- Mulondo, M. & Thomas, A. (2021). Demographic complexities and ethnic representation in post-apartheid public sector environments. *Journal of African Diversity Studies*, 7(2): 140-156.
- Nwagbara, U. (2012). Leading a postmodern African organisation: Towards a model of prospective commitment. *The Journal of Pan African Studies*, 4(9): 67-84.
- Nzelibe, C.O. (1986). The evolution of African management thought. *International Studies of Management and Organization*, 16(2): 6-16.
- Oliver, E. & Oliver, W.H. (2017). The colonisation of South Africa: A historical overview. *HTS Teologiese Studies/Theological Studies*, 73(3): 1-11.
- Potgieter, J. (2014). Operational characteristics of police officers. *Acta Criminologica: African Journal of Criminology and Victimology*, 27(1): 90-113.
- Rosenbaum, D.P. & McCarty, W.P. (2017). Organisational justice and officer buy-in in American policing. *Policing: An International Journal*, 40(1): 71-85.
- Schafer, J.A. (2010). The ineffective police leader: Acts of commission and omission. *Journal of Criminal Justice*, 38(4): 737-746.
- Slingers, J. & Obioha, E.E. (2015). From institutional merger to organisational culture: Assessing the formation of the South African Police Service. *Journal of Social Sciences*, 45(3): 395-408.
- South Africa. (1996). Constitution of the Republic of South Africa, 1996 (as amended). Pretoria: Government Printer.
- South African Police Service. (2024). *Annual Performance Plan 2024/2025*. Pretoria: South African Police Service.
- Theletsane, K.I. (2014). Leadership challenges within the South African Police Service. *Journal of Public Administration*, 49(1): 348-359.
- Van der Merwe, J. & Van Graan, J. (2020). Die evaluasie van organisasiekultuur en leierskap as boustene van strategiese bestuur ten einde dienslewering in die Suid-Afrikaanse Polisiediens te optimaliseer. *LitNet Akademies*, 17(1): 16-55.
- Van der Walt, E.A. (2000). The development of an indigenous management model for South African organisations. *South African Journal of Business Management*, 31(2): 70-82.

ARTICLE

An Exploration of Emergency Communication Response (ECR) Systems for Enhanced Policing in South Africa

Rozain Nicolene Niemand

Researcher, South African Police Service: Component Explosives

E-mail: niemies0@gmail.com

Dr Hendrik Johannes Christoffel van Zyl

STADIO Institute for Higher Education

E-mail: ChrisZ@stadio.ac.za

<https://orcid.org/0000-00017873-896X>

ABSTRACT

This study examined the role of Emergency Communication Response (ECR) systems in enhancing emergency services, with reference to the South African Police Service (SAPS). A qualitative interpretivist approach was adopted, employing a case study design. The research utilised inductive reasoning and purposive sampling. Thematic analysis identified five key challenges: poor service delivery, reliance on unofficial communication channels, government-induced technological delays, limited system interoperability and financial constraints. These findings highlight significant obstacles in the SAPS radio communication systems that negatively impact coordination and response effectiveness. The study provides valuable insights by including specialised units such as the Flying Squad (10111) K-9 Unit. In addition, perspectives from various local municipal authorities, such as Disaster Management, the Traffic Department, Fire Services and Metro Police, were triangulated to strengthen the analyses. Future research should incorporate citizens' perspectives to achieve deeper triangulation and a more comprehensive understanding of ECR system effectiveness.

KEYWORDS AND PHRASES

Emergency environments, emergency communication response, policing, emergency response services

INTRODUCTION

Effective communication systems are pivotal to saving lives, particularly in policing and emergency response settings (Campbell & Harriott, 2024; Carreras-Coch, Navarro, Sans & Zaballo, 2022; Duff, 2024; Krammel, Lobmeyr, Sulzgruber, Winnisch, Weidenauer, Poppe, Datler, Zeiner, Keferboeck, Eichelter & Hamp, 2020). Communication failures during emergencies can have catastrophic consequences (De Cauwer, Barten, Willems, Van der Mieren & Somville, 2023; Hine & Bragias, 2021; Laufs & Waseem, 2020), often resulting in property damage and, in severe cases, loss of life

(Carreras-Coch et al., 2022; De Cauwer et al., 2023). Emergency Risk Communication (ERC) systems, also known as Emergency Communication Response (ECR) systems, comprise off-critical telecommunications infrastructure designed to ensure reliable, efficient communication during emergencies (Harrison, Dimarogonas, Catlin, Donohue, Goughnour, Hollywood, Mastbaum, Van Abel & Balagna, 2022). These systems form the backbone through which first responders coordinate operations, exchange critical information and maintain connectivity during emergencies.

This study examines ERC systems in the context of policing, with particular emphasis on the SAPS. Policing is conceptualised here in its conventional sense, namely the prevention of crime and the maintenance of law and order. This delineation deliberately excludes engagement with a more expansive and contested interpretations of policing, including those concerned with institutionalised violence (Campbell & Harriott, 2024) and debated manifestations of the use of force by police (Duff, 2024). Furthermore, the study does not extend to community policing models that emphasise citizen participation and engagement. Although such approaches fall outside the defined scope of this research, they emerged as a pertinent consideration following the analysis of interview data.

BACKGROUND

This study was conducted in South Africa, a country at the southernmost tip of the African continent. South Africa is a diverse country, historically known for its apartheid system (Kemp, 2022), which has reportedly left a legacy of social and economic inequality. South Africa has been featured in global reports as having some of the world's most dangerous cities since the 1990s. As a result, SAPS continues to explore methods to reduce violent criminal behaviour. One approach involves improving policing strategies, including enhanced communication, particularly in emergency response.

Contextualising the problem

The City of Cape Town in South Africa is regarded as one of the most popular tourist destinations, because of its spectacular scenery. Despite the beauty and splendour of these tourist attractions, this city has reportedly been plagued by violent crime. Despite measures implemented by SAPS, murder rates in Cape Town remain very high. Emergency responders face significant communication challenges, primarily due to outdated radio technology infrastructure. These persistent issues pose a substantial barrier to effective emergency response communication, thereby contributing to comparatively ineffective policing outcomes. (Campbell & Harriott, 2024).

Consequently, this study compared two types of SAPS radio systems: one using an outdated analogue system and the other using a more modern digitalised TETRA system. The Terrestrial Trunked Radio (TETRA) system, implemented by Motorola and Alcom Matomo, was adopted by SAPS in the Gauteng province in 2007, followed by adoption in the Eastern Cape in 2008. Over the years, research has shown that the TETRA system has improved communication (Abdulwasea & Adylbekova, 2020), thereby addressing gaps in efforts to fight crime. While TETRA offers many opportunities for better communication, there are also significant challenges in integrating the new system smoothly with existing, redundant communication platforms.

This issue stems from outdated technology and limited capacity to replace older systems. Reliance on outdated infrastructure hampers data sharing and situational awareness among police officials. It was reported that the City of Cape Town (CoCT) introduced the TETRA system in the early 2000s, while SAPS was still using the analogue system.

Research gap

The study identified a research gap in the Western Cape province regarding the persistent challenge of violent crime, with national statistics consistently indicating that the province records some of the highest levels of violent offences in South Africa (Lamb, 2021; Matzopoulos, Bloch, Lloyd, Berens, Bowman, Myers & Thompson, 2020). Within this context, SAPS is regarded as a critical focal point for analysis. A country's state of readiness is determined by its stakeholders (Gunasekaran & Harmantzis, 2007). The lack of prioritisation by both the Western Cape provincial government and the national government raises important questions about the alignment of political and administrative priorities with strategic planning imperatives to address violent crime. This deficiency underscores the need for improved and integrated emergency response mechanisms. Against this backdrop, the primary aim of this research was to examine emergency response communication systems and practices, with a view to identifying structural and operational shortcomings and proposing strategies to enhance the effectiveness and coordination of ECR within SAPS, amid elevated violent crime rates.

Research objectives

Motivated by these challenges, the study was guided by the question: "How do emergency communication response systems enhance policing in South Africa?" To address this question, the study aimed to "explore how emergency communication response systems enhance policing in South Africa". This objective was divided into two secondary objectives, namely to:

- Examine how well-coordinated the SAPS emergency response communication systems currently are in enhancing policing; and
- Investigate the influence of interoperability between analogue and digital emergency communication systems on the operations of the SAPS.

In the context of these objectives, it is important to note that although the study referred to law enforcement in general, the term is specifically interchangeable with SAPS in the targeted population sample. Moreover, although the study refers to SAPS in general, with specialised units mentioned, the interviews with the specific target sample were conducted within the jurisdiction of the Western Cape province. This was mainly done because the sampling strategy was purposive, allowing the researcher to focus on the problematic context of Cape Town while also interviewing key role-players with extensive knowledge of the persistent challenges.

In light of the above, the rest of the study is organised as a review of the literature that details the evolution of ECR systems, how they have operated globally, and finally examines the challenges they face in terms of implementation within the context of Cape Town, South Africa. This section is followed by a discussion of methodologies, which highlights both philosophical assumptions and practical techniques employed in conducting the research. The findings and discussion are presented in the following sections, respectively. Finally, the study presents some concluding remarks, along with its limitations and suggestions for future work.

LITERATURE REVIEW

Conceptualising Emergency Communication Response (ECR) systems

An ECR system is essentially a set of protocols and tools designed to ensure that critical information flows seamlessly throughout the emergency lifecycle. These emergencies typically involve situations that compel the vulnerable to minimise risk and require responding officers to intervene in extreme environments, using information relayed through ECR systems. Such environments are usually categorised as natural disasters (including wildfires, earthquakes, hailstorms, floods) and man-made incidents (such as arson and violent crime, including the physical abuse of children and other vulnerable groups). ECR systems are thus likened to communication lifelines that help societies stay informed about their dangers and enable emergency responders to coordinate their policing and intervention strategies (Carreras-Coch et al., 2022; Dunham, 2025).

The evolution of ECR systems

The evolution of ECR systems has been a significant area of study, with a focus on improving two-way communication during crises. The historical development of ECR technologies has highlighted key milestones, including the introduction of the 999 service in the United Kingdom (UK) and the 911 service in the United States of America (USA), as well as the adoption of social media for emergency communication. The first recorded emergency call was made in 1937 in Great Britain. The British dial 999 to contact medical, fire or police services from anywhere in the country. In the USA, before 911 became the national three-digit emergency number, people in distress dialled "0" for help during emergencies (Leake, 2019). When this service was first introduced as an ECR method, using it was stressful and often felt hopeless, not only for the caller but also for the systems operator, who often lacked the training and resources to provide adequate emergency assistance (Duncan, 2022).

The global growth of ECR systems

Amid advances in communication systems in the UK, the USA and other regions globally, including those with developing economies, various countries have developed their own communication technologies. Research indicates that Japan sent its first telegraph in the 1870s, while the first telephonic communication was established in the 1930s. Around the same period, China was also developing similar technologies while Japan's progress was unfolding nearby (Arai, 2019). It is reported that between 1896 and 1906 in China, technologies such as the phonograph, telephone, telegraph, early cinematic devices and photography were being developed, and these technologies were clearly both new and foreign to the land (Johnson, 2008). Likewise, in the early decades of the 20th century, countries such as France, the UK, Hungary, the United States and Italy saw the first widespread use of the telephone system (Dunnewijk & Hultén, 2007).

However, in Africa, there are few early records of when this type of communication began. Contrary to the belief that Africa was late to these developments, indigenous communication systems (such as smoke signalling, drums, folk songs, town criers, traditional attire, paintings and others) existed before conventional radio

communication methods (Ushe, 2015). As such, communication systems in Africa have existed since the dawn of humanity, similar to other parts of the world. However, due to the standardisation of electronic communication systems in the global North, Asia and Europe, these indigenous African communication systems were overlooked until telephonic modes were introduced. One study reports telephonic communication between Nigeria and London in Africa, dating from 1923. Similarly, most other African nations, especially those under colonial rule at the time, had telephones in their early periods (Ajayi, Salawu & Raji, 1999; Gam Nkwi, 2010).

Enhanced emergency communication among emergency responders

To ensure an effective emergency communication system, radio equipment must remain serviceable and undergo regular updates to prevent interruptions. To restore critical capabilities, the network must support the seamless integration of multiple and non-traditional communication methods during emergencies. According to Wang, Cui and Chang (2023), enhanced emergency networks should be able to operate effectively during disasters, expand to provide broader coverage, transmit disaster-related information accurately and provide comprehensive services. Furthermore, public media networks such as radio, television and newspapers, as well as on-site monitoring and rescue networks such as sensor and ad hoc networks, should also be utilised (Wang et al., 2023).

The Tetra system was recognised by many risk incident response units as a leading example of its kind. TETRA, formerly known as Trans-European Trunked Radio, is a European standard for trunked radio communication. Among other technologies, TETRA was regarded as a digital standard capable of meeting emergency communication needs while maintaining high speeds. It functions as a professional mobile radio and two-way transceiver, meeting the specified requirements. TETRA was intentionally designed to meet the needs of government agencies, emergency services (such as police, fire departments and ambulance services), public safety networks, rail transport staff using train radios, transport services and military applications. Essentially, TETRA can be considered the European equivalent of trunked radio systems. Its rapid growth can be attributed to its ability to support the efficient joint use of radio communication networks by different user groups, while ensuring secrecy and information security. As a result, it was adopted in many other contexts, including the study's own setting in South Africa.

The importance of clear communication during emergency response

Various natural and man-made disasters have caused significant loss of life, property damage and casualties, with reports of missing or injured persons. Numerous disasters have destroyed bridges, dams, power stations, tunnels and entire villages, leaving many people unaccounted for (Wang et al., 2023). Providing adequate communication support during and after a disaster can help reduce casualties and property damage. Major natural disasters can disrupt existing communication networks (Staman, Katsouros and Hach, 2009) resulting in breakdowns that prevent affected areas from establishing contact with the outside world. In such

situations, policing becomes difficult, thereby increasing the vulnerability of certain groups to violent crime. As a result, Abdulwasea and Adylbekova (2020) emphasise that, to improve emergency response, training programmes on system use and several modifications to existing failing systems can be implemented. One of these measures is the standardisation of systems.

Challenges with policing equipment in the Western Cape

As mentioned earlier, the ECR services worldwide face many challenges. These include difficulties integrating different systems, particularly during national disasters, and inherent risks, even loss of life. South Africa is not immune to this global trend and its associated issues. According to Van den Groenendaal (2019), "South Africa's emergency radio network is a disaster". Cited challenges include a lack of technological infrastructure and radio system failures during emergencies. The TETRA system, adopted by SAPS in Cape Town in 2023, has somewhat improved the situation. However, significant gaps remain due to a severe shortage of hand radios, vehicle-fitted units and inadequate control units for dispatchers, also known as 10111. While several specialised units are still awaiting radios.

The goal of any communication system is to maximise the number of response units that take appropriate and timely action, ensuring safety and protecting life and property within the affected community's communication networks.

Due to its high levels of violent crime (Attah et al., 2024; Lamb, 2021; Matzopoulos et al., 2020), Cape Town has been identified as a priority area for upgrading ECR systems, particularly for policing. Given the challenging operational environments, SAPS in Cape Town has consistently advocated for the integration and deployment of an upgraded radio system.

As such, this study laid the foundation for exploring how to enhance emergency communication systems among responders, particularly in South Africa's Western Cape province, where violent crime rates are high. One study clearly mapped crime patterns in the province, indicating that while violent contact crime (crime against a person) gradually decreased from 2019 to 2021, it peaked again in 2022 (Mayoyo, 2023:53). Mayoyo (2023) reports a decrease in violent crime in the Western Cape Province to -0.4% (113 508 to 113 987) and -17.1% (94 141) in 2020 and 2021, respectively, which he attributes to police work, although it would be more reasonably to attribute it to the global COVID-19 lockdown restrictions. This proposition aligns with the sudden surge in violent crime from -17.1% (94 141) in 2021 to +8.4% (102 057) in 2022 when lockdown restrictions were lifted.

Furthermore, this study uncovered a research gap regarding the interoperability of digital TETRA systems and the current SAPS communication infrastructure. This gap prompted an empirical case study of SAPS in Cape Town to examine how communication systems can strengthen emergency response capabilities. Consequently, the review advocates a more detailed analysis of ECR system implementations to improve operational efficiency.

Literature review informs theoretical approach

While the preceding review has examined the evolution, application and challenges of ECR systems, a notable limitation in the existing body of literature is the absence of a comprehensive theoretical framework that systematically accounts for the complex interplay among technological systems, organisational structures and human actors. The multidimensional nature of emergency communication, particularly within policing environments characterised by high levels of violent crime, necessitates an analytical lens that extends beyond technological determinism and incorporates the broader socio-cultural and institutional context.

