


The role of South Africa Border Management Authority in tackling border crime: evaluating security networks and evidence-based policing approaches

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ARTICLE INFO

Article history:

Received 4 June 2024

Received in rev. form 22 August 2024

Accepted 10 September 2024

Keywords:

Approach, Border, Evidence, Holistic, Network, Policing, Security and South Africa.

JEL Classification:

K14

ABSTRACT

Inadequately secured national and international borders enable the influx of illicit weaponry and ammunition, as well as the transit of illegal immigrants over South African frontiers. Organised criminal factions have executed armed robberies, vehicle theft, hijacking, cash-in-transit heists, as well as human and drug trafficking throughout many places, towns, and cities in South Africa. The enlistment of security agencies and other stakeholders is essential in combating crime. This study examines the evaluation of the South African Border Management Authority, security networks, and evidence-based policing as comprehensive strategies for addressing border crime and improving safety and security in South Africa. A hybrid methodology was employed for data collecting. The porous borders facilitate the undetected entry of illegal immigrants, and certain security personnel have undermined the system. Evidence-based policing employs scientific evidence for decision-making, grounded in the principle that research should identify areas requiring law enforcement intervention. The Border Management Authority is tasked with the enforcement of South African immigration laws, as well as the protection, control, and management of borders. Recommendations include adopting evidence-based policing and security networks as comprehensive strategies for addressing illegal transnational trade, drug and human trafficking, organised crime, and terrorism; designing and implementing a multi-agency approach; and utilising criminal justice technology and security engineering to improve border security.

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Introduction

Currently, South Africa has experienced cross-border crime. This transnational crime affects the border, since criminals, smugglers, and traffickers introduce illicit products that traverse the boundary. Criminal organisations are engaged in the illicit smuggling of prohibited items into the country. They engage with syndicates and criminal networks implicated in several forms of serious and organised crime, including the fabrication and distribution of counterfeit documents, arms trafficking, corruption, and financial offences, including money laundering. Preserving the integrity of South African borders is essential for enabling South Africans to coexist peacefully and harmoniously with surrounding nations. The South African land border extends over 4,800 km and adjoins six countries, featuring 54 land ports of entry, 11 international airports, and eight marine ports. South Africa possesses a coastline measuring 2,500 km and features eight harbours (Department of Home Affairs, 2024).

The Border Management Authority is tasked with executing border management duties at ports of entry and inside law enforcement jurisdictions. The agency is the third military service in South Africa, following the South African National Defence Force and the South African Police Service. The Border Management Authority was created as a national public entity, as outlined in Part A of Schedule 3 of the Public Finance Management Act, independent of the public service, and is an armed service constituted under section 199(3) of the Constitution. The Border Management Authority Act, 2020, permits the President to establish varying

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commencement dates for distinct components of the Act, or to apply the Act to different segments of the border law enforcement region or various ports of entry through proclamation. Border control pertains to an entity responsible for regulating a nation's borders, customs, immigration, and enforcement of customs laws. Furthermore, border control include actions implemented by governments to oversee and manage the transit of individuals, animals, and commodities across terrestrial, aerial, and maritime boundaries. It pertains to international boundaries and regulations enforced on domestic borders. South Africa's ports of entry comprise airports with regular international flights, maritime ports, land ports, and the cyberspace domain as designated by the Department of Home Affairs, according to the Border Management Authority Bill of 2020.

The study of border management has significant implications for effective border security, which is crucial for border protection, management, control, and the fight against transnational crime. Criminals and terrorists frequently utilise counterfeit identity documents for travel. Border security encompasses all actions implemented to safeguard borders, guaranteeing that only authorised individuals, goods, materials, equipment, and products may enter or exit the border. Border control include measures implemented by a nation or coalition of nations to oversee boundaries and manage the transnational movement of individuals, commodities, and fauna.

The Department of Home Affairs (2024) identifies the most significant international crimes or illicit enterprises, including small guns and light weapons trafficking, with an estimated yearly value ranging from \$1.7 billion to \$3.5 billion. Secondly, organ trafficking is anticipated to generate an annual value of around \$840 million to \$1.7 billion, while trafficking of cultural property is valued at approximately \$1.2 billion to \$1.6 billion, culminating in a total estimated value of approximately \$1.6 trillion to \$2.2 trillion. In light of the global trend of border crime, it is imperative for the South African government, via the South African Border Management Authority and other security networks, to collaborate effectively to safeguard all entry and exit border crossing points—land, air, and maritime—against unlawful ingress and egress by cross-border criminals.

The Commissioner shall establish and execute a standardised recruitment protocol for the appointment of officials, which includes the selection of officers who are required to be members of the border guard and support personnel. Any staffing position, whether filled by appointment, promotion, or transfer, must comply with the Constitution, labour laws, and this Act. All individuals designated as officials must complete a suitable security clearance procedure prior to their appointment. An official who declines or does not succeed in the security clearance process shall be subject to disciplinary actions as prescribed by the Commissioner. The Commissioner shall guarantee that officers get sufficient and suitable training to competently execute the duties of the border guard. The BMA obtains financial support from multiple government agencies including the National Treasury (Border Management Authority Bill, 2020).

Organised criminal factions have executed armed robberies, vehicle thefts, hijackings, cash-in-transit heists, and engaged in human and drug trafficking throughout many villages, towns, and cities in South Africa due to the vulnerable borders. Inadequately secured borders enable the influx of illicit weaponry and ammunition, as well as the transit of undocumented immigrants over South African borders. Presently, South Africa encounters a significant influx of irregular migration from surrounding Southern African nations and other countries. This form of migration is associated with human trafficking, extremism, transnational crime, drug trafficking, infamous political actions, and economic and social challenges on a global scale. There is a widespread perception that South Africa's borders are permeable, allowing criminal syndicates and organised crime networks to exploit this vulnerability for their illicit activities.

Evidence suggests that in certain regions of South Africa, law enforcement agencies have apprehended unauthorised individuals. There are demands for a more comprehensive, effective, and efficient paradigm of border management and control, one that focusses on the prevention, reduction, and detection of crime at South African borders. The report recommends the establishment of a well-coordinated security network, involvement of additional safety and security stakeholders, and inter-agency collaborations to address these issues. The authorities must function as a security network, coordinate their actions, and collaborate to address border crime in South Africa. Evidence-based policing ought to be included as a strategy for dismantling organised crime and syndicates operating within South African borders. Border security technology ought to be used at border crossings. The security network engaged in this duty comprises the Customs, Border Management Authority, Border Control, Immigration Authorities, South African Police, South African Defence Force, and various agencies and security organisations with national security obligations.