To address this limitation, this study introduces Cultural-Historical Activity Theory (CHAT) as a sensitising conceptual framework through which the dynamics of ECR systems may be more critically understood. CHAT, originating in the work of Vygotsky (1978) and subsequently expanded by Leont'ev (1978) and Engeström (1999), conceptualises human activity as a collective, tool-mediated process situated within specific historical and cultural contexts. Central to this framework is the notion that human action cannot be understood in isolation but must be analysed as part of an activity system comprising interrelated components, including the subject, object, mediating artefacts (tools), rules, community and division of labour.

The relevance of CHAT to this study lay in its capacity to illuminate the socio-technical nature (Foot, 2014) of emergency communication systems. As highlighted in the literature, ECR systems are not merely technological infrastructures but are deeply embedded within organisational practices, institutional norms and inter-agency relationships. As an example, while advancements such as TETRA digital radio systems are often presented as solutions to communication inefficiencies, their effectiveness depends on factors such as user competence, organisational coordination, resource allocation and system interoperability. CHAT provides a framework for systematically examining these interdependencies. Furthermore, the application of CHAT enables a more critical engagement with the contradictions and tensions inherent in ECR systems. Engeström's expansion of activity theory emphasises that systemic disruptions, such as communication breakdowns, technological failures or reliance on informal "shadow systems" (used extensively in this case), are not merely operational shortcomings but manifestations of deeper structural contradictions within the activity system. These contradictions may arise, for example, between outdated technological tools and the evolving demands of violent crime response, or between formal communication protocols and the practical realities encountered by frontline SAPS officials. Such contradictions, evident in the Western Cape context, where high rates of violent crime place significant strain on communication systems, remain underexplored in existing scholarships (Matzopoulos et al., 2020; Lamb, 2021).

Likewise, CHAT aligns with the critique advanced in this review regarding the need for integrative perspectives that bridge technological and organisational analyses. While some studies prioritise technological innovation and others emphasise governance and coordination, CHAT offers a unifying framework that synthesises these dimensions into a single analytical model. It facilitates

an understanding of how communication practices are shaped simultaneously by material conditions (radio communication infrastructure), social relations (inter-agency collaboration) and institutional rules (communication protocols).

In addition, CHAT is particularly well-suited to examining policing as a collective activity aimed at preventing violent crime. Within this study, SAPS officials, alongside municipal emergency services, can be conceptualised as participants in a shared activity system, where ECR technologies function as mediating tools that enable coordinated action. This perspective underscores the importance of interoperability, shared understanding and a coordinated division of labour, all of which have been identified in the literature as critical yet problematic aspects of emergency communication systems.

The introduction of CHAT at this stage of the literature review serves as a conceptual bridge to the subsequent methodology section, where it will be used as a sensitising lens within an inductive qualitative design. Rather than imposing a rigid theoretical structure, CHAT will guide the interpretation of empirical findings by highlighting patterns of interaction, systemic tensions and the relational dynamics underpinning communication practices. In doing so, it strengthens the study's analytical depth and positions the research within a more robust, theoretically informed framework.

Finally, integrating Cultural-Historical Activity Theory addresses a key gap in the literature by offering a holistic, socio-technical perspective on ECR systems. It enhances the study's capacity to move beyond descriptive analysis towards a more critical understanding of how communication systems function, and often fail, in complex, high-risk policing environments marked by persistent violent crime.

Critical synthesis and contribution of the review

While this review demonstrates substantial engagement with existing scholarship on ECR systems, much of the literature remains limited in its critical interrogation of underlying assumptions, contextual variations and systemic constraints, a limitation that CHAT addresses. Several studies emphasise the technological advancement of communication systems, e.g., TETRA, as a primary solution to emergency communication challenges (Abdulwasea & Adylbekova, 2020; Wang et al., 2023). However, this technologically deterministic perspective often overlooks the organisational, institutional and socio-technical dynamics that significantly shape the effectiveness of such systems in practice.

Conversely, other scholars emphasise the importance of organisational coordination, training and governance structures for effective emergency communication (Hine & Bragias, 2021; Harrison et al., 2022). These perspectives suggest that technological improvements alone are insufficient without corresponding enhancements to institutional capacity and inter-agency collaboration. This divergence in the literature reveals a critical gap in integrative analyses that simultaneously consider both the technological and socio-organisational dimensions of ECR systems.

Existing studies rarely address the specific challenges of policing environments characterised by high levels of violent crime, as observed in the Western Cape (Matzopoulos et al., 2020). Much of the global literature is situated within disaster management or public health contexts, limiting its applicability to policing scenarios where rapid, socio-driven responses, inter-unit coordination and real-time intelligence sharing are paramount. In addition, limited attention has been given to the lived experiences of front-line officials, whose insights are crucial for understanding the operational realities and constraints of ECR systems.

This study offered a contextually grounded, empirically driven analysis of ECR systems within SAPS. The grounded empirical approach was intended to examine this phenomenon beyond purely descriptive accounts, providing insight into how communication systems function within complex, resource-constrained and high-risk policing environments. The study contributes to the field by integrating technological, organisational and experiential perspectives, thereby advancing knowledge of the socio-technical dynamics of emergency communication. In this regard, it provides both theoretical insight and practical implications for improving ECR systems in contexts marked by persistent violent crime and institutional challenges.

RESEARCH METHODOLOGY

Research design and philosophical assumptions

This study is grounded in the interpretivist paradigm, which is shaped by how human beings perceive and interpret the world within their respective contexts (Petersen & Gencel, 2013). The interpretivist approach used in this study was exploratory, as it involved investigating a phenomenon underexplored in the given context. An inductive approach was employed because the inquiry is deeply concerned with the context in which ECR systems pose challenges for first responders in high-risk emergencies. While inductive studies do not imply that there are no relevant theories to guide the initial stages of research (Vears & Gillam, 2022), it was observed that, in the South African context, non-academic reports on ECR systems are abundant, whereas academic literature is scarce. This situation caused this study to investigate the ECR phenomenon inductively. As a result, greater emphasis was placed on theoretical approaches during the analysis of the selected case.

Theoretical framing

To strengthen the theoretical grounding of this inductive qualitative inquiry and avoid researcher-oriented bias, the study employed the Cultural Historical Activity Theory (CHAT) as a sensitising conceptual lens for analysing the dynamics of ECR systems in the context of violent crime prevention in South Africa. As stated elsewhere, the study remains primarily inductive and interpretivist in orientation. CHAT provided only a heuristic framework to guide the interpretation of emergent findings, without imposing rigid theoretical constraints (Adaba, 2026).

CHAT, rooted in the work of Vygotsky and later expanded by Engeström, conceptualises human activity as a socially situated, mediated and systemic phenomenon comprising interconnected elements, including the subject, object, tools (artefacts), rules, community and division of labour. In this study, SAPS officials and

associated emergency responders were understood as the subjects whose collective activity is directed towards preventing and responding to crime. This activity is mediated by communication technologies, particularly ECR systems such as analogue and digital radio networks, which serve as critical artefacts that shape operational practice. As such, CHAT was found to be well-suited to conceptualising this socio-technical phenomenon without imposing theoretical assumptions on its dynamism, as would occur in deductive reasoning studies (Schrage et al., 2025).

The application of CHAT was appropriate given the complex, multi-agency and socio-technical nature of emergency response in Cape Town. Communication practices are not solely determined by individual competencies but shaped by institutional rules, organisational hierarchies, technological infrastructures and inter-agency relationships. CHAT enabled an examination of these interdependencies by highlighting how tensions or contradictions within and between components of the activity system may hinder effective communication. As an example, technological lag, limited interoperability and reliance on "shadow systems" such as personal mobile devices (cellular phones) can be interpreted as systemic contradictions between tools (outdated radio infrastructure), rules (formal communication protocols) and the division of labour (expectations placed on frontline responders).

As a sensitising model, CHAT does not predefine analytical categories but instead orients the researcher to key relational dynamics that emerge from the data. This aligns with the study's inductive approach to deriving themes from participants' lived experiences. CHAT enhanced analytical depth by enabling the researcher to move beyond descriptive accounts towards a more systemic and relational understanding of how communication failures are produced and reproduced within SAPS operational environments. By conceptualising ECR as a shared activity system, CHAT facilitated an understanding of how misalignments between stakeholders, fragmented communication systems and uneven resource allocation could undermine coordinated responses to violent crime. This was particularly pertinent in the Western Cape, where high levels of violent crime necessitate integrated and responsive communication systems.

In terms of methodological fit, CHAT complemented the study's qualitative case study (Leedy & Ormrod, 2015) design by providing a multi-level sensitising analytical lens that captured both micro-level experiences (individual officials' interactions with communication tools) and macro-level structures (institutional policies and technological systems). It also supported thematic and narrative analysis by offering a framework for situating identified themes within broader activity systems and interpreting them as manifestations of systemic interactions and contradictions. With regard to this, CHAT was adopted not as a deterministic theoretical framework but as a flexible sensitising device that enriches the interpretation of empirical data. Its emphasis on mediation, socio-cultural context and systemic interaction aligned with the study's objective of understanding and improving ECR systems within SAPS, particularly amid the persistent, complex challenges of violent crime in South Africa.

Techniques and procedures

A mono-method qualitative approach was employed to collect the qualitative data. This choice was driven by the collection of a single data type. Although the differences in format could be argued to constitute multiple forms of data, the study treated all as qualitative, thereby transcribing or converting it in its entirety into qualitative text data. As an example, although the data collected utilised audio, observations and text, all was transformed into qualitative text information before the thematic analysis was started. The research adopted a case study strategy, focusing on law enforcement in Cape Town rather than all the emergency service units in South Africa. While other cases could have been considered, this case was deemed particularly justified due to the high rates of violent crime in Cape Town (Matzopoulos et al., 2020). It was also selected based on purposiveness and ease of access to key interviewees. Since the study was qualitative, the interview questionnaires were open-ended.

This was a cross-sectional study based on a phenomenon- or concept-centric case study strategy. The study population was analysed within a short period. The study identified a heterogeneous purposive sample of active members stationed in specialised units within the SAPS in Cape Town. In this study, SAPS and local municipal authorities were used interchangeably. This selection was warranted by the unique roles and responsibilities of these units. Emphasising effective communication, particularly via radio, is critical for operational success. Including participants whose lives depend on the radio's effectiveness highlighted the critical nature of this study. It underscores the real-world implications of radio communication breakdowns, making the research directly relevant to their operational success and safety.

The study targeted specific SAPS units in Cape Town with inter-dependent communication needs. Initially, 12 participants were invited for interviews. When only six ultimately participated, seven additional participants were interviewed to ensure data saturation. Although the number of participants in qualitative studies using in-depth interviews is not fixed, some research recommends a minimum of 12 participants. This standard was met; however, the key consideration was that participants were selected for their deeper knowledge of the issue, with the study prioritising "information richness" over the total number of responses.

Throughout the qualitative data collection process, the researcher focused on understanding the importance participants attached to the problem or issue under investigation. This emphasis was on capturing participants' perspectives rather than imposing the researcher's own interpretations or relying solely on existing literature.

The interviews were recorded using audio devices to capture the nuances of participants' voices and expressions. In addition, detailed field notes were taken during the interviews to document immediate observations, non-verbal cues and contextual elements. Furthermore, the interviews were transcribed to convert spoken words into written form, facilitating a detailed analysis of the content. This multi-faceted approach to data collection ensures comprehensive documentation of the qualitative insights

gained from the participants. Some grounded theory techniques were employed, with cycles of data collection and analysis through open coding that inductively constructed codes, ultimately resulting in themes and concepts derived from the data. Alongside thematic analysis, a narrative or storyline analysis was utilised to examine narratives or other verbal reports. This method was chosen to explore participants' recorded experiences, recognising that narratives inherently contain valuable storytelling elements.

Thematic data analysis was carried out using a systematic six-step process to derive valuable insights from the collected data. Step one involved familiarising oneself with the data, with the researcher immersing themselves in the data to gain a holistic understanding. This included a detailed review of interviews, observational notes and any other relevant materials. Step two entailed generating initial codes by identifying and labelling patterns within the data. This phase focused on a detailed examination of the content. Step three marked the start of the search for themes, with coded data progressively forming into themes. This involved identifying patterns, connections and recurring concepts during coding. In steps four, five and six, the study reviewed themes, defined and refined them, and initiated the documentation of the research results.

Although seemingly straightforward to learn and apply (Kiger & Varpio, 2020), thematic analysis has been the subject of several studies warning of potential pitfalls that may be overlooked. Consequently, the one pitfall this study had to guard against was failing to sufficiently articulate the assumptions underlying the analysis. At this point, the study notes that the principal investigator is connected to the empirical case under investigation, a factor that necessitated revising the analysis to prevent biases stemming from the researcher's preconceptions of the context and environment. Conversely, the researcher's familiarity with the study topic also contributed valuable expertise to the analysis process. Achieving objectivity in this context involved maintaining checks and balances throughout the analysis. Furthermore, the study's commitment to addressing critical knowledge gaps objectively reinforced its validity, highlighting its relevance and importance within the wider field of emergency communication research.

Before each interview, explicit permission was obtained from each participant to record the conversation, while participants were also informed of the data management plan. Accordingly, all data were collected solely for academic purposes and processed in accordance with the Institution's agreed privacy regulations. This ensured that the data collection, handling and storage processes complied with the Protection of Personal Information Act 4 of 2013 (POPIA). In summary, the qualitative methodological approach was chosen for this study, aligning with Kumar's definition of a qualitative study, in which the primary aim in data collection is to describe a situation, phenomenon, problem or event. Furthermore, the characteristics of a qualitative approach were outlined, emphasising the researcher's focus on understanding the significance participants attribute to a particular issue. In the context of this study, the issue under examination is the state of radio ECR systems in SAPS compared with the sophisticated, well-functioning radio systems in response units of the City of Cape Town.

FINDINGS

During the coding and organisation process, five major themes emerged from the data analysis. Although these themes do not capture all findings from the entire data set, they are considered the most significant for this study. In the final round of coding the interview data, it was recognised that some insights from respondents began to overlap, as they pointed to the same issues. This indicated data saturation, leading to the decision to cease further interviews and conduct a comprehensive analysis of the data collected from the 13 participants. The five identified themes were perceived as minimal quality of service delivery; use of shadow communication systems; technological lag being a government responsibility; the importance of interoperability of communication systems; and the financial burden on response units.

Theme 1: Perceived minimal quality of service delivery

Exploring participants' opinions on efforts to improve service delivery through better communication revealed a nuanced understanding of how inadequate the current initiatives were perceived to be. However, participants noted that these efforts were minimal due to ineffective communication methods. They reflected on how deficiencies in communication systems and infrastructure within the SAPS affect overall service delivery, offering some insights into the real-world consequences of these daily challenges.

Theme 2: Use of shadow communication systems

Although dedicated emergency communication systems existed, participants indicated that they relied on a parallel communication system as their default when needed. Most participants reported that radio and mobile phones were their preferred modes of communication. However, both faced challenges in achieving effective communication. Notably, whenever the designated radio ECR systems failed (e.g., due to network loss), they resorted to the mobile phone shadow system, which also underscored the financial burden on response units.

Theme 3: Technological lag is a government responsibility

Participants were asked to share their views on who should take responsibility for the lack of new technology, inadequate infrastructure and outdated radio systems within the SAPS in Cape Town. The absence of new or updated technology was also shown to contribute to network loss in the old system when communication was most needed. While opinions on government responsibility varied, there was consensus that SAPS management must ensure the continuous upgrading of ECR systems.

Theme 4: Importance of interoperability of communication systems

Examination of the perceived importance of ECR systems in coordinating communication across all emergency services, including local municipal authorities and other utilities, during crime prevention and response highlighted that interoperability

is crucial. Its absence caused difficulties when communication had to go beyond a certain level, leading to the use of alternative communication systems. This situation created another overlap between themes 3 (technological lag) and 5 (financial burden).

Theme 5: Financial burden on response units

Another concern arising from the findings was the financial burden placed on response units when they encounter risky situations when the ECR systems fail. The response teams reported that, time and again, they had to rely on shadow systems, using their personal mobile phones to communicate, which had a direct financial impact on them.

DISCUSSION

Findings indicate that SAPS officials face major communication problems stemming from managerial failures, particularly inadequate radios and infrastructure maintenance (themes 3 and 4). Officials frequently cover the cost of using personal resources for work-related communication, exposing systemic support gaps (themes 3 and 5). These problems highlight the urgent need for strategic managerial action to update outdated radio systems and boost operational efficiency. The study urges targeted investment in reliable communication infrastructure, stressing that technological improvements must be backed by organisational commitment to close communication gaps (Abdulwasea & Adylbekova, 2020). All SAPS participants preferred radios as the main communication method, supporting the idea that effective modern systems can improve emergency communication. However, ongoing technical faults, such as trunking problems, have severely limited radio functionality, causing participants to reluctantly depend on personal mobile phones, as discussed in themes 2, 4 and 5. These problems were shown to hinder improved emergency response communication for SAPS. Despite recognising the high cost of airtime and the lack of compensation from SAPS, some chose to use a combination of radio and mobile communication. The significance of radios is highlighted, especially when coordinating across different SAPS response units, with varied channels enabling quick responses in emergencies. Although mobile phones were used out of necessity and were a financial burden (theme 5), the unanimous feeling was a desire for reliable, functional radio systems.

The participants' mutual agreement that gaps exist highlights the urgency of finding effective solutions. The emphasis is on improving communication between SAPS and other utilities in the City of Cape Town during emergencies to align with the primary goal of reducing response times and improving coordination. The use of shadow systems, especially to supplement existing radio systems, suggests poor coordination within the current system, as noted in themes 1 and 2.

With systems operating in an interoperable manner, there would be no need for a shadow system, such as personal mobile phones. Consequently, SAPS's failure to implement interoperable communication systems affects service delivery. As shown, these challenges continue to recur and overlap, as outlined in the five themes discussed in the study. Issues such as radios frequently entering trunking mode and a lack of updates contribute to the

perceived minimal quality (theme 1). Participants noted that the historical decline in analogue radio functionality, along with the unavailability of repair parts, led to non-utilisation. These first-hand accounts highlight the tangible consequences of communication challenges within SAPS, thereby emphasising the urgent need for significant improvements to positively influence overall service delivery in policing.

The study explored several key aspects of emergency communication networks, offering an understanding of their core technology, importance, benefits over traditional networks, limitations and recent research developments. The findings highlighted important elements within the field. The study emphasised the significance of incorporating TETRA as a vital technology within emergency communication policing networks, a point also supported by the interviewees' accounts (theme 4).

The study identified key limitations in emergency communication networks while acknowledging recent technological advancements. It emphasised the importance of understanding operational constraints for effective deployment and crime scene management. A central issue was the choice between analogue and digital systems, with digital systems offering discrete, reliable data transmission. Effective emergency networks must ensure reliable communication during disasters and be capable of dynamic expansion to provide wider coverage. These insights regarding technological delays (theme 3) reinforce the need for modern, adaptable systems in an emergency response context.

Emergency communication networks rely on a mix of public and private technologies, including fixed-wire, mobile, satellite and shortwave systems, to ensure coverage and reliability. The choice between analogue and digital signalling is vital, with digital systems offering greater scalability and resilience in emergencies. This helps address technological delays, as discussed in theme 3. Disasters commonly damage infrastructure and disrupt communications, making dependable networks crucial for coordinating responses and sharing vital information. The study highlights TETRA's development as a secure, adaptable solution, reinforcing theme 4's focus on interoperability and the importance of integrated emergency communication systems.

Seamless communication ensures a timely and efficient response to unforeseen events. However, achieving seamless communication has inherent shortcomings, including training programmes that require attention to ensure optimal preparedness. While training scenarios aim to simulate emergencies, real emergencies may present unique challenges that were not explicitly covered during training. This requires adaptability and critical thinking skills among responders. To address these challenges and enhance the effectiveness of emergency response training programmes, modifications should be implemented. One suggested improvement kept recurring, as raised and discussed in a Parliamentary Police Portfolio Committee meeting, namely the need for a standardised national approach to emergency communication systems (PMG, 2015). This recurrence centred on the eventual adoption and implementation of the TETRA systems for emergency police communication across South Africa.

The manual developed by the United Nations Development Programme (UNDP) and the European Commission Humanitarian Aid Department's Disaster Preparedness Programme (DIPECHO) serves as a comprehensive guide to establishing standardised radio communication protocols for emergency responders (Sufri et al., 2020). It emphasises the importance of training radio operators in emergency services and demonstrates its adaptability across various African countries. It highlights the vital role of effective communication before and after disasters, especially at the community level, to ensure timely and appropriate responses.

Conversely, SAPS officials reported significant limitations in their current radio systems. These issues not only create financial burdens but also pose safety risks and impede operational effectiveness. A lack of standardisation in communication further hampers operational effectiveness. As such, police officials need effective, up-to-date radios to receive accurate first-hand emergency communications from their controller. This information needs to be correctly conveyed to responding members (which could be a multi-agency call-out, such as K-9 Unit or the aerial support). These radio systems should also be able to function effectively for officials en route and those standing off at active crime scenes. Participants criticised SAPS management for inadequate maintenance and support, leaving officials ill-equipped to perform their daily duties efficiently.

While SAPS continues to navigate resource constraints and the need for technological modernisation, the City of Cape Town maintains a modernised radio network, a sophisticated dispatch system (recognised for its efficiency and reliability), as well as a City of Cape Town cellphone APP.

CONCLUSIONS, LIMITATIONS AND SUGGESTIONS FOR FUTURE WORK

To conclude, the study's findings underscore the urgent need for a comprehensive overhaul of SAPS communication systems, emphasising the importance of modern, integrated technologies to enhance the effectiveness of emergency response. The study shows that addressing outdated infrastructure and managerial shortcomings is vital to improving coordination and service delivery. Methodologically, the study offers a replicable qualitative framework that uses thematic and narrative analyses, supported by rigorous documentation and data management practices. This approach provides valuable guidance for future research in similar contexts. Practically, the study makes applied contributions by uncovering new insights into the implementation of digital emergency communication systems in violent crime-prone areas. It adds empirical evidence to an underexplored domain, highlighting the strategic importance of modernising SAPS communication infrastructure.

Although the study provides valuable insights, it has several limitations, including a focus on SAPS officials' perspectives, which excludes citizens' viewpoints that could have enriched the analysis through triangulation. The geographic scope was restricted to the City of Cape Town, making it difficult to generalise the findings to other regions because sociocultural factors were not examined. In addition, reliance on self-reported data introduces potential bias,

while insufficient data limit the depth of the results. Time and resource constraints further limited the analysis, suggesting that broader, more inclusive future research could yield deeper insights. To address some of these limitations, a second round of data collection involved participants from other emergency response units that work closely with SAPS.

For future research, the study recommends employing diverse methodologies and testing across multiple contexts to improve validity and generalisability. SAPS must prioritise a comprehensive technological upgrade of the communication systems, particularly by resolving radio compatibility issues. To ensure the effective integration of updated communication systems, SAPS should collaborate with technology experts, citizens, municipal authorities and other stakeholders. Once the upgrades are implemented, standardised training programmes should be introduced to familiarise officials with the new systems. Recognising that training and system updates are ongoing, SAPS should establish mechanisms for continuous evaluation that incorporate frontline feedback to address emerging issues. In addition, public awareness campaigns should be launched to educate communities about the importance of effective communication systems and foster greater cooperation during emergency responses.

LIST OF REFERENCES

- Abdulwasea, M.O.A. & Adylbekova, K.A. (2020). Methods for designing professional communication systems of TETRA standard taking into account reliability indicators. *Synchroinfo Journal*, 6(6): 17-20.
- Adaba, G.B. (2026). Theorising sociotechnical complexity: A grounded theory framework for qualitative information systems research. *Qualitative Research Journal*: 1-22. 3 February.
- Ajayi, G.O., Salawu, R.I. & Raji, T.I. (1999). Nigeria: After a century of telecommunications development, what next? *Telecommunications in Africa*, pp.163-177. Communication and Society (New York, 1999; online ed., Oxford Academic, 3 October 2011).
- Arai, Y. (2019). History of the development of telecommunications infrastructure in Japan. Netcom. *Réseaux, communication et territoires*, 33-3/4. Available from: <http://journals.openedition.org/netcom/4511>
- Attah, R.U., Garba, B.M.P., Gil-Ozoudeh, I. & Iwuanyanwu, O. (2024). Cross-functional team dynamics in technology management: A comprehensive review of efficiency and innovation enhancement. *Engineering Science and Technology Journal*, 5(12): 3248-3265.
- Campbell, Y. & Harriott, A. (2024). The resort to emergency policing to control gang violence in Jamaica: Making the exception the rule. *Journal of Latin American Studies*, 56(1): 115-136.
- Carreras-Coch, A., Navarro, J., Sans, C. & Zaballos, A. (2022). Communication technologies in emergency situations. *Electronics*, 11(7): 1155.
- Creswell, J.W., Shope, R., Plano Clark, V.L. & Green, D.O. (2006). How interpretive qualitative research extends mixed methods research. *Research in the Schools*, 13(1): 1-11.
- Dawadi, S. (2020). Thematic analysis approach: A step-by-step guide for ELT research practitioners. *Journal of NELTA*, 25(1-2): 62-71.

- De Cauwer, H., Barten, D., Willems, M., Van der Mieren, G. & Somville, F. (2023). Communication failure in the prehospital response to major terrorist attacks: Lessons learned and future directions. *European Journal of Trauma and Emergency Surgery*, 49(4): 1741-1750.
- Duff, K. (2024). Just police violence: Liberal ideology and the critique of violence from Walter Benjamin to Black Lives Matter. *Journal of Pacifism and Nonviolence*, 2(1): 34-63.
- Duncan, E. (2022). *Calls for service: understanding police demand, the role of the police, and the role of call-handlers in managing demand*. Nottingham Trent University (United Kingdom).
- Dunham, A.D. (2025). Police officers' perceptions of the cultural, structural and potential training barriers that prevent police agencies from adopting an effective Emergency Response System (Doctoral dissertation, Walden University).
- Dunnewijk, T. & Hultén, S. (2007). A brief history of mobile communication in Europe. *Telematics and Informatics*, 24(3): 164-179.
- Engeström, Y. (1999). Activity theory and individual. *Perspectives on activity theory*, 19.
- Foot, K.A. (2014). Cultural-historical activity theory: Exploring a theory to inform practice and research. *Journal of Human Behavior in the Social Environment*, 24(3): 329-347.
- Gam Nkwi, W. (2010). Telephone Operators' Resistance to British Colonial Administration in the Cameroons Province, 1917-1931. *Lagos Historical Review*, 10.
- Gunasekaran, V. & Harmantzis, F.C. (2007). Emerging wireless technologies for developing countries. *Technology in society*, 29(1): 23-42.
- Harrison, B., Dimarogonas, J., Catlin, J., Donohue, R.H., Goughnour, T., Hollywood, J.S., Mastbaum, J., Van Abel, K. & Balagna, J. (2022). *Broadband communications prioritization and interoperability guidance for law enforcement*. Santa Monica, CA: RAND Corporation.
- Hine, K.A. & Bragias, A. (2021). Effective communication during major crises: a systematic literature review to identify best practices for police. *Police practice and research*, 22(5): 1492-1507.
- Johnson, M.D. (2008). International and wartime origins of the propaganda state: the motion picture in China, 1897-1955 (Doctoral dissertation, UC San Diego).
- Kemp, G. (2022). The crime of Apartheid. In *International Conflict and Security Law: A Research Handbook* (pp. 1073-1091). The Hague: TMC Asser Press.
- Kiger, M.E. & Varpio, L. (2020). Thematic analysis of qualitative data: AMEE Guide No. 131. *Medical teacher*, 42(8): 846-854.
- Krammel, M., Lobmeyr, E., Sulzgruber, P., Winnisch, M., Weidenauer, D., Poppe, M., Datler, P., Zeiner, S., Keferboeck, M., Eichelter, J. & Hamp, T. (2020). The impact of a high-quality basic life support police-based first responder system on outcome after out-of-hospital cardiac arrest. *PLoS One*, 15(6): e0233966.
- Lamb, G. (2021). Safeguarding the republic? The South African police service, legitimacy and the tribulations of policing a violent democracy. *Journal of Asian and African Studies*, 56(1): 92-108.
- Laufs, J. & Waseem, Z. (2020). Policing in pandemics: A systematic review and best practices for police response to COVID-19. *International Journal of Disaster Risk Reduction*, 51.
- Leake, M.L. (2019). A Study of the Diffusion of Innovations and Hurricane-response Communication in the US Coast Guard (Master's thesis, Old Dominion University).
- Leedy, P.D. & Ormrod, J.E. (2015). *Practical research: Planning and design*. 11th ed. Boston, MA: Pearson.
- Leont'ev, A.N. (1978). *Activity, consciousness and personality*. New Jersey: Prentice-Hall.
- Maguire, M. & Delahunt, B. (2017). Doing a thematic analysis: A practical, step-by-step guide for learning and teaching scholars. *All Ireland Journal of Higher Education*, 9(3).
- Matzopoulos, R., Bloch, K., Lloyd, S., Berens, C., Bowman, B., Myers, J. & Thompson, M.L. (2020). Urban upgrading and levels of interpersonal violence in Cape Town, South Africa: The violence prevention through urban upgrading programme. *Social Science & Medicine*, 255.
- Mayoyo, N.P. (2023). Understanding crime in the context of COVID-19: The case of the Western Cape Province of South Africa (Doctoral dissertation, Stellenbosch: Stellenbosch University).
- Petersen, K. & Gencel, C. (2013). October. Worldviews, research methods, and their relationship to validity in empirical software engineering research. In *2013 joint conference of the 23rd international workshop on software measurement and the 8th international conference on software process and product measurement* (pp. 81-89). IEEE.
- Parliamentary Monitoring Group (PMG). (2015). SAPS & Civilian Secretariat matters. Available from: <https://pmg.org.za/committee-meeting/21851/>. Accessed on: 4 July 2023.
- Schrage, S., Andriopoulos, C., Lewis, M.W. & Smith, W.K. (2025). Unleashing the creative potential of research tensions: Toward a paradox approach to methods. *Organizational Research Methods*, 29(3): 283-312.
- Staman, M., Katsouros, M. & Hach, R. (2009). The multi-dimensional nature of emergency communications management. *EDUCAUSE Review* (Online).
- Sufri, S., Dwirahmadi, F., Phung, D. & Rutherford, S. (2020). Enhancing community engagement in disaster early warning system in Aceh, Indonesia: opportunities and challenges. *Natural Hazards*, 103(3): 2691-2709.
- Ushe, M.U. (2015). The talking drum: An inquiry into the reach of a traditional mode of communication. *International Journal of Philosophy and Theology*, 3(1): 110-117.
- Van den Groenendaal, H. (2019). South Africa's emergency radio network is a disaster. *MyBroadband*. Available from: <https://mybroadband.co.za/news/wireless/309361-south-africas-emergency-radio-network-is-a-disaster.html>. Accessed on: 4 July 2023.
- Vears, D.F. & Gillam, L. (2022). Inductive content analysis: A guide for beginning qualitative researchers. *Focus on Health Professional Education: A Multi-Professional Journal*, 23(1): 111-127.
- Vygotsky, L.S. (1978). *Mind in society: The development of higher psychological processes*, 86. Harvard University Press.
- Wang, J., Cui, M. & Chang, L. (2023). Evaluating economic recovery by measuring the COVID-19 spillover impact on business practices: evidence from Asian market intermediaries. *Economic Change and Restructuring*, 56(3): 1629-1650.

ARTICLE

Futuristic Policing for Wildlife Protection: Leveraging Governance for Global Progress in Preventing Turtle Wildlife Crime

Dr Jeanette Smit

School of Policing & Law Enforcement
STADIO Institution of Higher Education
E-mail: JeanetteS@stadio.ac.za

Dr Phillip Vuma

School of Policing & Law Enforcement
STADIO Institution of Higher Education
E-mail: PhillipV@stadio.ac.za

ABSTRACT

Wildlife crime has become a significant global threat to biodiversity, ecological sustainability and environmental security, with turtle trafficking representing one of the most persistent forms of illegal wildlife trade. Turtles are targeted for their shells, meat, traditional medicinal uses and the exotic pet market, resulting in severe population declines and increased risks of extinction for many species. Despite international regulatory frameworks, particularly those established by the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), enforcement efforts remain constrained by governance weaknesses, limited resources, inadequate technological capacity and insufficient cross-border cooperation.

This study explores how governance frameworks can support the adoption of futuristic policing strategies to combat turtle wildlife crime. Employing a qualitative desktop research methodology, the study analyses existing literature, policy documents, international agreements and case studies relating to wildlife crime prevention, environmental governance and emerging policing technologies. Particular attention is given to the role of artificial intelligence (AI), blockchain technology, drone surveillance, predictive analytics and intelligence-sharing systems in strengthening wildlife crime enforcement.

The findings indicate that effective governance remains fundamental to successful wildlife protection and that technological innovation can significantly enhance surveillance, intelligence gathering, traceability and enforcement effectiveness. Furthermore, international collaboration, community participation and integrated multi-stakeholder approaches are identified as critical components of sustainable wildlife conservation strategies. The study proposes a governance-driven framework for integrating advanced technologies into wildlife crime prevention and highlights the importance of strengthening institutional capacity, legal frameworks and global cooperation.

The contribution of this research extends beyond turtle trafficking by demonstrating how governance and futuristic policing can be leveraged to address broader environmental crimes and support global biodiversity conservation efforts.