The aims of the study are as follows: i) To ascertain the factors contributing to the porosity of South African boundaries; ii) To ascertain the most widespread transnational crime; iii) To identify the security agencies engaged in border management and control; iv. Evaluating the impact of security networks, evidence-based policing, and security technologies in the fight against border crime.

Question(s) for Research Use; i) What is the rationale for the low level of security at South African borders?; ii) Which type of crime that occurs across international borders is by far the most common in South Africa?; iii) Who security agencies are responsible for the management and control of South Africa's borders, and what are their roles? iv) What are the roles that security networks, evidence-based policing, and security technology play in the fight against border crime?

The study aims to promote effective border security and management, crucial for preventing and countering the movement of suspected terrorists and Foreign Terrorist Fighters across land, air, and maritime borders, as well as the cross-border transit of both legal and illegal cargo, including drugs, weapons, and munitions that threaten national security. The study seeks to enhance security

for residents in border regions, deter trans-border crimes, unauthorised entry or exit from South Africa, and combat smuggling and other illicit activities. Safeguarding South African borders against the illicit trafficking of guns, narcotics, contraband, and individuals, while facilitating legitimate trade and travel, is crucial for homeland security, economic growth, and national sovereignty. Collaboration among security networks and the implementation of evidence-based policing strategies are essential for effective and efficient border control and management to achieve these objectives. Enhancing security and enforcement technology at ports of entry is essential through the installation of additional cameras and surveillance in traffic and pedestrian zones, advancements in non-intrusive inspection technology, the creation and implementation of handheld technologies for data collection and detection, and the expansion of facilities to facilitate secondary inspections, as well as the oversight and monitoring of incoming and outgoing goods, materials, equipment, and individuals at the borders.

Literature Review

Theoretical and Conceptual Background

Border security/borders

Border security refers to measures taken by one or more governments to enforce border control policies. Such measures target a variety of issues, ranging from customs violations and trade in unlawful goods to the suppression of unauthorised migration or travel. Cross-border compliance refers to the adherence to laws, regulations, and standards that apply when conducting business across national boundaries. This multifaceted area encompasses a range of legal, financial, and operational considerations. Borders are complex phenomena that are multifaceted, multilevel, interdisciplinary institutions and processes that transect spaces not only in administrative and geopolitical realms but also in cultural, economic, and social domains (Haselsberger, 2014). Furthermore, borders signify one's territorial integrity and sovereignty and act as dividing lines that possess elements of exclusion and oppression. For example, in Europe, the tightening of border controls is increasing (Rudolph, 2005). The study states that the reasons for the state's control over borders are to maintain control of populations, limit access to labour markets and maintain internal security.

Border crime and border control

Border crime involves transnational criminal activity that occurs in the border region and undermines public safety or security, including an offence. Border control is generally the responsibility of specialised government organisations that oversee various aspects their jurisdiction's border control policies, including customs, immigration policy, border security and biosecurity measures. Official designations, division of responsibilities, and command structures of these organisations vary considerably, and some countries split border control functions across multiple agencies. The Joint Operations Division is a component of the South African National Defence Force that patrols land borders and oceanic territory. The National Border Control Unit of the South African Police Service works in ports and airports. Since 2020, The Border Management Agency (BMA) has been a branch of the Department of Home Affairs' that overseas border controls at ports and airports (BMA, 2020).

Safety and Security

National security is the coordination of various security agencies to protect a nation from different types of internal and external aggression, espionage, hostile intelligence service, sabotage, subversion, and other hostile influences and crimes. It involves all measures taken to detect, assess and neutralise all threats to the safety and security of a nation from subversive groups, hostile foreign agents, and unpatriotic citizens (Scharpf, 2018). It is also the total actions, measures, laws, and operational procedures put in place to protect the state and citizens from all internal and external threats as well as the facilitation and propagation of its national interest. National security cannot exist without a national interest. National security is aimed at protecting national interest (Hudson et al. 2017). National interest simply means the core objectives of any state, both internally and externally. Security agencies are branches of the same tree, and a house divided against itself cannot stand. Security personnel should be united in purpose and avoid unhealthy rivalry for the overall benefit of the (Scharpf, 2018).

Evidence-based policing

Evidence-based policing is more of a philosophy or marginal style, where scientific evidence is the central foundation for decision-making policing. It functions on the principle that research should be used to target the places where police are needed the most; police should review the evidence when choosing or testing a tactic to apply, and internal evidence should be used to examine the effectiveness of tactics (Sherman, 2013).

The paper revealed that evidence-based policing educates law enforcement on well-researched and verified strategies. Agencies that use evidence-based policing are able to make rational, evidence-based decisions while patrolling, carrying out investigations, and creating policies. However, for any organization to adopt evidence-based policing, it is crucial to understand the basic principles and strategies of evidence-based policing. The paper argues that border management authorities should try to overcome challenges that arise from implementing evidence-based policy making, which have many challenges related to the difficulty of providing relevant causal evidence, lack of data, the reliability of published research, and the transmission of research findings. Organizational factors such as lack of access to research, poor dissemination, and costs are factors affecting the use of research. Other barriers include lack of managerial support, professional bodies, material and personnel resources, managerial will, and staff turnover. Various barriers to

evidence-based practice include insufficient time to find research reports, insufficient time to find organizational information such as guidelines and protocols, lack of confidence in assessing the quality of research, difficulty in understanding research language, lack of resources, poor leadership engagement, implementation climate, lack of relative priority, and organizational characteristics. Evidence-based practice involves making decisions based on the best available scientific evidence, using data and information systems systematically, applying program-planning frameworks, engaging the community in decision-making, conducting sound evaluation, and disseminating what is learned. Evidence-based practice is about making decisions through the conscientious, explicit, and judicious use of the best available evidence from multiple sources to increase the likelihood of a favorable outcome.

Security networks

Bigo (2000) asserts that security networks are growing between countries as a global concern against illegal immigration, drugs, organised crime, terrorism and border crime. In essence, Flood (2004) asserts that if crime is to be managed, police have to recruit other agencies and actors to the fight and even join other network groups involved in governance such as customs and border control, immigration authorities, military and defence agencies and organisations with national security responsibilities. This includes designing and integrating a multi-agency approach to crime prevention, detection, reduction and investigations.

The study argues that effective collaboration within security networks requires high levels of trust, direct interaction among individuals, negotiation, discussion, conflict management, and the ability to accommodate other perspectives. Poor collaboration can lead stakeholders to avoid working together altogether, hindering the development of innovative solutions and causing organizational failure in achieving objectives. Border management authorities and security networks can benefit from evidence-based investigations, which involve research from experimental studies (with randomly assigned control groups), quasi-experimental studies (using comparison groups that are not randomized), or well-designed correlational studies. These methods help identify offenders.