KEYWORDS AND PHRASES

Wildlife crime; turtle trafficking; biodiversity conservation; illegal wildlife trade; futuristic policing; environmental governance; artificial intelligence; blockchain technology; drone surveillance; international cooperation.

INTRODUCTION AND BACKGROUND

Wildlife crime has increasingly become one of the most serious threats to global biodiversity and environmental sustainability. Beyond its ecological consequences, it has evolved into a highly profitable transnational criminal enterprise that undermines conservation efforts, weakens governance structures and threatens the survival of numerous endangered species. Among the wildlife species most severely affected by illegal trade are turtles, which continue to be exploited for their shells, meat, medicinal value and popularity within the international exotic pet market. The growing demand for turtle products has resulted in significant population declines across several regions of the world, placing many species at risk of extinction.

The illegal trade in turtles is no longer merely a conservation issue. It has become closely linked to organised criminal activities such as smuggling, document fraud, corruption and money laundering. These criminal networks often operate across national borders, exploiting weaknesses in governance systems, limited enforcement capacity and inconsistencies in legislation. As a result, traditional conservation approaches alone are no longer sufficient to address the complexity and sophistication of contemporary wildlife trafficking networks.

Malaysia provides a useful example of the challenges associated with combating wildlife crime. Owing to its strategic location and extensive maritime routes, the country has become an important transit point within global wildlife trafficking networks. Although national legislation and international agreements provide a legal framework for wildlife protection, enforcement agencies continue to face significant challenges. These include resource constraints, inadequate technological infrastructure, fragmented information systems, limited intelligence-sharing capabilities and the growing sophistication of criminal syndicates involved in wildlife trafficking. In response to these challenges, scholars and practitioners have increasingly advocated for the adoption of futuristic policing approaches. Futuristic policing refers to the strategic use of advanced technologies, intelligence-led practices, predictive analytics and collaborative governance mechanisms to prevent and combat crime proactively. Rather than relying solely on reactive enforcement strategies, futuristic policing seeks to anticipate criminal activity, improve situational awareness and strengthen decision-making through the use of data and emerging technologies.

Recent technological developments have created new opportunities for enhancing wildlife protection efforts. Technologies such as artificial intelligence (AI), blockchain systems, drone surveillance, satellite monitoring, machine learning algorithms, environmental sensors and DNA barcoding have the potential to transform the way wildlife crime is detected, investigated and prevented. These technologies enable authorities to monitor protected areas more effectively, identify trafficking routes, improve evidence collection and strengthen cross-border information-sharing. When supported by effective governance structures, such innovations can significantly improve enforcement outcomes and contribute to long-term conservation objectives.

However, technology alone cannot solve the problem of wildlife crime. Effective governance remains a critical prerequisite for successful implementation. Governance frameworks provide the institutional, legislative and regulatory foundations necessary to support technological innovation, ensure accountability and facilitate cooperation among stakeholders. Strong governance systems also encourage transparency, resource mobilisation, policy coordination and collaboration between governments, conservation organisations, local communities and international partners.

Recognising the growing threat posed by wildlife trafficking, international organisations such as the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), the International Criminal Police Organisation (INTERPOL) and the United Nations Office on Drugs and Crime (UNODC) have increasingly promoted technology-driven and intelligence-led approaches to wildlife crime prevention. Their initiatives have encouraged countries to strengthen enforcement capacity, improve information-sharing mechanisms and adopt innovative technologies capable of addressing the evolving nature of environmental crime.

The emergence of artificial intelligence has a particular impact in this regard. AI-powered systems can analyse vast amounts of data from multiple sources, including surveillance cameras, satellite imagery, sensors and social media platforms. Such systems can identify suspicious activities, detecting emerging trafficking patterns and predicting high-risk locations for poaching and smuggling. These capabilities enable enforcement agencies to allocate resources more effectively and intervene before offences occur.

Similarly, blockchain technology offers significant potential for improving transparency and traceability within wildlife trade systems. By creating secure and tamper-resistant digital records, blockchain can help authorities verify the legality of wildlife products, detect fraudulent transactions and strengthen compliance with international trade regulations. These capabilities enhance accountability while making it increasingly difficult for traffickers to conceal illegal activities within legitimate supply chains.

Drone technology has also become an important tool in modern conservation efforts. Drones provide cost-effective surveillance capabilities, particularly in remote or difficult-to-access areas where conventional monitoring methods may be ineffective. Equipped with advanced imaging technologies and real-time communication systems, drones enable conservation authorities to monitor protected habitats, detect illegal activities and respond rapidly to emerging threats.

Despite the considerable promise of these technologies, their implementation remains uneven across many regions. Developing countries often face challenges associated with funding, infrastructure, technical expertise and regulatory readiness. Concerns relating to cybersecurity, data protection, interoperability and long-term sustainability further complicate technology adoption. Consequently, the effectiveness of futuristic policing initiatives depends not only on technological innovation but also on the strength of the governance systems supporting their implementation.

In addition to technology and governance, effective wildlife crime prevention requires extensive collaboration among a diverse range of stakeholders. Governments, law enforcement agencies, conservation organisations, researchers, local communities and international institutions all play important roles in protecting endangered species. Community involvement is particularly important because local populations often possess valuable knowledge regarding wildlife movements, poaching activities and conservation challenges. Conservation programmes that provide alternative livelihoods and promote environmental stewardship can help reduce incentives for illegal wildlife exploitation while strengthening local support for conservation initiatives.

International cooperation is equally critical given the transnational nature of wildlife trafficking. Intelligence-sharing mechanisms, joint investigations, coordinated enforcement operations and harmonised legal frameworks contribute significantly to disrupting criminal networks and strengthening prosecution efforts. Without sustained international collaboration, wildlife traffickers will continue to exploit jurisdictional boundaries and enforcement gaps.

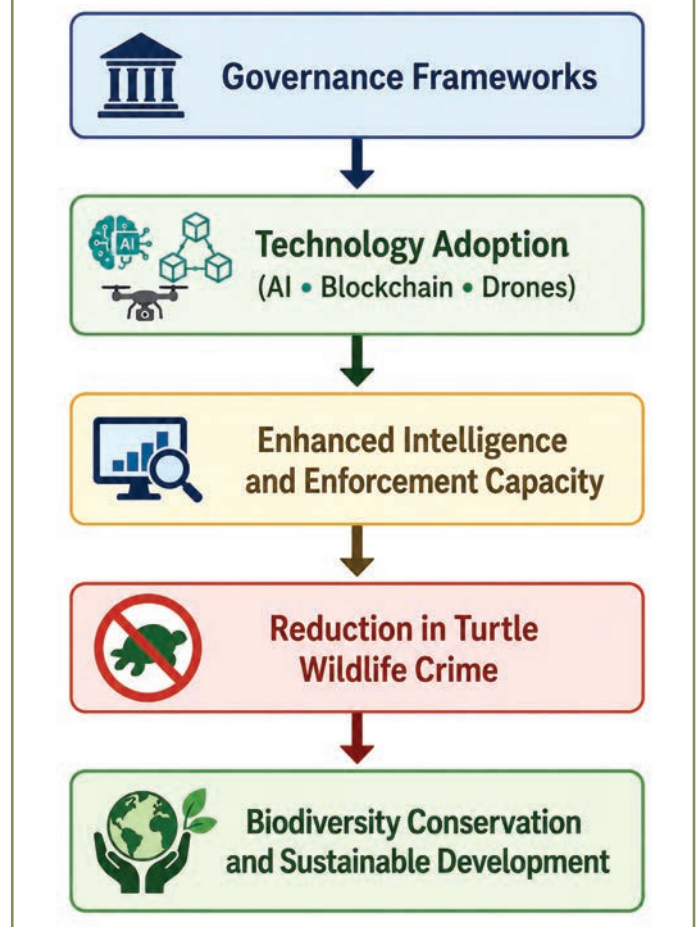
Against this backdrop, this study explores how governance frameworks can facilitate the adoption of futuristic policing strategies to combat turtle wildlife crime. The study specifically examines the intersection of governance, technological innovation and international cooperation as key components of an integrated wildlife protection strategy. By analysing existing governance structures and evaluating emerging technological interventions, the study seeks to identify practical approaches for strengthening enforcement effectiveness and advancing global conservation efforts.

The significance of this research extends beyond turtle conservation. The findings contribute to broader discussions on environmental governance, transnational crime prevention and the future of policing in an increasingly technology-driven world. As wildlife crime continues to evolve in both scale and sophistication, innovative and collaborative approaches will become essential for protecting biodiversity, strengthening conservation outcomes and promoting sustainable development globally.

Problem statement

Despite the existence of international conventions, national legislation and conservation initiatives aimed at protecting endangered wildlife species, turtle trafficking continues to pose a significant threat to biodiversity and ecological sustainability. Criminal networks involved in the illegal wildlife trade have become increasingly sophisticated, exploiting governance weaknesses, enforcement gaps and technological limitations across multiple jurisdictions. Although emerging technologies such as artificial intelligence, blockchain systems and drone surveillance offer promising opportunities for enhancing wildlife protection, their integration into conservation and law enforcement practices remains inconsistent and underdeveloped. Furthermore, limited research has examined how governance frameworks can facilitate the effective adoption of futuristic policing strategies to combat turtle wildlife crime. This creates a gap in both policy and practice regarding the governance mechanisms required to support of technology-enabled wildlife crime prevention.

Figure 1: Conceptual Framework for Governance-Driven Futuristic Policing in preventing Turtle Wildlife Crime



METHODOLOGY

Research aim

The aim of this study is to explore how governance frameworks can support the adoption and implementation of futuristic policing strategies to strengthen efforts aimed at preventing and combating turtle wildlife crime.

Research objectives

The study seeks to:

- Examine the nature and extent of turtle wildlife crime within the broader context of illegal wildlife trafficking.
- Explore the role of governance frameworks in supporting wildlife conservation and crime prevention.
- Investigate the contribution of emerging technologies, including artificial intelligence, blockchain technology and drone surveillance, to wildlife crime enforcement.
- Assess the importance of international cooperation and stakeholder collaboration in combating turtle trafficking.
- Propose governance-driven strategies for integrating futuristic policing technologies into wildlife protection initiatives.

Significance of the study

This study contributes to the growing body of knowledge on wildlife crime prevention by examining the intersection of governance, technological innovation and law enforcement. The findings may assist policymakers, conservation agencies, law enforcement institutions and international organisations in developing

more effective strategies for combating turtle trafficking and other forms of wildlife crime. The study further contributes to discussions on environmental governance, intelligence-led policing and the use of advanced technologies in addressing transnational environmental crimes. By focusing on turtle wildlife crime, the research provides practical insights that may be applied to broader biodiversity conservation efforts and sustainable development initiatives.

Scope of the study

The study focuses on turtle wildlife crime within the broader context of illegal wildlife trafficking and environmental crime prevention. Particular attention is given to governance frameworks, emerging policing technologies and collaborative approaches to conservation enforcement. The study adopts an international perspective, drawing on examples from various jurisdictions while highlighting the relevance of governance and technological innovation in countries affected by wildlife trafficking. The research is limited to a desktop analysis of existing literature, policy documents and secondary data sources and does not involve the collection of primary empirical data.

LITERATURE REVIEW

The literature review examines the existing body of knowledge relating to turtle wildlife crime, environmental governance and the application of emerging technologies in wildlife protection. Given the transnational and complex nature of wildlife trafficking, an understanding of current scholarly debates, governance frameworks and technological innovations is essential for identifying effective strategies to combat turtle trafficking. While significant progress has been made in understanding the ecological consequences of wildlife crime, less attention has been devoted to the intersection between governance, technological innovation and law enforcement in addressing turtle trafficking. This review therefore explores the literature from a multidisciplinary perspective, drawing on insights from environmental governance, criminology, conservation studies and policing research.

The review is structured around several interrelated themes, namely the global nature and scope of turtle wildlife crime, governance frameworks for wildlife protection, futuristic policing approaches, technological innovations in wildlife crime prevention, international cooperation and community participation in conservation efforts. Together, these themes provide the conceptual and empirical foundation for understanding how governance-driven technological interventions can strengthen wildlife crime prevention and support sustainable conservation outcomes.

The global nature and scope of turtle wildlife crime

Wildlife trafficking has evolved into one of the most profitable forms of transnational organised crime globally, generating billions of dollars annually and threatening biodiversity, ecosystem stability and sustainable development (Mozer & Prost, 2023; UNODC, 2023). Among the species most affected by illegal wildlife trade are turtles and tortoises, which are targeted for the exotic pet market, traditional medicine practices, luxury food consumption, and decorative products (CITES, 2023; Raja, 2024).

The international demand for these species has contributed to significant population declines across Asia, Africa and South America, with several species now classified as endangered or critically endangered.

The researchers have argued that the persistence of turtle trafficking is driven by a combination of economic incentives, weak enforcement mechanisms, cultural practices and increasing global demand for wildlife products (Raja, 2024). Unlike conventional environmental offences, turtle trafficking often involves sophisticated criminal networks capable of exploiting weaknesses in customs systems, border controls and regulatory frameworks. These networks operate across multiple jurisdictions, making detection and prosecution particularly challenging (UNODC, 2023).

Turtle trafficking networks often exploit countries with limited enforcement capacity and governance vulnerabilities. According to Tambi, Zolkipli and Salehuddin (2023), corruption, inadequate monitoring systems and fragmented institutional responsibilities create opportunities for organised criminal groups to move wildlife products across borders with relatively low risk. Consequently, turtle trafficking cannot only be viewed as a conservation issue but also as a transnational crime problem requiring coordinated law enforcement and governance responses.

Governance frameworks for wildlife protection

Governance plays a central role in wildlife conservation and environmental crime prevention (Amwata & Otianga-Owiti, 2021). Effective governance encompasses legislation, policy implementation, institutional capacity, accountability mechanisms, stakeholder participation and inter-agency collaboration. Strong governance systems establish the legal and regulatory foundation necessary for combating wildlife trafficking while ensuring compliance with international conservation obligations.

International agreements such as CITES have significantly contributed to global wildlife protection efforts by regulating international trade in endangered species (CITES, 2023). However, the effectiveness of these frameworks depends largely on national implementation and enforcement capacity. Many developing countries continue to face challenges associated with limited resources, inadequate training, weak institutional structures and corruption, all of which undermine conservation outcomes (Amwata & Otianga-Owiti, 2021).

The literature further suggests that governance effectiveness is strengthened when multiple stakeholders collaborate in wildlife protection initiatives. Governments, conservation organisations, local communities, academic institutions and international agencies each contribute unique expertise and resources. Collaborative governance approaches have therefore emerged as a preferred strategy for addressing complex environmental crimes that transcend organisational and national boundaries.

Futuristic policing and environmental crime prevention

The concept of futuristic policing has emerged in response to the increasing complexity of modern crime. Futuristic policing refers to the application of advanced technologies, predictive analytics, intelligence-led strategies and innovative governance approaches to prevent and respond to criminal activity (Mohd Salleh, 2024; TRAFFIC, 2023). Within the context of environmental crime, futuristic policing provides opportunities to transform traditional conservation enforcement methods by enhancing situational awareness, improving intelligence gathering and facilitating proactive interventions.

Unlike conventional reactive policing models, futuristic policing emphasises prevention through the use of real-time information and data-driven decision-making. Emerging technologies allow law enforcement agencies to identify risks, predict criminal behaviour and deploy resources more strategically. Scholars argue that these capabilities are particularly important in wildlife crime prevention, where offences often occur in remote locations and involve highly mobile criminal networks (Mohd Salleh, 2024).

The literature also highlights the importance of integrating technology within broader governance frameworks. Technological solutions are unlikely to succeed in isolation if governance structures remain weak or fragmented. Consequently, futuristic policing should be viewed as a complementary strategy that enhances existing conservation and enforcement systems rather than replacing them.

Artificial intelligence and predictive wildlife enforcement

Artificial Intelligence (AI) has emerged as one of the most promising technologies in wildlife crime prevention (TRAFFIC, 2023; Mohd Salleh, 2024). AI systems can process vast amounts of information from diverse sources, including satellite imagery, surveillance cameras, environmental sensors, social media platforms and law enforcement databases. Through machine learning algorithms, these systems can identify suspicious patterns, predict trafficking routes and generate intelligence to support proactive law enforcement operations.

AI-driven predictive policing enables conservation authorities to identify high-risk areas for poaching and trafficking, thereby improving resource allocation and operational effectiveness (TRAFFIC, 2023). Furthermore, AI technologies can assist in species identification, evidence analysis and forensic investigations, enhancing the overall effectiveness of wildlife crime enforcement. Despite these advantages, scholars have cautioned that AI adoption must be accompanied by appropriate governance mechanisms. Concerns relating to data privacy, algorithmic transparency and accountability remain important considerations in the implementation of AI-based policing systems.