Constraints that impede relationships between border management authorities and security networks include a lack of coordination among stakeholders such as police, military, navy, coastal police, customs, immigration, and border management officials. It is crucial to foster a culture of open communication in the workplace. Collaboration may be hindered when team members feel unable to communicate openly or lack a unified platform for expressing their thoughts. Communication issues arise when stakeholders are not aligned, leading to an imbalanced distribution of work. Additional challenges like productivity, personality conflicts, lack of focus, organizational culture, tools and facilities, confidentiality, and proximity can also impact the success of a group working on a project. If left unaddressed, these issues can affect various aspects of a project, including budget, timeline, resources, and personnel.

Border Crimes in South Africa

The paper highlights that trafficking in persons operations take two forms, namely cross-border and in-country, with the modus operandi differing according to the origins of the women and children and the origins of the traffickers involved. While traffickers may be single operators, they are more likely to operate within syndicates of other foreign countries living in South Africa. Violent crime is prominent due to the availability of firearms in society (Osimen et al., 2017). Porous borders have allowed illegal firearms to enter South African communities and cities and the police Central Firearms Registry projected about 3.5 million South Africans are in possession of legal firearms, whereas about 4.2 million individuals are in possession of illegal firearms. These scenarios have given rise to high incidents of murder in different communities and cities of South Africa. In order to address the proliferation of firearms in South Africa, the South African Police Services developed an implementation-friendly strategy aimed at establishing effective firearm control to eradicate the proliferation of firearms in South Africa.

Recently, South Africa has witnessed prominent border crime criminal networks that are more commonly associated with organized crime, including drug-trafficking syndicates, gangs in the Cape Flats, cash-in-transit operations, poaching syndicates, hijacking of motor vehicles, and stock theft, among others. Drug dealers make use of courier services to traffic drugs from one country to another, with specific points of delivery. Many highly placed government officials or politicians and business tycoons, as well as unemployed youth engaged in drug abuse, trading, and trafficking, are involved for financial gain. Most of the youth are looking for greener pastures or are desperate to be prosperous at all costs to break the chain of poverty (Koca, 2022).

The paper reveals that transnational syndicates and individual entrepreneurs institute transnational networks by recruiting relatives or friends after initial success in illegal business deals or activities. These recruits act as middlemen for transacting drug trafficking and illegal businesses. Sometimes, gang leaders enter into affinity with border officials as well as high-ranking government or political officials, bribing and corrupting them in the process. This approach aims to enhance movement and transfer deals, for example, paving the way for aiding criminals to escape justice if arrested, thus promoting a culture of impunity. The operation and affinity pose challenges to the criminal justice system and other law enforcement agencies tasked with border control and management because these syndicates are not permanent employees of these gangs and are therefore very difficult to monitor and track down.

Border Management Authority and the Object of the Border Management Authority Act (2020)

The Border Management Authority was established as a national public entity, as contemplated in Part A of Schedule 3 of the Public Finance Management Act, in terms of section 199(3) of the Constitution of South Africa. The Border Management Authority is tasked with enforcement of South African immigration laws, protection of borders, and ensuring the protection and effective management

of all South African ports of entry. According to the Border Management Authority Bill, the border management officers and border guards have been deployed to the vulnerable segments of the border, including at informal crossings, conduct border law enforcement functions, including access control, and the South African Defence Force remains responsible for border protection and safeguarding. The South African Revenue Service, South African Police Service and South African Defence Force have been mandated to integrate border management functions. The border management authority and stakeholders involves in checking, monitoring illegal import and export of goods, curb illegal migration and human smuggling, and in combating cross-border crime within South African borders, enhance community safety, effective law enforcement and improve optimal transnational trades (Border Management Authority Bill, 2020).

According to the Border Management Authority Bill, 2020, the functions of the Border Management Authority are to facilitate and manage the legitimate movement of persons within the border law enforcement area and at ports of entry; facilitate and manage the legitimate movement of goods within the border law enforcement area and at ports of entry; and to cooperate and coordinate border law enforcement functions with other organs of state, border communities, or any other persons. The Authority is composed of a commissioner, deputy commissioners, border guard comprising officers and commissioned officers; and support staff. Furthermore, the Border Management Authority is mandated to guard South African borders in respect of the land border, a distance of 10 kilometres or any reasonable distance inside the internationally recognised borders of the Republic; and the maritime borders, a distance of 10 kilometres or any reasonable distance on the landward side of the baselines extending seaward to the outer limit of the exclusive economic zone as defined in the maritime zones (Border Management Authority Bill, 2020). Border Management Authority is mandated to execute border law enforcement functions in synergy with the Defence Force on the implementation of border protection functions, work in cooperation with South African Revenue Service under customs and excise legislation; and tax Act, in monitoring and supervising any wares, supplies, merchandise, articles, products, commodities, currencies, documents, substances, animals, plants and their products, genetic materials, vehicles, waste, human remains, containers of such goods or any other thing capable of being transported through any port, point or place of entry or exit determined under any other legislation or any other port, point or place of entry or exit approved by the Minister in terms of section 30 of this Act. The border management is mandated to exercise its function in partnership with other governmental organs to ensure border security and protect national (Constitution of the Republic of South Africa, 1996).

The Role of Security Networks and Evidence-Based Policing in Border Management

Border management authority is the sole authority for border law enforcement operations at ports of entry and within the border law enforcement area, which has the potential for more cost-effective and efficient services. This includes the integration of immigration, port health, environmental, agricultural, as well as access control functions into the border management authority. Spotlighting the role of security networks requires formalizing relationships between the border management authority and relevant security agencies and law enforcement, such as immigration, customs, airport security, land border security, maritime security, the police, border control agencies, the military, and the relevant organs of state. This relationship is geared towards enhancing national security and the management of the border environment. This collaboration requires improved information and intelligence sharing and coordinated efforts to secure the border environment. The focus of this collaboration is to concentrate on optimizing port of entry operations and processes to enhance efficiencies through maximum compliance and minimum administrative costs and delays, as well as ensuring the effective utilization of financial, human, and infrastructure resources in implementing border management functions at a port of entry that replaces various agencies striving at the borders for border management and control. It also entails synergy between security networks and the border management authority on improvement in the management and control of South African borders, enhancing discipline and transparency with a single line of command at the port of entry level and the entire border law enforcement area. This collaboration will aid in creating efficient customer service through streamlined, integrated operations at the ports of entry. All the security networks, departments, and agencies mandated with border control and management are required to abide by the policy and legislative mandates, and there is a need to define the role of the security network and all stakeholders for effective operation.