Blockchain technology and wildlife trade transparency

Blockchain technology offers innovative solutions to improve transparency and accountability in wildlife trade systems

(Ramadanti, Tahamata & Leatemala, 2023). As a decentralised and immutable digital ledger, blockchain enables secure recording and verification of transactions, thereby reducing opportunities for fraud, document manipulation and illegal trade activities.

Applying blockchain in wildlife conservation allows authorities to trace wildlife products throughout the supply chain and verify legal compliance. This capability is particularly valuable in combating wildlife laundering, where illegally sourced products are disguised as legally traded goods (Ramadanti et al., 2023). By improving traceability and transparency, blockchain technology strengthens governance and enhances confidence in wildlife trade regulation.

However, successful implementation requires significant investment in technological infrastructure and stakeholder cooperation. The literature indicates that blockchain initiatives are most effective when supported by regulatory frameworks and international collaboration.

Drone technology and conservation surveillance

Drone technology has transformed environmental monitoring and conservation enforcement (Bergenäs, Stohl & Georgieff, 2013; Wich & Koh, 2018). Unmanned aerial vehicles provide cost-effective surveillance capabilities, particularly in remote and inaccessible areas where traditional monitoring methods may be impractical or resource intensive.

Drones equipped with high-resolution cameras, thermal imaging systems and artificial intelligence capabilities can monitor wildlife habitats, detect illegal activities and support rapid response interventions (WWF, 2022). Conservation agencies increasingly utilise drones to monitor protected areas, identify poaching activities and gather evidence for investigations.

The literature suggests that drones significantly enhance situational awareness and operational efficiency. Nevertheless, their effectiveness is influenced by factors such as regulatory approval, technical expertise, funding availability and environmental conditions.

International cooperation and intelligence-sharing

Wildlife trafficking is inherently transnational, making international cooperation essential for effective enforcement (INTERPOL, 2022; UNODC, 2023). Criminal networks frequently operate across borders, exploiting differences in legislation, enforcement capacity and governance systems. Consequently, isolated national responses are often insufficient.

International organisations such as CITES, INTERPOL and the United Nations Office on Drugs and Crime (UNODC) facilitate intelligence-sharing, joint operations, capacity-building initiatives and policy coordination among member states. Regional enforcement networks further strengthen collaborative responses by promoting information exchange and coordinated investigations.

Research indicates that intelligence-sharing is one of the most effective mechanisms for disrupting wildlife trafficking networks. However, barriers such as differing legal systems, information

security concerns and resource disparities continue to limit the effectiveness of international cooperation efforts.

Community participation and sustainable conservation

Local communities play a critical role in wildlife protection and conservation governance. In many regions, communities reside adjacent to protected areas and possess valuable local knowledge regarding wildlife populations, habitat conditions and illegal activities (Kuswanda, Hutapea & Setyawati, 2023).

Community-based conservation initiatives encourage local participation in environmental management and strengthen collective responsibility for biodiversity protection. Alternative livelihood programmes, conservation education initiatives and community monitoring projects can reduce dependence on illegal wildlife trade while promoting sustainable economic development (Amwata & Otianga-Owiti, 2021).

The literature consistently demonstrates that conservation initiatives are more likely to succeed when local communities are actively involved in decision-making processes. Community participation not only enhances conservation outcomes but also contributes to long-term sustainability by fostering local ownership and environmental stewardship. As such, meaningful engagement with communities should be regarded as an essential component of any comprehensive wildlife crime prevention strategy.

Challenges and opportunities in implementing futuristic policing for wildlife protection

The application of futuristic policing technologies in wildlife crime prevention presents significant opportunities for strengthening conservation efforts. However, the successful implementation of these technologies is influenced by numerous organisational, financial, legal, ethical and operational factors. Understanding these challenges and opportunities is essential for developing realistic and sustainable approaches to combating turtle wildlife crime.

Resource constraints and technological capacity

One of the most significant barriers to implementing advanced policing technologies is the shortage of financial and technical resources available to wildlife enforcement agencies. Many developing countries that serve as source, transit or destination points for wildlife trafficking operate under severe budgetary constraints. Conservation agencies are often required to manage extensive protected areas with limited personnel, outdated equipment and insufficient technological infrastructure.

Although technologies such as artificial intelligence, blockchain platforms, drones and satellite monitoring systems offer considerable benefits, their acquisition, maintenance and operational costs can be substantial. In addition, specialised personnel are required to operate and maintain these systems effectively. Without adequate investment in infrastructure and human capital development, technological innovations may fail to achieve their intended outcomes.

Capacity-building initiatives therefore become critical for the successful adoption of futuristic policing strategies. Governments and international partners must invest in training programmes that equip conservation officers, customs officials, border police and wildlife investigators with the necessary technological competencies. Continuous professional development can enhance operational effectiveness and ensure that technological systems remain sustainable over the long term.

Legal and regulatory challenges

The introduction of advanced technologies into wildlife crime enforcement also raises important legal and regulatory considerations. Many countries lack comprehensive legal frameworks governing the use of artificial intelligence, drone surveillance, biometric systems and digital intelligence platforms. The absence of clear regulations can create uncertainty regarding the admissibility of evidence collected through technological means and may limit the operational effectiveness of enforcement agencies.

Drone surveillance, as an example, may raise concerns regarding privacy rights, airspace regulations and jurisdictional authority. Similarly, the use of artificial intelligence in predictive policing may generate questions regarding algorithmic accountability, transparency and fairness. Policymakers must therefore develop regulatory frameworks that balance the need for effective wildlife protection with broader legal and ethical considerations.

International legal harmonisation is equally important. Wildlife trafficking networks frequently operate across multiple jurisdictions, yet enforcement approaches and legal standards often differ significantly between countries. Harmonising legislation and promoting mutual legal assistance agreements can facilitate more effective cross-border investigations and prosecutions.

Ethical considerations in technology-driven enforcement

The increasing reliance on surveillance technologies introduces ethical challenges that require careful consideration. Artificial intelligence systems may process large volumes of personal and environmental data, raising concerns regarding privacy, consent and data protection. Similarly, drone surveillance may be perceived as intrusive by local communities if implemented without adequate consultation and transparency.

Ethical governance frameworks are therefore essential to ensure that technological innovations are used responsibly and proportionately. Enforcement agencies must establish clear protocols governing data collection, storage, sharing and utilisation. Transparency regarding the purpose and scope of technological interventions can help build public trust and legitimacy.

Furthermore, technological solutions should not replace community engagement but rather complement existing conservation efforts. Wildlife protection strategies that rely exclusively on technology may overlook important social and cultural dimensions of conservation. A balanced approach that integrates technological innovation with community participation is more likely to achieve sustainable outcomes.

The role of public-private partnerships

Public-private partnerships have emerged as important mechanisms for supporting technological innovation in wildlife conservation. Private technology companies possess expertise in artificial intelligence, cybersecurity, blockchain development, geospatial analytics and digital communication systems that can significantly enhance wildlife crime prevention efforts.

Collaborative partnerships between governments, conservation organisations and technology firms can facilitate access to specialised knowledge, financial resources and innovative solutions. Such partnerships can accelerate the development and deployment of technologies specifically designed for wildlife protection purposes.

Examples of successful partnerships include the use of satellite imagery provided by commercial space companies, AI-powered wildlife monitoring systems developed by technology firms and blockchain platforms designed to enhance wildlife trade transparency. These initiatives demonstrate the value of leveraging private-sector innovation to support public conservation objectives.

The future of intelligence-led wildlife policing

Intelligence-led policing has become a central feature of modern law enforcement and offers considerable potential for wildlife crime prevention. Rather than responding reactively to incidents after they occur, intelligence-led approaches focus on identifying emerging threats, analysing criminal networks and preventing offences before they take place.

Advanced data analytics can assist enforcement agencies in identifying trafficking hotspots, mapping criminal networks and predicting future patterns of illegal activity. By integrating intelligence from multiple sources, including customs records, financial transactions, social media activity and conservation databases, authorities can develop a more comprehensive understanding of wildlife trafficking operations.

The future of wildlife policing is likely to involve increasingly sophisticated intelligence systems that combine artificial intelligence, machine learning and predictive analytics. These technologies can support evidence-based decision-making and enable more targeted enforcement interventions.

Building resilient conservation governance systems

The successful implementation of futuristic policing ultimately depends on the strength of governance systems. Technological innovation alone cannot overcome challenges associated with corruption, weak institutions, inadequate legislation or poor inter-agency coordination. Effective governance remains the foundation upon which technological solutions must be built.

Resilient conservation governance requires strong leadership, institutional accountability, stakeholder collaboration and long-term strategic planning. Governments must prioritise wildlife protection within broader national security, environmental sustainability and development agendas. International organisations, civil society groups and local communities must likewise play active roles in supporting governance reforms.

The integration of governance and technology represents one of the most promising approaches to combating wildlife crime in the 21st century. By combining strong institutions with innovative enforcement tools, countries can enhance their capacity to protect endangered species, disrupt criminal networks and contribute to global biodiversity conservation.

Implications for global conservation policy

The findings of this study suggest that future conservation policies should increasingly embrace technology-enabled governance approaches. Policymakers must recognise that wildlife crime is no longer solely a conservation issue but a complex transnational crime problem requiring multidisciplinary responses.

Future policy frameworks should promote technological innovation, international cooperation, community engagement and evidence-based enforcement practices. Investments in research and development, capacity building and technological infrastructure will be critical for ensuring that conservation agencies remain capable of addressing evolving wildlife crime threats.

As technological capabilities continue to advance, governments and conservation organisations have an unprecedented opportunity to transform wildlife protection efforts. The challenge lies in ensuring that these innovations are implemented responsibly, equitably and within robust governance frameworks that support sustainable conservation outcomes.

RESEARCH METHODOLOGY

This study adopts a qualitative desktop research methodology to investigate how governance frameworks and futuristic policing technologies can contribute to preventing turtle wildlife crime. Desktop research is particularly appropriate for studies that seek to analyse existing knowledge, policies, legislation, international agreements and documented best practices without collecting primary empirical data. Given the global and transnational nature of wildlife trafficking, a desktop approach enables the researcher to examine evidence from multiple jurisdictions and compare enforcement strategies across different countries and regions.

The research relies on secondary sources obtained from peer-reviewed academic journals, international conservation reports, policy documents, government publications, organisational reports and publications from international agencies such as CITES, INTERPOL, UNODC, WWF and TRAFFIC. These sources provide valuable information regarding wildlife trafficking trends, governance challenges, law enforcement responses and emerging technological innovations used to combat wildlife crime.

The study follows an interpretivist paradigm, recognising that wildlife crime prevention is influenced by social, political, economic and institutional factors that require contextual understanding. Rather than seeking statistical generalisation, the research aims to develop a comprehensive understanding of how governance and technology interact to improve wildlife protection outcomes.

A thematic analysis approach was employed to analyse the collected literature. Themes were identified through a systematic

review of relevant publications and grouped into four major categories: governance and policy frameworks, technological innovations, international collaboration and futuristic policing strategies. Thematic analysis allowed the researcher to identify recurring patterns, emerging trends, challenges and opportunities associated with wildlife crime prevention.

To enhance credibility and trustworthiness, data triangulation was applied by comparing findings from multiple sources and organisations. This approach enabled the researcher to validate information and reduce potential bias associated with relying on a single source of evidence. The study further ensured transparency by documenting all sources used and critically evaluating the reliability and relevance of the literature included in the review.

Although desktop research offers significant advantages in terms of accessibility, cost-effectiveness and global coverage, it also presents limitations. The study is dependent on existing published information and may not capture recent developments that have not yet been documented in academic or policy literature. Furthermore, the findings are limited to the quality and availability of secondary data. Despite these limitations, the methodology provides a robust foundation for analysing governance-driven technological approaches to combating turtle wildlife crime.

THEORETICAL FRAMEWORK

Theoretical frameworks provide the conceptual foundation for understanding complex social phenomena and guide the interpretation of research findings. Given the multifaceted nature of wildlife crime, no single theory adequately explains the drivers of turtle trafficking or the mechanisms required to prevent it. This study therefore adopts an integrated theoretical framework comprising Routine Activity Theory, Situational Crime Prevention Theory, Governance Theory and the Technology Adoption Model. Collectively, these theories provide insight into the factors that facilitate wildlife crime, the role of governance and enforcement in reducing criminal opportunities and the adoption of emerging technologies in wildlife protection. The framework further supports the analysis of how futuristic policing strategies can strengthen conservation efforts and improve responses to turtle wildlife crime.

Routine Activity Theory and wildlife crime

Routine Activity Theory provides a useful lens through which turtle trafficking can be understood. The theory suggests that criminal activity occurs when motivated offenders encounter suitable targets in the absence of capable guardians. In the context of wildlife crime, turtles represent highly desirable targets due to their economic value in international markets. The lucrative nature of the illegal wildlife trade motivates organised criminal groups to engage in poaching, smuggling and trafficking activities.

The absence of capable guardians often manifests through inadequate law enforcement capacity, insufficient surveillance technologies, weak border controls and ineffective judicial responses. Futuristic policing technologies can significantly strengthen guardianship by increasing surveillance capabilities, improving

intelligence collection and enhancing the probability of detecting offenders. Artificial intelligence, drones and predictive analytics therefore serve as modern guardians that reduce opportunities for wildlife crime.

Situational Crime Prevention and environmental security

Situational Crime Prevention focuses on reducing criminal opportunities through environmental and situational modifications. Wildlife crime prevention strategies increasingly reflect SCP principles through technological interventions that increase the effort required to commit offences, raise the risks of detection and reduce the rewards associated with illegal trade.

As an example, blockchain technology creates transparent and traceable records that make it more difficult for traffickers to disguise illegally sourced wildlife products. Similarly, drone surveillance increases the likelihood of detection in protected conservation areas, while predictive analytics enables enforcement agencies to deploy resources strategically in high-risk locations. These interventions collectively contribute to reducing opportunities for wildlife crime and enhancing environmental security.

Governance Theory and collaborative conservation

Governance Theory emphasises the importance of networks, partnerships and collaborative decision-making in addressing complex societal challenges. Wildlife crime represents a classic example of a complex governance problem because it transcends national boundaries and involves multiple stakeholders with differing interests and responsibilities.

Effective governance requires cooperation between government agencies, conservation organisations, law enforcement institutions, local communities, academic researchers and international organisations. The success of wildlife protection initiatives depends on the ability of these stakeholders to coordinate actions, share information and develop integrated responses to emerging threats.

Strong governance structures also enhance accountability and transparency, reducing opportunities for corruption and improving the effectiveness of conservation policies. Through collaborative governance, countries can strengthen their collective capacity to combat wildlife trafficking and protect endangered species.

Technology Adoption Model and wildlife protection

The Technology Adoption Model (TAM) provides insight into how enforcement agencies may embrace innovative technologies for wildlife crime prevention. According to TAM, the successful adoption of technology depends largely on perceived usefulness and perceived ease of use.

Law enforcement agencies are more likely to adopt technologies that clearly demonstrate operational benefits, such as improved surveillance, enhanced intelligence gathering and more efficient

investigations. Similarly, technologies that are user-friendly and compatible with existing systems are more likely to be accepted by practitioners.

The adoption of AI, blockchain and drone technologies therefore requires not only technological capability but also organisational readiness, adequate training, leadership support and sustainable funding. Understanding these factors is essential for ensuring the successful implementation of futuristic policing strategies.

Comparative international case examples

The application of technology-driven approaches to wildlife protection is increasingly evident across several countries. In Kenya, conservation authorities have successfully integrated drone technology into anti-poaching operations within protected areas, enabling real-time surveillance and improved monitoring of wildlife habitats. The use of drones has enhanced situational awareness and strengthened the ability of conservation agencies to detect and respond rapidly to illegal wildlife activities.

Similarly, India has implemented various technology-based wildlife monitoring initiatives, including digital wildlife databases, geo-spatial monitoring systems and enhanced wildlife tracking mechanisms designed to improve the traceability of endangered species and strengthen enforcement efforts. These initiatives demonstrate the growing role of technological innovation in supporting wildlife conservation and combating illegal wildlife trade.

South Africa has likewise adopted advanced technologies to support anti-poaching operations, particularly in relation to rhino protection. The use of aerial surveillance, environmental sensors, geographic information systems and intelligence-led enforcement approaches has improved the detection of wildlife crime and facilitated greater collaboration among conservation agencies and law enforcement authorities.

These international examples illustrate that the successful integration of technology into wildlife protection depends not only on technological capability but also on effective governance structures, institutional capacity, stakeholder collaboration and sustainable funding mechanisms. The experiences of Kenya, India and South Africa provide valuable lessons for countries seeking to strengthen efforts aimed at combating turtle wildlife crime through futuristic policing approaches.

Literature searches were conducted using Google Scholar, Scopus, Web of Science and institutional databases to identify relevant scholarly and policy-based sources. Keywords included "turtle trafficking", "wildlife crime", "environmental governance", "artificial intelligence in conservation", "blockchain wildlife trade", "drone surveillance" and "futuristic policing". Boolean operators such as AND, OR and NOT were used to refine search results and improve the relevance of retrieved literature. Additional sources were identified through reference lists, reports published by international organisations and government publications related to wildlife conservation and environmental crime prevention.

Inclusion and exclusion criteria

To ensure the quality, relevance and credibility of the study, specific inclusion and exclusion criteria were applied during the literature selection process. Sources included peer-reviewed journal articles, international policy reports, organisational publications and official documents published between 2013 and 2024 that addressed wildlife crime, environmental governance, conservation technologies and turtle trafficking. Priority was given to sources published by recognised academic institutions, international organisations, and conservation bodies such as CITES, INTERPOL, UNODC, TRAFFIC and WWF.

Sources not directly related to wildlife crime prevention, governance, technological innovations in conservation or turtle trafficking were excluded from the review. In addition, duplicate publications, non-academic opinion pieces and sources lacking sufficient relevance to the objectives of the study were omitted. The application of these criteria ensured that the analysis was based on reliable, current and relevant information capable of informing the study's objectives.

ETHICAL CONSIDERATIONS

This study was conducted using a qualitative desktop research approach based exclusively on secondary sources, including peer-reviewed journal articles, books, policy documents, international reports and official publications. As the research did not involve human participants, interviews, surveys, observations or the collection of personal or sensitive information, formal ethical clearance was not required.

Nevertheless, the study adhered to accepted principles of academic integrity, transparency and responsible scholarship. All sources consulted during the research process were appropriately acknowledged and referenced to avoid plagiarism and ensure intellectual honesty. The authors further sought to present the findings objectively by critically evaluating the literature and incorporating diverse scholarly and institutional perspectives on wildlife crime, governance and technological innovation.

In addition, care was taken to ensure the accuracy and credibility of the information utilised in the study by prioritising peer-reviewed literature and publications from reputable international organisations, including CITES, INTERPOL, UNODC, TRAFFIC and WWF. The study therefore complied with recognised ethical standards applicable to secondary-data research.

DISCUSSION OF FINDINGS

This section discusses the key findings emerging from the literature review and theoretical analysis. The discussion focuses on the governance, technological and collaborative dimensions of wildlife crime prevention and examines how these factors influence efforts to combat turtle trafficking. The findings are interpreted through the lens of the theoretical framework, with particular attention given to the role of governance structures, technological innovation, international cooperation and community participation in strengthening wildlife crime enforcement. The discussion further highlights the implications of these findings for policymakers, law enforcement agencies, conservation organisations and other stakeholders involved in wildlife protection.

Governance challenges in wildlife crime prevention

The findings reveal that governance weaknesses remain among the most significant barriers to effective wildlife crime prevention. Many countries continue to struggle with fragmented regulatory frameworks, insufficient enforcement capacity and limited inter-agency coordination. These challenges create opportunities for criminal networks to exploit weaknesses within conservation and law enforcement systems.

Corruption further undermines enforcement efforts by facilitating illegal trade activities and reducing public confidence in conservation institutions. Weak prosecution processes and inadequate sentencing practices also limit the deterrent effect of wildlife crime legislation. Consequently, strengthening governance structures must remain a priority for countries seeking to improve wildlife protection outcomes.

Technological transformation of wildlife policing

The study demonstrates that technological innovation has the potential to transform wildlife policing significantly. Artificial intelligence can analyse large volumes of information rapidly, identify trafficking patterns and generate predictive insights that support proactive enforcement strategies. This capability enables law enforcement agencies to move from reactive responses to intelligence-led operations.

Blockchain technology contributes to transparency and accountability by providing secure digital records that support supply chain verification. The ability to trace wildlife products throughout the trade chain reduces opportunities for fraud and assists authorities in identifying illegal activities.

Drone technology similarly enhances operational effectiveness by providing real-time monitoring of protected areas. Conservation agencies can deploy drones to monitor large geographical areas at relatively low cost while reducing risks to personnel.

International cooperation as a force multiplier

The findings further indicate that international cooperation remains essential for addressing wildlife crime. Turtle trafficking networks frequently operate across multiple jurisdictions, making unilateral enforcement approaches insufficient. International organisations such as CITES, INTERPOL and UNODC provide important platforms for intelligence-sharing, joint operations and policy coordination.

Regional enforcement networks have demonstrated success in disrupting trafficking syndicates and improving information exchange between participating countries. However, significant disparities remain in enforcement capacity across jurisdictions. Future efforts should focus on harmonising legislation, improving information-sharing mechanisms and strengthening collective enforcement capabilities.

Future directions for wildlife crime prevention

The future of wildlife crime prevention is likely to be characterised by increased integration between governance systems and advanced technologies. Artificial intelligence, blockchain, machine learning, satellite monitoring and predictive analytics are expected to become increasingly important components of wildlife protection strategies.

The successful implementation of these technologies will require sustained investment in infrastructure, human resource development and institutional capacity building. Policymakers must also address ethical considerations relating to data privacy, surveillance and technological governance.

Ultimately, the study suggests that the most effective approach to combating turtle wildlife crime involves a combination of strong governance, technological innovation, international cooperation and community participation. These elements collectively create a comprehensive framework capable of addressing the complex challenges associated with modern wildlife trafficking.

LIMITATIONS AND FUTURE RESEARCH

Although this study contributes to the growing body of knowledge on wildlife crime prevention, governance and technological innovation, several limitations should be acknowledged. Firstly, the study adopted a qualitative desktop research approach based exclusively on secondary data sources. Consequently, the findings are dependent on the availability, quality and scope of existing literature, policy documents and institutional reports. The study did not include primary data collection through interviews, surveys or field observations, which may have provided additional practical insights from conservation practitioners, policymakers and law enforcement officials.

Secondly, much of the literature on emerging technologies in wildlife conservation remains concentrated in specific geographical regions and conservation contexts. As a result, some of the findings may not be fully generalisable to all countries affected by turtle wildlife crime. Furthermore, the rapid pace of technological development means that new innovations and enforcement practices may emerge after the completion of this study.

Despite these limitations, the study provides valuable insights into the role of governance frameworks and futuristic policing strategies in combating wildlife crime. Future research should consider empirical investigations involving conservation agencies, wildlife enforcement officials, policymakers and local communities to assess the practical implementation of emerging technologies in wildlife protection. Comparative studies across different countries and regions could further enhance understanding of the governance factors that facilitate successful technology adoption in conservation enforcement.

Future research may also explore the effectiveness of specific technologies, such as artificial intelligence, blockchain systems, predictive analytics and drone surveillance, in reducing wildlife crime and improving conservation outcomes. Such studies would

contribute to a deeper understanding of how governance and technological innovation can be integrated to strengthen global efforts aimed at preventing turtle wildlife crime and protecting biodiversity.

Declaration of AI use

The authors, Dr Jeanette Smit and Dr Phillip Vuma, used Artificial Intelligence (AI)-assisted language tools solely to support language editing, grammar correction, sentence refinement and readability enhancement during the preparation of this manuscript. The AI tools were not used to generate original research content, conduct data analysis, interpret findings, formulate conclusions or make scholarly judgments. All conceptualisation, literature review, analysis, interpretation and final editorial decisions were undertaken by the authors. Dr Jeanette Smit and Dr Phillip Vuma have carefully reviewed and verified the accuracy, integrity, originality and scholarly quality of the manuscript prior to submission.

LIST OF REFERENCES

- Amwata, D.A. & Otianga-Owiti, G.E. (2021). Governance and challenges of wildlife conservation and management in Kenya. *Wildlife Biodiversity Conservation*.
- Bergenäs, J., Stohl, R. & Georgieff, A. (2013). The other side of drones: Saving wildlife in Africa and managing global crime. Stimson Center.
- CITES. (2023). Convention on International Trade in Endangered Species of wild fauna and flora. Available from: <https://www.cites.org>
- Clarke, R.V. (1995). Situational crime prevention. In M. Tonry & D. P. Farrington (Eds.) *Building a safer society: Strategic approaches to crime prevention* (pp. 91-150). University of Chicago Press.
- Cohen, L.E. & Felson, M. (1979). Social change and crime rate trends: A routine activity approach. *American Sociological Review*, 44(4): 588-608.
- Davis, F.D. (1989). Perceived usefulness, perceived ease of use and user acceptance of information technology. *MIS Quarterly*, 13(3): 319-340.
- INTERPOL. (2022). Wildlife crime. Available from: <https://www.interpol.int/en/Crimes/Environmental-crime/Wildlife-crime>
- Kuswanda, W., Hutapea, F.J. & Setyawati, T. (2023). The endangered long-tailed macaque considered a pest in North Sumatra, Indonesia. *Oryx*, 57(1): 12-13.
- Mohd Salleh, M.H. (2024). Enhancing wildlife trade enforcement in Malaysia: A review of the role of disruptive technologies and multi-stakeholder collaboration. *Jurnal BPPK*, 17(3): 183-191.
- Mozer, A. & Prost, S. (2023). An introduction to illegal wildlife trade and its effects on biodiversity and society. *Forensic Science International: Animals and Environments*, 3, 100064.
- Ramadanti, N.A., Tahamata, L.C.O. & Leatemia, W. (2023). Perdagangan satwa liar ditinjau dari Convention on International Trade in Endangered Species of Wild Fauna and Flora. *TATOH: Jurnal Ilmu Hukum*, 3(4): 385-393.
- Raja, P.R.A.K. (2024). Trade of endangered animals in India and its critical analysis. *International Journal for Research in Applied Science and Engineering Technology*. Available from: <https://doi.org/10.22214/ijraset.2024.60065>
- Rhodes, R.A.W. (1996). The new governance: Governing without government. *Political Studies*, 44(4): 652-667.
- Tambi, M.R., Zolkipli, A.M. & Salehuddin, A.M. (2023). A study of the causal factors of animal crimes in Malaysia. *Malaysian Journal of Social Sciences and Humanities*, 8(8): e002445.
- TRAFFIC. (2023). AI-assisted wildlife crime prevention. Available from: <https://www.traffic.org>
- United Nations Office on Drugs and Crime (UNODC). (2023). Transnational organised crime and wildlife trafficking. Available from: <https://www.unodc.org>
- Wich, S.A. & Koh, L.P. (2018). *Conservation drones: Mapping and monitoring biodiversity*. Oxford University Press.
- World Wildlife Fund (WWF). (2022). *Innovative approaches in wildlife protection: Drone surveillance and beyond*. Wildlife Conservation Society Annual Report.

ARTICLE

Performance Management System Effectiveness and Work Engagement in a Law Enforcement Agency

Uetupa Panduleni Nelumbu

STADIO Institution of Higher Education

E-mail: 21510465@stadio.ac.za

Dr Johleen Mouton

STADIO Institution of Higher Education

E-mail: JohleenM@stadio.ac.za

ABSTRACT

Performance Management Systems are near-universal across Southern African police services, yet structural adoption has not translated into investigator engagement. This descriptive study surveyed a stratified random sample of $n=50$ investigators (100% response rate) drawn from a population of 94 sworn officials at the Namibian Police Force Criminal Investigation Directorate National Headquarters, using a 56-item questionnaire covering goal clarity, feedback quality, design inclusivity, training responsiveness and engagement indicators. The data reveal an Awareness-Engagement Paradox: 90% of investigators affirm PMS purpose, yet 72% report exclusion from PMS design. The most prevalent implementation barriers, by frequency of endorsement, are unmet training needs (74%), design exclusion (72%), excessive paperwork (70%), training inadequacy (64%), a perceived disconnect between promotion and PMS performance (60%) and restricted access to feedback (48%). These patterns are consistent with Goal-Setting Theory's prediction that participatory goal-setting is necessary for commitment and with institutional isomorphism theory's account of why formally compliant but under-executed systems can persist for years without correction. This study is descriptive: it reports response frequencies, means and standard deviations, and does not include inferential correlation testing (e.g., Spearman's rho) or computed reliability coefficients (Cronbach's alpha), both of which are identified as the necessary next analytical step once the underlying item-level dataset is available for that purpose. The findings nonetheless offer a diagnostic basis, the Quality-of-PMS-Execution (QPE) framework, for prioritising PMS reform in African policing contexts, pending confirmatory inferential analysis.

KEYWORDS AND PHRASES

Performance management systems; work engagement; criminal investigation; Namibian Police Force; Goal-Setting Theory; institutional isomorphism; Awareness-Engagement Paradox; Quality-of-PMS-Execution framework; African policing; Southern African public sector

INTRODUCTION

Performance Management Systems (PMS) have become a standard feature of new public management reform across sub-Saharan Africa. South Africa's SAPS Performance Management and Development System, Botswana Police's Integrated Performance Management and Namibia's PMS framework, adopted in 2015, represent near-universal commitment to formal performance governance in law enforcement (Roberts & Roberts, 2016).

Structural adoption has not translated into engagement or performance improvement, particularly in criminal investigation units, where outcomes are complex, partially uncontrollable, and resistant to standardised metric capture (Shangadi, 2019; Silumbu, 2018).

The Namibian Police Force implemented its current PMS in 2015 under the Office of the Prime Minister's Performance

Management Policy, following the collapse of a 1997 Performance Appraisal System after one year of operation (NAMPOL, 2023). Within the Criminal Investigation Directorate (CID), which managed 92 251 new criminal cases and 178 987 outstanding cases during the 2022/2023 fiscal year, PMS has been structurally present for nine years without demonstrably improving investigative performance or investigator motivation.

Design inadequacy, unclear goals, poor feedback mechanisms or absent developmental components, is the dominant scholarly explanation for PMS failure (Gerrish, 2016; Schleicher, Baumann, Sullivan, Levy, Hargrove & Barros-Rivera, 2018). A different possibility is explored here: that PMS failure in the CID is not primarily a design problem but an execution problem. This is presented as a descriptive finding to be tested inferentially in follow-up work, not as a statistically confirmed conclusion.

This article addresses three themes, each examined descriptively. First, the Awareness-Engagement Paradox: why investigators can simultaneously affirm PMS purpose and report exclusion from its implementation. Second, the Quality-of-PMS-Execution (QPE) Framework, a diagnostic categorisation of PMS execution into measurable dimensions, ranked by descriptive prevalence of reported deficiency rather than by statistical association. Third, design exclusion as the most frequently reported barrier in this sample.

1. RESEARCH GAP

Two theoretical explanations compete for African police PMS failure. Inadequate structural features drive failure according to the design school (Gerrish, 2016; Schleicher et al., 2018), while the execution school attributes failure to implementation gaps between intended and actual PMS operation (Makhubela, Botha & Swanepoel, 2016), a view that broadly matches the general case for participatory, execution-focused performance management made in the wider literature (Saratu, 2016).

Makhubela et al. (2016) found that South African police excluded from PMS design reported lower engagement than those with design participation. The closest published parallel to the present study is Maake, Harmse and Schultz (2023), who surveyed 400 South African public sector employees and reported a strong relationship between performance management systems, employment relationships and work engagement. Their work establishes the PMS-engagement link in an African public sector setting but does not address law enforcement. No prior study has examined execution-quality patterns in NAMPOL specifically. This study addresses that gap through a descriptive quantitative account of PMS execution perceptions in a Namibian law enforcement context, intended as groundwork for subsequent inferential testing.

2. THEORETICAL FRAMEWORK AND LITERATURE REVIEW

The underlying study was framed principally through Goal-Setting Theory, alongside Expectancy Theory and Control Theory, to examine PMS effectiveness across its full range of constructs. This article retains Goal-Setting Theory as its primary lens and develops the engagement-related findings further through the Work

Engagement Theory and Institutional Isomorphism Theory. That extension is deliberate: the study established what the execution deficits are across the CID; the theoretical additions here address why an under-executed system persists and how its deficits relate to investigator engagement specifically, questions that fall outside the dissertation's original scope.

2.1 Goal-Setting Theory: Conditions for engagement

The Foundational Theory of Locke (1968) establishes that specific, challenging goals produce higher performance than vague or absent goals, provided goal commitment is maintained and feedback is available. Goal effectiveness depends on three mechanisms: goal specificity and perceived feasibility; goal commitment, meaning investigators must personally accept the goal as worthy of effort; and feedback and task visibility (Locke & Latham, 1990, 2019).

Exclusion from goal formulation is associated with PMS disengagement in South African policing (Makhubela et al., 2016). Applied descriptively to the Namibian CID, where 72% of investigators report exclusion from PMS design, the Goal-Setting Theory would predict engagement deficits; this study's descriptive data are consistent with that prediction, although the design does not statistically test it.

2.2 Work Engagement Theory: The investigator as motivated agent

Schaufeli and Bakker (2004) define work engagement as a positive, fulfilling psychological state characterised by vigour, dedication and absorption, distinct from satisfaction or organisational commitment. The Job Demands-Resources model extends this view, treating engagement as a function of the balance between job demands and available resources, including participatory and developmental resources of the kind measured in this study (Schaufeli & Taris, 2014).