The basic idea of evidence-based management is that good quality decisions require both critical thinking and the use of the best available evidence. It means that all stakeholders mandated with border management and control base their decisions on quality evidence. The process of evidence-based practice includes incorporating the best external evidence, including professionals and experts, and the values and expectations and outcomes. There is a need to ask a clear question about the issue relating to the protection of borders, control, management, and determine an ultimate goal, such as improving a procedure to help in changing the narrative of porous borders and insecurity to that of a safe environment characterized by effective border management. An evidence-based management adopts scientific data and information to answer team members' questions, inspire strategy decisions, and create long-term plans. The application of evidence-based policing in border management entails educating law enforcement in well-researched and verified strategies for them to identify and adopt the most effective strategies, techniques, and approaches for effective and efficient management and control. In this respect, all agencies mandated to carry out functions at the border would be able to make rational, evidence-based decisions while patrolling, carrying out investigations, and creating policies. The policy requires that all stakeholders in border management should work optimally and adopt evidence-based practice, which involves making decisions based on the best available scientific evidence, using data and information systems systematically, applying program planning frameworks, engaging the community in decision-making, conducting sound evaluation, and disseminating what is learned.

Open system theory approach/security network and inter-agency cooperation

Open system theory approach emphasises the close relationship between a system and its supporting subsystems. It works on the assumption that without continued input from the subsystems, any system could run down. Security is a subsystem of one or more large systems, and its linkages or integration with these systems affects the mode of operations and level of activity of each subsystem. Therefore, for the system to survive, all subsystems need to work together for the mutual benefit of the system as a whole to achieve the desired goal. Inter-agency cooperation is predicated on the understanding that the statutory responsibilities of the subunits are unique to them and clearly preserved (Rainey & Steinbauer, 2018).

This study argues that security agencies should perform their functions and complement one another's efforts. The open system theory encourages a security network crime-fighting strategy that emphasis the recruitment and involvement of other agencies and actors, security network groups involved in governance such as customs and border control, immigration authorities, defence agencies and organisations with national security responsibilities. These groups are expected to get involved in crime prevention, detection, and border management and equally participate in designing and integrating a multi-agency approach to crime reduction at the border, designate mechanisms for inter-agency cooperation, and create inter-agency cooperation when two or more organisations that share a problem area agree to deal with the issue by establishing a link via a formal contract that provides for resources and for the adjusting of internal and/or external procedures to adequately support the new arrangements. In well-designed political systems, the responsibilities of authorities' overlap, which means that a certain amount of cooperation must already exist. Hence, the development and implementation of public policy often requires multilateral cooperation that eliminates traditional boundaries or jurisdictions (Serrano, 2018).

Border security officers cannot combat border crimes alone, organisational goals and operational routines can make policy implementation difficult. Therefore, a more formal cooperation process is required with security networks. It should be noted that inter-agency cooperation becomes necessary when a single agency cannot adequately address a policy objective, such as safety and security. Thus, stakeholders such as customs and border control, immigration authorities, defence agencies and organisations with national security responsibilities, the local constituency, clients, street-level bureaucrats, industry managers, local senior public officials and legislators, state and federal, the police, immigration, other law enforcement and criminal justice clusters must work together to achieve successful policy implementation (Meyers et al., 2016).

According to the remarks by President Cyril Ramaphosa on 23rd of October, 2023, at Musina Show-Grounds, Limpopo. The Presidents highlights that the Border Management Authority was established by the Border Management Authority Act 2020, tasked with the enforcement of South African immigration laws, protection of borders and as well ensuring the protection and effective management of all South African ports of entry. There is a need for network security and inter-agency cooperation, which becomes necessary when large and diverse organisations that represent government agencies collaborate, coordinate, and cooperate on a broad front to implement policy objectives presented by formal policy makers. A joint response must be presented to implement policy objectives in an optimal manner, decide what role will be played by collaborating agencies, what resources will be allocated by each agency, and what tasks will be performed (Lundin, 2016). During policy implementation, there is a need for the identification of agencies that will collaborate and agencies that are willing to discuss issues collectively to find a solution. In addition, it is assumed that an established network will employ a coordinating body or a coordinator that will ensure that the agencies get involved and interact cooperatively to implement policy. Security agencies such as customs and border control, immigration authorities, defence agencies and organisations with national security responsibilities are the best for this task. During collaboration, the four-part process model should be considered as proposed by (Weiss, 2016). The process model uses external forces, shared problems, resources, and capacity as a guide to highlight and identify the relevant variables that are presumed to be essential to encourage inter-agency cooperation. The model fundamentally explains that local agencies must undergo a three-step process driven by external influences, systematic or random; these steps should be taken into consideration to achieve maximum implementation of an initiative. Step one entails that the perceived problem must be shared across agencies, step two entails that resources must be available to handle the problem cooperatively, and step three entails that institutional capacity must be established to mount cooperation.

Integrated Border Management Approach

The integrated border management approach encompasses national and international coordination and cooperation among all relevant authorities and agencies involved in border management and trade facilitation in order to establish effective, efficient, and coordinated border management. The cooperation and coordination between the different border agencies can be possible on different levels, such as local cooperation between officials on both sides of the border, bilateral cooperation between neighboring states, and multinational cooperation (Constantin, 2022). The application of an integrated management system resonates with the assumption that a single system could be designed to manage multiple aspects of an organization's operations in line with multiple standards, such as those for quality, border management and control, environmental, health and safety management. The underlying principles of integrated management systems include systemic management, standardization, integration, organizational learning, debureaucratization, and continuous improvement. The Integrated Border Management approach is aligned with the Global Border and Security Management Programme, which aims to prevent the cross-border movement of terrorists and stem the flow of foreign terrorist fighters through improved border security and management, as well as cross-border cooperation among beneficiary countries. The integrated approach aims to address and ensure safe and legal human movement, protect the rights of migrants,

promote the country's national interests, facilitate fair trade, protect the environment, uphold biodiversity imperatives, and achieve global, African, and domestic development goals.

The study reiterates that the application of a comprehensive integrated border management system will assist in improving situational awareness at different levels of hierarchy to facilitate prompt and quick responses to emerging situations along the South Africa border and Southern African Development Community (SADC) member countries. The SADC is a regional economic community comprising 16 Member States, including Angola, Botswana, Comoros, the Democratic Republic of Congo, Eswatini, Lesotho, Madagascar, Malawi, Mauritius, Mozambique, Namibia, Seychelles, South Africa, the United Republic of Tanzania, Zambia, and Zimbabwe. The implementation of an integrated border management system requires training and information dissemination to inform and train stakeholders on the standards of integrated border management and how the approach can be used to address border-related issues and management. It entails the creation of policies and formulation of objectives, conducting gap analysis, identifying process design and implementation, establishing internal audit and management review to ascertain the success or constraints of the cooperation. After conducting and certifying gap analysis, seek modalities for improvement.

New technologies for border security

Implementing smart border technologies empowers border control agencies to digitize, automate, and facilitate faster, smoother, and contactless clearance of travelers and vehicles. The ground-based technologies program includes radars, imagers, unattended ground sensors, and related communication and power technologies. Improving security and enforcement technology at ports of entry requires implementing additional cameras/surveillance of traffic/pedestrian areas, non-intrusive inspection technology improvements, developing and deploying hand-held technologies for data and detection, and expanding facilities to allow for secondary inspection. At the border control, an automated border control system could be used. E-Gates are automated self-service barriers that use data stored in a chip in biometric passports, along with a photo or fingerprint taken at the time of entering the e-Gates, to verify the passport holder's identity. Biometrics at the Border is a device connected to a local database of citizens to complete ID verification and secure pass permission. Passport reading, fingerprinting, and/or face recognition are the most commonly used biometric methods. The government can use an automated system to record the arrivals and departures of visitors at all air, sea, and land ports of entry. Biometric boarding is the use of biometric technology to streamline and secure the boarding process at airports, involving unique biological characteristics such as facial recognition, fingerprints, and iris scans to verify a passenger's identity without the need for a physical boarding pass. The use of automated recognition of individuals based on physical and behavioral characteristics improves the reliability of verification, delivering efficient and swift protection or assistance to beneficiaries often relies on the ability to identify individuals and prevent irregularities regarding identity claims. The use of biometrics in registration processes can help collect data to identify vulnerable individuals who may require additional assistance. Biometrics is also of great importance to facilitate and expedite regular and safe cross-border mobility; for instance, it enables the use of automated border control gates. Lastly, the responsible use of biometrics enhances security in migration and border management processes. Additionally, as biometric technology becomes more widespread, it raises ethical concerns. Privacy is a major issue, with concerns about how biometric data is stored, used, and potentially misused. Consent and public awareness are also crucial; people should be informed and consent to the use of their biometric data.

Artificial intelligence models are used to automatically identify objects in streaming video and imagery, enhancing the effective processing of vast amounts of data that is already captured much quicker. This ensures that relevant authorities can identify and respond to threats with greater efficacy. Artificial intelligence could be used for screening cargo at ports of entry, validating identities in the app, and enhancing awareness of threats at the border. Artificial intelligence can be utilized to secure international borders more efficiently and, in some cases, more safely. AI systems are often used as supplements for border officials, allowing fewer individuals to monitor larger territories and scan more migrants and other travelers in less time and for less money than would otherwise be possible. Artificial intelligence is a game-changer with the capabilities and ability to conduct surveillance and patrols at borders. Border-focused AI technologies come in various forms, including algorithms designed to evaluate travelers, analyze emotional expressions, conduct biometric analysis of fingerprints and facial recognition, and scanner software that can differentiate humans from wildlife in remote border sections. Artificial intelligence is capable of processing and interpreting more data than ever before. The study warns that the ethical use of AI should be considered when carrying out operations. The use of AI technologies has raised concerns about privacy and the increasing government surveillance of not only migrants and travelers but, on a larger scale, entire populations. The paper argues that while physical barriers, multi-sensors, radars, and command and control centers are essential for border security, they are not sufficient to secure a border. Intelligence plays a crucial role in border security. Intelligence can be used in preventing strategic border surprises and supports the implementation of effective border solutions through proper risk assessments.

Research & Methodology

The study adopted a mixed method comprising qualitative and quantitative research approaches. Data specific for the study was collected through semi-structured interviews where a sample of Fifty (50) respondents were interviewed. A total of one hundred and twenty questionnaires were distributed to senior officers working at the sensitive duty post. The responses from one hundred (100) officers were received and collated.

The respondents included policy experts from the parliament of South Africa, criminology and security studies researchers who had conducted studies on border crime, and senior officers from customs, immigration, police, and the South African National defence force. Additionally, these respondents were selected because of their understanding of the topic under investigation. The respondents were selected using the non-probability sampling technique in which purposive sampling was used to select the respondents based on their willingness to participate in the study by responding to the interview questions.

To gain more insight into this matter, in-depth, semi-structured interviews were conducted with South African National Defence Force military strategy developers, military strategy implementers and experts at the operational level, and professional people who are responsible for fulfilling the roles of land border, air and maritime safeguarding. To enhance the rigour of the study, the paper recognised the underlying principles of the open system theory approach, which emphasises the close relationship between a system and its supporting subsystems, encourages security network crime fighting strategy, the recruitment of other agencies and actors, network groups involved in governance such as customs and border control, immigration authorities, defence agencies and organisations with national security responsibilities in combating crime. Furthermore, various sources were used to collect secondary data, which were then triangulated with research interview findings to strengthen the validity and reliability of the study. The data were recorded, transcribed and analysed manually through thematic analysis. Themes and patterns identified were labelled in the form of a word, sentence, phrase, or couple of sentences.

Statistical analysis was instrumental in collecting and analyzing large volumes of data to identify trends and develop valuable insights. During quantitative data analysis, the researcher examined raw data to find correlations between variables, revealing patterns and trends to relevant respondents. Furthermore, the first step in analyzing interview questions was to transcribe audio recordings, familiarize with the content, and develop a coding framework. The interview data was coded according to themes and questions. The responses from the respondents were interpreted based on the answers given by each respondent.

The study complied with ethics approval of the university and rules of informed consent statements were adhered to. This study was conducted with the approval of the University of Johannesburg Ethics Committee. Informed consent was obtained verbally before the participation of respondents.

Analysis, Findings, Discussion

The following analysis is based on interviews and questionnaires with 150 respondents.

Reason why South African borders are porous

President Cyril Ramaphosa on 23rd of October, 2023, spotlighted the main causes of porous land borders in South Africa to be lack of resources, the length and material condition of the border, uncoordinated intelligence, corrupt government officials, the colonial border legacy, liberalist migration policies and laws, lack of integrated overarching national security strategy, the large South African informal employment sector, and ineffective cooperation and collaboration between South African departments of state at the national strategic level and parallel departments in neighbouring countries.