Work engagement has been examined within the Namibian Police Force directly. Pieters and Hasheela (2018) surveyed 369 police officials across the Erongo, Oshana and Khomas regions, examining the relationship between job demands and resources, authentic leadership, work engagement and burnout. Their study establishes both that engagement is a meaningful construct within NAMPOL and that resource availability and leadership quality bear on it, although it does not address performance management execution specifically.

2.3 The Quality-of-PMS-Execution Framework

PMS adoption is typically treated as binary by the dominant framework: organisations either have or do not have a PMS, and presence is assumed to produce improvement (Gerrish, 2016). This conflates structural presence with execution quality. Addressing that gap, this article proposes the Quality-of-PMS-Execution (QPE) Framework as a diagnostic alternative, organised across four dimensions: Goal clarity, feedback quality, design inclusivity and training responsiveness. In this study, dimensions are prioritised descriptively, by how frequently investigators report each as a problem, rather than by a statistically tested association with

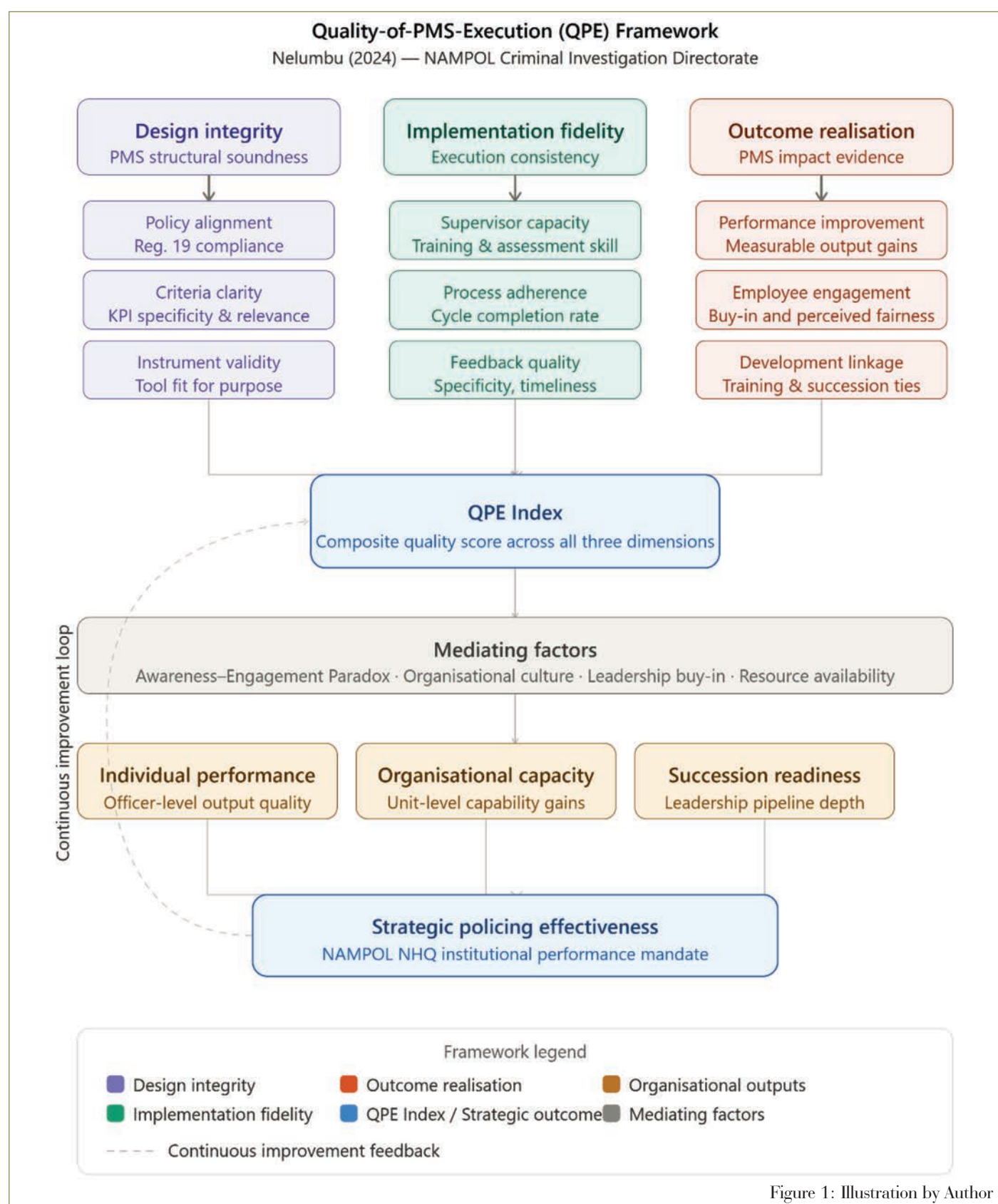


Figure 1: Illustration by Author

engagement. That stronger, correlational version of the framework is a direction for future work once inferential testing is completed.

2.4 Institutional Isomorphism: Explaining persistence without execution quality

A structural question follows from the descriptive pattern reported in Section 4: Why does an under-executed PMS persist for nine years without correction? DiMaggio and Powell (1983) argue that organisations facing uncertainty about performance gains often

copy the visible structures of organisations perceived as legitimate, regardless of whether those structures are then operated as intended.

Andrews (2009) found, across 31 African public financial management reforms, that reforms easy to observe and score on compliance checklists are adopted quickly, while reforms requiring changed entrenched behaviour lag behind. A PMS policy document and an annual submission deadline are the visible, checklist-friendly features this framework predicts will be adopted rapidly.

Whether supervisors actually involve investigators in target-setting is the low-visibility, behaviourally embedded feature predicted to lag. Bobe, Mihret and Obo (2017) document a comparable dynamic in Ethiopian public-sector reform, where a formal performance management structure was adopted as part of a wider, politically-driven reform programme, illustrating how institutional adoption can be shaped by legitimacy pressures that are largely independent of execution quality on the ground. NAMPOL's profile, formally compliant since 2015 and reporting substantial execution gaps nine years later, fits this pattern. This is offered as a plausible explanatory account, not a statistically tested claim.

3. METHODOLOGY

3.1 Research design

A positivist, cross-sectional, descriptive quantitative design was adopted. The research questions require measurement of PMS execution perceptions and engagement indicators at a single time point; the population, CID headquarters officials (N=94), is accessible and clearly defined; and the resources available supported a descriptive survey rather than a longitudinal or fully inferential design. Cross-sectional survey design is supported by precedent: Creswell and Creswell (2018) advocate cross-sectional surveys in exploratory contexts, Pieters and Hasheela (2018) used a cross-sectional survey to study engagement and burnout within the Namibian Police Force itself, while Roberts and Roberts (2016) employed cross-sectional analysis in police investigative productivity research.

The research aim was to describe how PMS execution is perceived by CID investigators and how those perceptions relate, descriptively, to engagement indicators, addressed through two questions: RQ1, which specific PMS execution dimensions are most frequently reported as deficient; and RQ2, how do engagement-related perceptions pattern alongside those deficiencies. This study reports frequencies, means and cross-tabulated patterns; it does not report inferential significance testing of the relationships between these variables, which is identified in Section 6.3 as the requisite next step.

3.2 Population, sampling and response rate

The target population comprised all 94 sworn police officials attached to the Criminal Investigation Directorate National Headquarters in Windhoek, selected because CID is the largest directorate within NAMPOL, headquarters staff represent the full rank spectrum, all investigators are subject to PMS governance and staff were accessible for survey administration.

Using Yamane's (1967) formula for a finite population at 90% confidence and 9.6% margin of error, a minimum sample of n=50 was calculated. Simple random sampling stratified by rank, ensuring proportional representation across nine rank levels, yielded a final sample of n=50 with a 100% response rate and no missing data.

3.3 Instrument

A 56-item structured questionnaire using a 5-point Likert scale (1 = Strongly disagree, 5 = Strongly agree) was developed through literature-based item generation drawn from the Goal-Setting

Section	Items	Content
A	5	Demographics and participant context
B	9	PMS awareness, goal clarity, design inclusivity
C	11	Feedback quality, training responsiveness
D	8	Implementation barriers
E	10	KPI perceptions and validity
F	4	Performance agreement governance
G	9	Reform priority endorsement and change receptivity
Table 1: Structure of the 56-item survey instrument		

Theory and Work Engagement Theory, expert content review by the supervisory team and pilot testing with five CID investigators. The instrument comprised seven sections, summarised in Table 1.

Content validity was established through explicit alignment with Goal-Setting Theory constructs and Work Engagement Theory dimensions. Face validity was confirmed through expert review and pilot testing. Formal internal-consistency reliability testing (Cronbach's alpha) for each section has not yet been completed on the full item-level dataset and is identified as a required step before any reliability claim is made about this instrument (see Section 6.3).

3.4 Data analysis

Jamovi statistical software and Microsoft Excel were used to compute descriptive statistics: construct means, standard deviations and frequency distributions for each item and section. Items with 50% or more agreement were classified as engagement-positive; items with 40% or more disagreement were classified as engagement-negative. This analysis is descriptive throughout. It does not include inferential correlation testing (such as Spearman's rank-order correlation) between QPE dimensions and engagement indicators and it does not include computed Cronbach's alpha reliability coefficients. Both are planned as the next analytical phase, to be run on the full raw response-level dataset and both are named explicitly as limitations in Section 6.3, rather than implied to have already been completed.

4. RESULTS

4.1 Sample demographic profile

The sample comprised 58% male and 42% female officials, with a modal age of 37-45 years (36% of the sample). Work experience concentrated in the ten to 20-year bracket (40%). Educational attainment was high: 58% held a degree or postgraduate qualification. Rank distribution was proportional across all nine levels.

4.2 Theme 1: The Awareness-Engagement Paradox

Two descriptive patterns define the Awareness-Engagement Paradox. First, PMS awareness and purpose acceptance are strong: Q1 (PMS awareness) recorded a mean of 3.68 with 66% agreement, while Q6 (PMS purpose) recorded a mean of 4.32 with 90% agreement. Second, operational receptivity is substantially lower: Q2 (clear communication) recorded 48% agreement, while Q3 (design participation) recorded 72% disagreement, the single highest-disagreement item in the instrument.

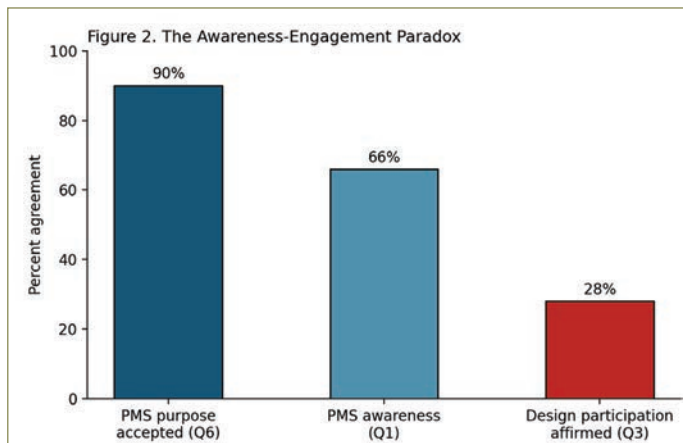


Figure 2: The Awareness-Engagement Paradox: purpose acceptance versus design participation (descriptive percentages)

This asymmetry, PMS awareness (66%) and purpose acceptance (90%) coexisting with design exclusion (72%), is the empirical signature of the Awareness-Engagement Paradox as observed descriptively in this sample. The theoretical interpretation of this pattern is developed in Section 5.1; it remains an interpretation of a descriptive pattern, not a statistically tested relationship.

4.3 Theme 2: Prevalence of implementation barriers

Rather than ranking the four QPE dimensions by statistical association with engagement, which this study's completed analysis does not support, Table 2 and Figure 1 rank the specific implementation barriers by how frequently investigators reported each one. This is a defensible descriptive prioritisation: it identifies where deficiency is most widely reported, without claiming to

Item	Barrier	% reporting	Source
Q25	Unmet training needs	74%	Table 4.36
Q3	Excluded from PMS design	72%	Table 4.14
Q24	Excessive paperwork	70%	Table 4.35
Q7	Training inadequate	64%	Table 4.18
Q28	Promotion not linked to PMS	60%	Table 4.39
Q20	Cannot access feedback / rating clarification	48%	Table 4.31

Table 2: Prevalence of reported PMS implementation barriers, ranked by percentage of investigators endorsing each.

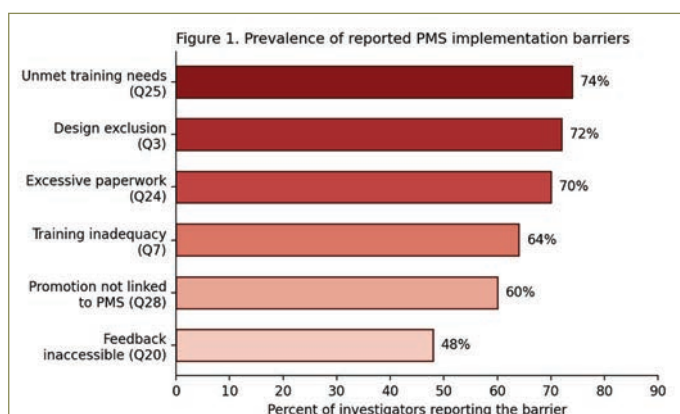


Figure 1: Prevalence of reported PMS implementation barriers (descriptive percentages, not a correlation ranking)

have established which deficiency causes the largest engagement effect.

Feedback integrity is moderately strong (Q13: 60% agreement; Q14: 52% agreement) while feedback accessibility is weak (Q20: 48% disagreement). Training shows the starkest pattern: Q7 records 64% disagreement with training adequacy, while Q25 records 74% agreement that training needs go unmet. Investigators citing unmet training needs also tend to report lower feedback accessibility on informal inspection of the data, which points towards, without statistically confirming, a coupling between the two.

4.4 Theme 3: Training and design as the two leading deficiencies

Unmet training needs (Q25, 74% agreement) and design exclusion (Q3, 72% disagreement) are the two most frequently reported deficiencies in this sample, and are close enough in prevalence that neither should be treated as clearly dominant. Descriptively, these are the two candidates this study identifies as priority areas for intervention. Whether either one is more strongly associated with engagement than the other is an empirical question this study's completed analysis cannot answer; it requires the inferential correlation testing described in Section 6.3.

4.5 Patterns relevant to the study's research questions

This study was framed around two directional expectations drawn from Goal-Setting Theory: that higher PMS execution quality would be associated with higher engagement (RQ1), and that higher engagement would be associated with more favourable perceptions of organisational reform receptivity (RQ2). The descriptive data point in the same direction as both expectations: sections reporting the most widespread deficiencies (design inclusivity, training responsiveness) are also the sections investigators most frequently identify as reform priorities in Section G (means 4.20-4.62, 88-98% agreement).

This consistency in direction is not the same as statistical confirmation. No inferential test (correlation coefficient, significance level or effect size) has been computed for either relationship in this analysis. Framing these as "supported hypotheses" would overstate what descriptive frequency and mean data can establish. This study reports the patterns as descriptively consistent with Goal-Setting Theory's predictions and identifies formal inferential testing as the immediate next step, not as a completed confirmation.

5. DISCUSSION

5.1 The Awareness-Engagement Paradox: Theoretical implications

The Awareness-Engagement Paradox challenges the assumption that awareness alone is sufficient for engagement. In the Namibian CID, awareness is high; what is comparatively absent is the ownership, feedback access and developmental reciprocity through which awareness is theorised to convert into engagement.

Goal-Setting Theory has a bearing here. Its original formulation treated goal awareness and commitment as closely linked. The Namibian data are descriptively consistent with the possibility that, in hierarchical organisations where goals are externally assigned without participatory mechanisms, awareness and commitment become decoupled. A similar directional pattern is documented in South African policing (Makhubela et al., 2016), suggestive, though not conclusive on its own, that this decoupling may recur across top-down PMS implementations more broadly.

Institutional Isomorphism Theory offers one account of why this pattern has persisted for nine years without correction (Section 2.4): once the visible markers of reform have secured legitimacy, there is limited internal pressure to complete the harder, less visible work of participatory execution.

5.2 The QPE Framework as a diagnostic starting point

By disaggregating PMS effectiveness into four dimensions and reporting how frequently each is identified as deficient, the QPE Framework gives police leadership a diagnostic starting point, prioritised descriptively rather than statistically. In the Namibian CID, design inclusivity and training responsiveness are the most frequently reported deficiencies. Chiloane and Schutte (2023) used a comparable diagnostic approach to build a framework for improving ethical culture in the South African Police Service: qualitative fieldwork with SAPS members identified regulatory unclarity, low awareness and inconsistent training as the primary drivers of the gap between policy and member conduct, a pattern of named, execution-level causes rather than a single blanket explanation that closely parallels the deficiency profile reported here. Replication with completed inferential analysis, and in other NAMPOL regional offices or SAPS units, would establish whether this profile reflects a NAMPOL-specific pattern or a broader feature of paramilitary PMS implementation in Southern Africa.