55% of the respondents agreed with Abel (2023), that the pull factors that promoted the violation of borders include the fact that human rights are guaranteed in South Africa; that South Africa is a country with a liberal democracy; that despite its challenges, South Africa is still perceived as a country that socio-economically and politically exceeds other countries in Africa; and that South Africa has an infrastructure largely unmatched on the continent. They contended that migrants escaping from their countries to a country with perceived solutions creates emerging threats in the target country, such as economic, societal, political, and environmental threats. These threats are closely linked to South Africa's porous land borders. Furthermore, the study reveals that the borders between Mozambique and South Africa, Zimbabwe and South Africa, and Lesotho and South Africa were the most porous land borders that require urgent attention from governments. Findings reveal that South Africa has a total of 1,220,813 km² (471,359 sq mi, Coastline of 2,798 km (1,739 mi), the total land borders of 4,862 km, Botswana 1,840 km, Lesotho 909 km, Mozambique 491 km, Namibia 967 km, Eswatini 430 km, Zimbabwe 225 km, and the highest point at Mafadi 3,450 metres (11,320 ft). Building on these findings, the South African government should prioritise territorial integrity and border protection as vital interests (Department of Home Affairs, 2024).

60% of the respondents' opinions reflected Abel (2023), that factors such as; poverty, hardship, violence, civil-military conflicts, wars, poor economic conditions, and associated poor living conditions are factors pushing foreign nationals away from their respective home countries in South Africa. They suggested that while the South African government is busy addressing the internal factors attributed to porous land borders, it should also focus its efforts on stabilising and assisting in the political and economic situation of its neighbouring countries, especially Zimbabwe, Mozambique and Lesotho. These countries can play a vital role in becoming a buffer and a first physical line of defence to South Africa in stopping illegal immigrants and contraband before reaching South Africa's porous land borders. The research contended that South Africa should pursue its interests in territorial integrity and border protection through bilateral cooperation because it is easier to reach a bilateral agreement than to pursue multilateral security initiatives.

50% of respondents mentioned challenges confronting the South African border. They believed that the lack of adequate mobility (land, air and sea) and transport capabilities, facilities for soldiers in deployment that were not up to the required standard, lengthy procurement processes, poor borderline infrastructure (border fences, patrol roads and access routes), and legislative impediments are factors militating against effective border management. Respondent (12) highlights the challenges South Africa is facing at its borders. He stated that the apartheid regime flagrantly disregarded the sovereignty of neighboring countries to conduct illegal cross-border raids. It abused immigration measures to harass its opponents and enforced hated policies like influx control and the exploitation of labour from the region.

70% of respondents pointed out that the complexities of border management at some South African borders have resulted in an uncoordinated approach by various authorities. A challenge has been the sheer number of government departments and entities involved in border control and management. The absence of a central authority led to fragmentation of efforts and made it difficult to enforce accountability. This in turn rendered our borders vulnerable. They agreed that the UN Office on Drugs and Crime has noted that South Africa has become an important transit route for organised criminal networks involved in human trafficking, drugs and small arms smuggling and various other forms of cross-border crime. It has also noted that as the economic powerhouse of the region, South Africa continues to attract undocumented economic migrants, especially from the SADC region.

Seventy percent of the respondents agreed that the proliferation of cross-border crime, illicit trade, and illegal migration are prominent because of porous borders, which presents a serious threat to South Africa's national security and economy. They believed that these menace places strain on meagre resources and provision of public services. In some localities, most people have engaged in violence and harassment of foreign nationals with a perception that the foreigners are the cause of crime in their areas. They pointed out that anti-foreign sentiment has recently resulted in acts of violence and harassment. The establishment of a Border Management Authority mandated to perform border management and control will address crime committed within the borders of South Africa.

55% of the respondents agreed that corruption has negative impacts on South African border. They concurred that some of the corrupt border officials are responsible for allowing undocumented persons, materials, and goods into the country. They opined that the government needs to invest in the training of personnel and in upgrading the skills of border security officers. Lack of training has affected the operational capacity and capabilities of border security officers, thus allowing cross-border organised criminals to engage in the smuggling of drugs, counterfeit goods, clothing and humans through land borders. Four broad root causes of migration are safety factors, economic factors, environmental factors, and social factors. They believed that most immigrants had come to South Africa to escape poverty and destitution in their own countries, and civil wars and political instability. Economic opportunities are other reason for illegal migration to the country. Cross-border crime has become entrenched in South Africa; with most notable the smuggling of vehicles from South Africa to neighbouring countries. There is also a lack of cooperation between police and customs from the SADC perspective.

According to Abel (2023), the primary obstacle to effective border control was the lack of coordination among the country's departments and agencies present at borders. There is no operational uniformity among the present agencies and departments; thus, even though legislation has been developed, the poor coordination between stakeholders of border security and management means that the success rates of these legislations, therefore, become problematic to measure. The majority of respondents argued that the difficulties in managing cross-border crime were due to policy incoherence. Logistic challenges and decline in budget allocation were another hindrance to border management. SA border control; border security, and migration policy are hindered by the lack of logistical support. Additionally, ports and border posts were poorly designed. The flow of human and freight traffic was not conducive to effective border control. Most of the officials in the borders are not specifically trained to tackle border-related crime, and some do not possess the necessary skills to respond to border crime. Demotivation at the border is driven by an array of factors, such as low salaries and insufficient benefits, which affects the staff performance at the borders.

The study highlights some of the challenges that contributed to the porosity of South African borders. In total, 55% of respondents concluded that South African border stations cannot cope with the number of threats and risk associated with South African borders. They pointed out that challenges such as damaged fences, power outages, bad ICT systems, and the absence of use of technology for addressing cross-border crime militate against border control. Furthermore, other challenges at the land border spotlighted by Abel (2023) were lack of specialised truck lane and safe vehicle holding areas and insufficient security infrastructure such as lighting, cameras, vehicle scanners, military vehicles, access roads, bases, and sensors.

The most prevalent border crime in South Africa

Seventy percent of the respondents agreed that criminal gangs are active in smuggling and have synergized with syndicates and criminal networks, engaged in other types of serious crime such as the production and provision of fraudulent documents, firearms trafficking, corruption, and financial crimes, especially money laundering.

According to Department of Home Affairs (2024), the largest international crimes or the biggest illicit industries are small arms and light weapons trafficking, which has an estimated annual value of about \$1.7 billion to \$3.5 billion. Second, organ trafficking has an estimated annual value of approximately \$840 million to \$1.7 billion, and trafficking in cultural property has an estimated annual value of approximately \$1.2 billion to \$1.6 billion, with approximately \$1.6 trillion to \$2.2 trillion in total. Third, illicit drug trafficking, human trafficking, illegal crossing of immigrants, and smuggling of illicit goods and products into South Africa.

65% of the respondents confirmed that transnational crimes are one of the border crimes predominant in South Africa borders. They concurred that transnational crimes have been coordinated across national borders, involving a group of networks of individuals working in more than one country to plan and execute illegal business ventures in order to achieve their goals. These criminal groups use systematic violence and corruption.

Seventy percent of the respondents agreed with Jackson (2012) that the most commonly seen transnational organised crime are money laundering, human trafficking/smuggling, cybercrime, drugs, illegal weapons, endangered species, trafficking of body parts and nuclear materials. Fifty percent of the respondents opined that human trafficking, illegal drugs trading, endangered species, trafficking of body parts and trafficking of sex workers and illegal miners and workers are the most prominent in South African borders.

70% of the respondents identified diversity of national border threats such as; narcotics; human trafficking; rhino poaching; illicit mining; nonferrous metals; specific violent crimes; vehicles crimes; illicit smuggling of cigarettes; and economic crimes. They revealed that the integration of information systems has many benefits for territorial integrity, including enhanced border security; improved facilitation of legitimate trade and travel; and improved efficiency, reducing costs and providing a more flexible system.

Seventy-five percent of the respondents agreed that organised crime has rapidly grown or extending threat to the security of modern society, including South Africa. They concurred that organised crime groups are generally associated with drug trafficking, human trafficking for economic gain such as sexual exploitation, offences against children using them for force labour, corruption and terrorism. Respondent (12) added that drug, human trafficking, and organised crime groups pose a challenge to law enforcement working at South African borders.

55% of respondents agreed that some of the organised criminals involved in acquisition of goods or money through predatory crime, which includes theft and robbery, and in the transport of such goods through the borders of South Africa. They believed that many traffickers were involved in the production and sale of illegal goods such as drugs and counterfeit products and passed them through the borders of South Africa.

Respondent (15) pointed out that criminal groups and traffickers were involved in the supply of illegal services from foreign countries, such as prostitution and smuggling of goods and money laundry. Furthermore, the above respondent added that causes of border crime have been attributed to poverty, problems with delivery of public services, and wealth disparity. People are involved in cross-border crime in order to survive, and most people have taken smuggling and trafficking on people and illegal goods as a profession.

Security agencies involved in border management and control in South Africa

The Border Management Bill (2020) mandated the Border Management Authority to perform border management functions within ports of entry and in the law enforcement area. The Border Management Authority (BMA) has taken full control of all immigration, health, agricultural, and environmental functions across all ports of entry, with the departments retaining responsibility for policy and legislation. President Cyril Ramaphosa pointed out that the Border Management Authority is in charge of border control in South Africa, and the third armed service in South Africa after the South African National Defence Force and the South African Police Service. The Authority is mandated to perform border management functions within ports of entry as well as the law enforcement area and is responsible for the execution of frontline border law enforcement functions related to port health; immigration control; access control; biosecurity; food safety and phyto-sanitary control; land border infrastructure. development and maintenance; and border information and risk management (President Cyril Ramaphos, 2023).

Seventy percent of the respondents agreed that the South African National Defence Force (SANDF) is a stakeholder in border management, protection, and control. They believed that the establishment of the Joint Standing Committee on Defence would enable the implementation of Operation Corona, which mandates the South African National Defence Force to defend South Africa's territorial integrity. They believed that protection of the borders is part of the responsibilities of the South African National Defence Force, which includes the protection of the borderline outside the ports of entry, border posts, and border gates, as well as the maritime territorial waters.

According to the Border Management Authority Bill (2020), an officer may, without a warrant, conduct a roadblock or set up a checkpoint within the border law enforcement area or at a port of entry with the written approval of the commissioner. Also, an officer may, without a warrant, conduct a routine inspection or search of any person, goods, documents, premises, or vehicle within the border law enforcement area or at a port of entry for determining compliance with the provisions of this Act; and during such an inspection or search, order any driver of a vehicle to stop; seize or detain anything found that may be lawfully seized or detained; question any person about any matter related to the passage of persons or goods, documents, vehicles through a port of entry or in the border law enforcement area; and detain or arrest any person reasonably suspected of contravening any provision of this Act.

A border guard officer should perform his or her border law enforcement functions in terms of the Border Management Authority Act (2020). in this regard, an officer may exercise any power conferred on him or her when performing any border law enforcement function, exercise his or her powers in a manner that takes due regard to the fundamental rights of persons, as guaranteed under Chapter 2 of the Constitution, and public international law obligations of the Republic, with proper consideration of the rights and interests of vulnerable groups, including victims of trafficking, refugees, and asylum seekers.

The majority of respondents 65% agreed that the South African police play vital role in combating border crime. They concurred that the central objective of policing is to provide security, or at least a social and psychological feeling of security, for citizens. They pointed out that police are the government officials most proximate to crime and are the leading figures in crime prevention/control and in the law-enforcement process. Police are involved in border security which includes; preventing, controlling, and combating criminality in different South African borders.

60% of the respondents opined that South African customs is one of the notable agencies that play a role in combating border crime. They concurred that the customs service is the agency with the major responsibility for controlling all cargo and goods entering, existing, or transiting through the national territory. In this regard, customs play a role in protecting South African society and securing international trade. In particular, customs support the combat of infractions to intellectual property rights, illegal commercial activities, and the import of fake and substandard goods, trafficking of illicit drugs, illegal trade in arms and ammunition, importation of pornographic materials, money laundering, and illegal trade in cultural artefact and heritage. Additionally, the Customs Department plays an important role in securing the international supply chain and implementation of international obligations related to this function (Abel, 2023).

60% concurred that the South African immigration service is a government agency established and charged with the control of entry and exits of foreigners and, of course, national monitoring of foreigners entering and leaving the country. Immigration through the office of home affairs issues passports and other travel documents to deserving South Africa as well as combats human trafficking and child labour. They believed that immigration plays a critical role in crime prevention and promotion of national security and is responsible for making well-reasoned decisions on immigration and refugee matters, efficiently, fairly, and in accordance with the law. The study revealed that South African immigration is under the control of the Department of Home Affairs, which is responsible for maintaining the national population register, including recording births, marriages/civil partnerships, and deaths, issuing identity documents and passports, issuing visas for visitors to South Africa, managing immigration to South Africa and naturalisation of permanent immigrants, handling refugees and asylum seekers in South Africa and controlling ports of entry at land borders, seaports and airports.