5.3 Participatory design as a priority intervention

Of the two priority areas identified in Section 4.4, design exclusion is most directly addressable through governance change rather than resourcing. Participatory PMS redesign is a plausible priority intervention for NAMPOL leadership, in keeping with the broader case for participatory, execution-focused performance management made in the wider literature (Saratoon, 2016). This remains a plausible priority pending inferential confirmation, not an established highest-leverage finding.

Performance agreements can practically keep organisational priorities intact while incorporating investigator input on target-setting within approved KPI categories. This moves target-setting from top-down assignment toward collaborative negotiation.

5.4 Feedback accessibility and training responsiveness reform

Two further observations follow. First, the feedback accessibility deficit reported in Section 4.3 weakens the diagnostic and corrective function feedback is meant to serve: investigators who cannot query a rating cannot act on it. A low-cost remedy is to formalise the right to rating clarification in NAMPOL's PMS policy, with a mandatory response procedure.

Second, the training gap documented in Section 4.3 suggests the PMS cycle is not well-integrated with development systems. This mirrors a finding from a separate SAPS-based survey: Grootboom (2023) reports that station-level officials recognise the value of new operational technology but identify a clear skills and training deficit, alongside a need for structured awareness initiatives, as the main barrier to effective adoption. A transparent training responsiveness tracking system, linking development needs identified in PMS cycles to confirmed training delivery within each fiscal year, would address this directly.

5.5 Implications for policing practice across Southern Africa

The direction of these findings broadly matches prior South African and Ethiopian public-sector research (Makhubela et al., 2016; Bobe et al., 2017). A single descriptive study at one directorate cannot establish a regional pattern; that would require comparative replication with completed inferential analysis. If future multi-site studies with formal statistical testing confirm a similar profile elsewhere, the QPE framework could offer the SADC Police Chiefs' Council a common diagnostic tool. At present this remains a direction for future research.

6. CONCLUSION

6.1 Contribution to knowledge

This study makes three descriptive contributions to African policing scholarship. First, it provides the first descriptive account of PMS-engagement perceptions in NAMPOL's CID. Second, it introduces the Awareness-Engagement Paradox as a diagnostic concept for future inferential testing. Third, it proposes the QPE framework as a prioritisation tool, ranked by descriptive deficiency prevalence, with a clear path to a stronger, correlationally validated version once inferential analysis is complete.

6.2 Practical implications

Three interventions follow for NAMPOL leadership, sequenced by implementation feasibility rather than by prevalence alone, since the two leading deficiencies are near-identical in reported frequency. First: introduce structured participatory mechanisms at each PMS planning stage, specifically investigator representation in annual performance target workshops, addressing the 72% design exclusion rate identified in Section 4.2. This is placed first because it requires a reallocation of design authority rather than additional budget. Second: establish a transparent training responsiveness tracking system linking identified development needs to confirmed training delivery, addressing the 74% unmet-needs rate. Third: formalise the right to rating clarification in NAMPOL's PMS policy with a mandatory response procedure, addressing the 48% feedback inaccessibility rate.

6.3 Limitations and future research

This study has one limitation that should be addressed before any confirmatory claim is made: the analysis reported here is descriptive only. Formal inferential correlation testing (Spearman's rank-order correlation between QPE dimensions and engagement indicators) and formal reliability testing (Cronbach's alpha per section) have not been completed on the underlying item-level dataset.

Until that analysis is run, statements that PMS execution quality "predicts" or "is significantly associated with" engagement should be treated as directional expectations consistent with the descriptive data, not as statistically confirmed findings. Completing this inferential analysis on the raw 50-respondent dataset is identified as the immediate next step for this research.

The cross-sectional, single-directorate design (n=50) also limits generalisability beyond the CID pending multi-site replication. Qualitative research into the mechanisms of design exclusion, and into alternative explanations for the training gap, would complement this descriptive foundation.

LIST OF REFERENCES

- Andrews, M. (2009). *Isomorphism and the limits to African public financial management reform*. HKS Faculty Research Working Paper Series RWP09-012. Harvard Kennedy School.
- Bobbe, B.J., Mihret, D.G. & Obo, D.D. (2017). Public-sector reforms and balanced scorecard adoption: An Ethiopian case study. *Accounting, Auditing and Accountability Journal*, 30(6): 1230-1256.
- Chiloane, A.S. & Schutte, F. (2023). A framework for the improvement of an ethical culture in the South African Police Service. *Just Africa: All-Africa Journal of Criminal Justice*, 8(2): 20-29.
- Creswell, J.W. & Creswell, J.D. (2018). *Research design: Qualitative, quantitative, and mixed methods approaches*. (5th ed.). Thousand Oaks, CA: SAGE.
- DiMaggio, P.J. & Powell, W.W. (1983). The iron cage revisited: Institutional isomorphism and collective rationality in organizational fields. *American Sociological Review*, 48(2): 147-160.
- Gerrish, E. (2016). The impact of performance management on performance in public organisations: A meta-analysis. *Public Administration Review*, 76(1): 48-66.
- Grootboom, V.M. (2023). Employees' perspective of the impact of the Fourth Industrial Revolution on the South African Police Service's mandate. *Just Africa: All-Africa Journal of Criminal Justice*, 8(2): 12-19.
- Locke, E.A. (1968). Toward a theory of task motivation and incentives. *Organizational Behavior and Human Performance*, 3(2): 157-189.
- Locke, E.A. & Latham, G.P. (1990). *A theory of goal setting and task performance*. Englewood Cliffs, NJ: Prentice Hall.
- Locke, E.A. & Latham, G.P. (2019). The development of goal setting theory: A half century retrospective. *Motivation Science*, 5(2): 93-105.
- Maake, G., Harmse, C. & Schultz, C. (2023). A performance management system, employment relationships and work engagement framework for the public sector in South Africa. *Southern African Business Review*, 27: 1-18.
- Makhubela, M., Botha, P.A. & Swanepoel, S. (2016). Employees' perceptions of the effectiveness and fairness of performance management in a South African public sector institution. *SA Journal of Human Resource Management*, 14(1): a728.
- Motyka, B. (2018). Employee engagement and performance: A systematic literature review. *International Journal of Management and Economics*, 54(3): 227-244.
- Namibian Police Force (NAMPOL). (2023). *Annual report 2022/2023*. Windhoek: Government Printer.
- Nelumbu, U.P. (2024). Assessing the effectiveness of performance management on employee performance in the Criminal Investigation Directorate, National Police Headquarters, Namibia. Master's dissertation. STADIO Higher Education.
- Nunnally, J.C. (1978). *Psychometric theory*. (2nd ed.). New York: McGraw-Hill.
- Pieters, W.R. & Hasheela, C. (2018). Investigating the exhaustion of police officers, selected regions within Namibia. *Journal of Economics and Behavioral Studies*, 10(3): 84-99.
- Roberts, A. & Roberts, J.M. (2016). Crime clearance and temporal variation in police investigative workload: Evidence from National Incident-Based Reporting System (NIBRS) data. *Journal of Quantitative Criminology*, 32(4): 651-674.
- Saratun, M. (2016). Performance management to enhance employee engagement for corporate sustainability. *Asia-Pacific Journal of Business Administration*, 8(1): 84-102.
- Saunders, M., Lewis, P. & Thornhill, A. (2019). *Research methods for business students*. (8th ed.). Harlow: Pearson.
- Schaufeli, W.B. & Bakker, A.B. (2004). Job demands, job resources and their relationship with burnout and engagement: A multi-sample study. *Journal of Organizational Behavior*, 25(3): 293-315.
- Schaufeli, W.B. & Taris, T.W. (2014). A critical review of the job demands-resources model: Implications for improving work and health (pp. 43-68). In G.F. Bauer & O. Hämmig (Eds.). *Bridging occupational, organizational and public health*. Dordrecht: Springer.
- Schleicher, D.J., Baumann, H.M., Sullivan, D.W., Levy, P.E., Hargrove, D.C. & Barros-Rivera, B.A. (2018). Putting the system into performance management systems: A review and agenda for performance management research. *Journal of Management*, 44(6): 2209-2245.
- Shangadi, M.D. (2019). An evaluation of the effectiveness of the performance management system in enhancing public service delivery in the Office of the Auditor General, Namibia. MBA (Management Strategy) thesis, Namibia Business School, University of Namibia. Available from: <https://repository.unam.edu.na/items/85b22dca-9495-4fd1-98b2-65808c4ea99c>. Accessed on: 22 July 2026.
- Silumbu, M.M. (2018). Assessing employee perceptions of the PMS in the Ministry of International Relations. University of Namibia. Unpublished thesis.
- Tavakol, M. & Dennick, R. (2011). Making sense of Cronbach's alpha. *International Journal of Medical Education*, 2: 53-55.
- Yamane, T. (1967). *Statistics: An introductory analysis*. (2nd ed.). New York: Harper & Row.

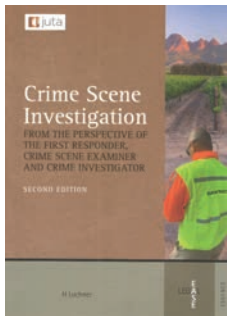
BOOK REVIEW

By Chris Botha*

(SOE, MPhil (PPL)(UJ))

e-mail: chrisbotha7777@gmail.com

Crime Scene Investigation: From the Perspective of the First Responder, Crime Scene Examiner and Crime Investigator



Author:	Hennie Lochner
Year published:	2026
Publisher:	Juta and Company (Pty) Ltd
ISBN:	978 1 48515 390 0
Type:	Printed/Soft cover
Price:	R989

Reviewer's summary

This book is highly recommended as a crime investigation source for investigators and scholars alike.

Introductory notes

The book under review is the second edition of a 2015 publication entitled *Crime Scene Investigation*, with (the late) Rudolph Zinn as co-author. However, this (second) edition has been revised, updated and strengthened significantly, which will be evident from the discussion below. To lay the table, so to speak, one notices that the first edition covered five chapters over 167 pages, while this edition consists of ten chapters, covering 491 pages.

This is clearly an academic textbook in the traditional definition (and therefore a highly useful tool for policing academics), and a well-written one at that. It is structured logically, referenced correctly, filled with specific examples from real cases and has ample emphasis on definitions and key points. The academic text is supported by issues of practice not often exposed outside insider training manuals¹. Several addenda add a formal and complete exposition of the normative world around crime investigation. I specifically use the word normative, as we know the SAPS experiences challenges in its crime investigation efforts. A cursory glance at the literature reveals, as an example, an increase in

murder from 29.6 per 100 000 of the population during 2011/2012 to 45.2 per 100 000 during the 2022/2023² report year, while the detection rate for contact crimes is reported as 47.55%³. Hopefully, policing practitioners (and trainers) will recognise Lochner's book for its practical value.

I harbour this hope because this academic effort has a distinct reference to the author's lived experiences, offering an autoethnographic⁴ flavour to the book. Consequently, it provides the reader with a first-hand pracademic⁵ experience, echoing the increasingly important focus on the practitioner/academic relationship in issues of community safety and security⁶.

The (pracademic) author

On this point, the author, Hennie Lochner has 30 years of policing experience, notably as an investigator of taxi violence, farm attacks and murders, in-bank as well as cash-in-transit robberies. He has commanded the investigation of serious and violent crime in one of South Africa's provinces and coordinated intelligence and investigations on cash-in-transit robberies in another. His post-SAPS career includes private investigation experience and a ten-year tenure as lecturer in police science at the University of South Africa (UNISA). Lochner is regarded as an expert on the value of cellphone systems in crime investigation, acknowledged by his registration of the "Lochner

Principle" as a trademark. He holds several post-school qualifications and is the author of several books on crime investigation published by Juta and Company (Ltd) Pty and UNISA Press.

Summary of content

The ten chapters of the book can be summarised as follows:

Chapter 1 describes in an overall fashion several phases in the investigation of a scene, from the control and protection phase (placing a very important obligation on the shoulders of the first responder) to the eventual release of the scene. A thorough discussion on the investigation of crime (chapter 2) paves the way for integration with the investigation of the scene itself (chapter 3).

Reading through chapter 4 (documentation of the scene), one appreciates the importance of (non-)contamination (and the possible detrimental effect on the integrity of the evidence) and of continuity of possession of the exhibits. Chapter 5 covers the evidence found at the crime scene/scene of incident (Lochner uses these terms alternatively as the context demands) in detail, and is backed by the permanent records (notes, sketches and photographs) described in chapter 6. Collection and packaging of certain types of evidence (chapter 7) precede new ways of thinking in chapter 8 (investigation aids), where the value of experts overturns the generalised myth of a "Sherlock Holmes" type of all-knowing genius detective. Chapter 9 provides a detailed exposition of DNA and cellphone data analysis (read with "Structure of the IMEI Number" on p xvii), while chapter 10 (managing extraordinary scenes of incident) is an expanded and reworked version of the previous chapter 5.

Analysis

The section on scientific and investigative facts (p xxv) is a novel way of explaining keywords and terms. It also binds the reader and draws him or her into a book of complex issues, written in easy-to-understand language, making the book extremely valuable. This is important as it lays the foundations for a design that slots one part of the book's structure logically into another. It makes the book a unique example of theory and practice working hand in hand, knowledgeably described by a pracademic with over four decades of competence (defined as the sum of knowledge, skills and attitude) to share with his readers. And then we see the golden thread throughout (which Lochner calls the "Golden rules"): protect the scene, identify evidence, mark the evidence, document the evidence, collect the evidence, package the evidence, transport the evidence.

It makes a lot of sense in an investigative environment under pressure.

Conclusion

Hennie Lochner's *Crime scene investigation: From the perspective of the first responder, the crime scene examiner and the crime investigator* (2026) is highly recommended as a crime investigation source for investigators and scholars alike.

About the book author

Hennie Lochner holds a DLitt et Phil (UNISA); MTech: Forensic Investigations; BTech: Police Science; BTech: Security Risk Management; and Diplomas in Police Administration and Security Management.

About the review author

* Chris Botha (SOE) is a retired assistant commissioner (current rank of major-general) in the South African Police Service. He is a governance and leadership professional with a special interest in community safety and security; and is attached to Huguenote Kollege (Wellington, South Africa) as a professional associate. He holds an MPhil (PPL)(UJ).

Footnotes

1. Such as the South African Police Service (SAPS) National Instruction 1 of 2015, entitled "Crime Scene Management," complete with that document's own annexures. Also, the handy inclusion of official documents on medico-legal post-mortem examination, statements in terms of section 212 of the Criminal Procedure Act 51 of 1977, descriptions of evidence collection kits, figures (needing more than three pages in the table of contents), tables with information and many more.
2. See Dr Johan Burger on crime statistics in *The Compassionate Confronter*, February 2026. (Available from: <https://confronter-journal.wixsite.com/confronter>).
3. See the SAPS's *Annual Report 2024/2025* on p 145. This is the latest official report available - it specifically notes that the performance target was not achieved. (Available from: <https://www.saps.gov.za/about/stratframework/annualreports.php>). Interestingly though, the Annual Report indicates (on p 85) that 99.92% of crime investigation learners were declared competent on learning interventions in "crime investigations" during the same reporting period. The success rate is explained as follows: "Trainers demonstrated exceptional commitment in preparing learners for assessments ..." A comparison of these statistics to the emerging ones in the 2025/2026 report will be interesting as well.
4. See Ellis, Adams & Bochner as well as Schoeman, referenced by Botha, C. (2023). "Police conflict management in South Africa: An autoethnographic reconnaissance." In: Staller, M.S., Koerner, S., Zaiser, B. (eds.). *Police Conflict Management*, Vol. 1. Palgrave MacMillan, Cham. Available from: https://doc.org/10.1007/978-3-031-41096-3_15 (p 376): Autoethnography is a research approach that describes and systematically analyses (the graphy part) personal experience (the auto part) to understand how the principles and customs of a particular group of people shape an individual's worldview and therefore the individual's perceptions and interpretations of various phenomena (the ethno part); a researcher uses tenets of autobiography and ethnography to do and write autoethnography.
5. With pracademic being defined by Raadschelder, J.C. (2011). *Public Administration: The interdisciplinary study of government*. New York, NY, USA: Oxford University Press, as a practitioner with a recognised academic footprint.
6. The author was disappointed when, while doing research for the book, "senior officials do not even reply to e-mails requesting a simple answer" (p xxxviii).
The reviewer finds this inexcusable: the minimum standard should be to acknowledge receipt of an enquiry if the enquiry could not be answered immediately. This behaviour has a negative impact on the practitioner/académie relationship.