Roles of security networks, evidence-based policing, and security technology in combating border crime

Finding revealed that security network encourages recruitment and involvement of other agencies and actors in fighting crime around South African communities and the borders. The network group are made up of governance agencies such as customs and border control, immigration authorities, defence agencies and organisations with national security responsibilities. The border police or officers cannot combat crime alone but should collaborate with other agencies to prevent, detect, and investigate crimes committed at the border.

Respondent (10) opines ‘ *the adoption of a multi-agency approach to crime prevention, detection and investigation is crucial; the approach assists in the dissemination of intelligence between security networks and those tasked with border management in tackling cross-border crime, illegal immigration, drug/human trafficking, organised crime, smuggling and terrorism*’. The above respondent added that, Border patrol agents are responsible for larger areas, such as off-road regions with few or no other security measures, whereas, custom Border Patrol officers work almost exclusively at ports of entry, such as airports, and may spend more time inspecting packages and processing paperwork than interacting with people. They agreed that employing security technology will help in leverage the task of border patrol and customs at the border post.

65% of the respondents highlighted the latest technologies useful for combating border crime which includes; cameras and sensors, identification systems, unmanned ariel vehicles (UAVs), drones, automatic licence plate recognition (ALPR), radiation detectors, tethered aerostat radar system (TARS), radar coverage, and electronic language translators.

65% of respondents agreed with (Sherman, 2013) that evidence-based policing is a philosophical or marginal style, where scientific evidence is the central foundation for decision-making policing. It functions on the principle that research is used to target places where police are needed the most; in this instance, the police review evidence when choosing or testing a tactic to apply, and internal evidence is used to examine the effectiveness of tactics. They pointed out that an evidence-based policing approach is useful in obtaining data about the most prominent border crime threat at the borders of South Africa, and borders where crime is most prevalent, consequently, provide effective solution to the identify problem based on the evidence procured initially and currently.

According to respondent (6), ‘ *security technology is essential in combating border crime, it is the most effective way of preventing and addressing border crime, installation of physical barriers, technologies to detect contraband cargo, border surveillance technologies to track people in remote areas, and biometric identification technologies are some of the security innovations that can be effective in addressing border crime*’.

55% concurred that bio security and bio safety can be effective in addressing border crime. They agreed that a bio-security plan encompasses three major components of protection: physical security, personnel reliability, and information security. The three aspects of bio security that should be taken into cognisance in order to ensure safety of personnel and the security of biological agents and toxins that are moving in and out of South African borders. They believe that bio-security and quarantine processes should be

enforced at South African borders to enable biosecurity scanning for threats, plants, animals, cargo containers, and mail packages that enter the country from different parts of the world.

In the opinion of respondent (11), ‘*bio-safety provides policies and practises to prevent the unintentional or accidental release of specific biological agents and toxins, and bio-security provides policies and practises to prevent the intentional or negligent release of biological materials or the acquisition of knowledge, tools, or techniques. Bio-safety is the safe working practises associated with handling biological materials, particularly infectious agents. It addresses containment principles, technologies and practises that are implemented to prevent unintentional exposure to pathogens and toxins or their accidental release*’. Furthermore, biosecurity covers food safety, zoonoses, the introduction of animal and plant diseases and pests, the introduction and release of living modified organisms (LMOs) and their products (e.g. genetically modified organisms or GMOs), and the introduction and management of invasive alien species.

65% of respondents opined that because most of the valuable biological materials come into the country through different borders of South Africa, the materials require protection of their economic and historical value from potential harm. The materials such as pathogens and toxins, as well as any biological materials whose loss would negatively impact organisation should be protected. Respondent (5) called for the policy on the protection of South African borders to be expanded to include innovative technological interventions as force multipliers to enhance the work of the South African National Defence Force and Border Management Authority.

Conclusion

In summary, South Africa presents an infrastructure that is unparalleled across the continent, attracting migrants in pursuit of enhanced opportunities. Nonetheless, this surge has exerted pressure on the socio-economic framework of South Africa. Elements such as economic deprivation, societal unrest, and inadequate living environments in the countries of origin compel migrants to seek refuge in South Africa. The limitations in mobility and transport, insufficient facilities for deployed personnel, protracted procurement procedures, and legislative barriers significantly impede the efficacy of border management. The intricate border dynamics in South Africa have resulted in a fragmented strategy by authorities, exacerbating issues related to cross-border crime, illicit trade, and unauthorised migration. The presence of corruption among border officials facilitates the entry of undocumented individuals and goods into the country. The deficiency in training significantly undermines the effectiveness of border security personnel, thereby facilitating the operations of organised crime syndicates engaged in the illicit trafficking of narcotics, counterfeit merchandise, and human beings across terrestrial boundaries.

Migration is influenced by considerations of safety, economic opportunities, environmental conditions, and social dynamics. The deficiencies in border control arise from insufficient coordination among various departments and agencies operating at border points. Criminal organisations engage in collaboration with syndicates to perpetrate a range of illicit activities, encompassing fraudulent schemes, the trafficking of firearms, and the laundering of money. In South Africa, a range of transnational crimes is notably present, encompassing money laundering, human trafficking, cybercrime, drug trafficking, and the illicit trade of weapons. Participants emphasise the significant challenges posed by human trafficking, drug trade, the trafficking of body parts, and the plight of sex workers at the borders of South Africa. Prominent underground sectors encompass the trafficking of small arms, the illicit trade of organs, and the smuggling of cultural artefacts. The South African National Defence Force is involved in the management of borders, whereas agencies such as customs and immigration address border-related offences. A collaborative strategy that encompasses customs, immigration, defence, and security entities is essential for effectively tackling cross-border criminal activities, unlawful immigration, and acts of terrorism. The implementation of security technology, including physical barriers and biometric identification, has the potential to significantly bolster border security initiatives. The application of empirical research to guide policing strategies proves to be advantageous. Implementing biosecurity measures can significantly enhance the efficacy of efforts to combat border crime.

The Border Management Authority Bill (2020) establishes the Border Management Authority with the responsibility of executing border management functions at ports of entry and within the law enforcement jurisdiction. The efficacy of this mandate hinges on the collaborative endeavours of security networks and the coordinated synergy with other stakeholders tasked with operations at the borders. The modernisation and transformation of criminal justice systems will yield the efficient provision of high-quality and professional services at border posts. A comprehensive, cohesive, and proficient border management system, alongside the delivery of prompt, just, and impartial justice in criminal cases, serves as a robust deterrent to crime, thereby fostering sustainable and effective border control and management.

It is imperative to implement a range of specialised equipment and information and communication technology within the maritime border environment. This includes fibre scope inspection kits, infrared telescopic camera systems, hand-held drug detection devices, hand-held explosive and ammunition detection systems, live-scan mobile pallet x-ray scanners, live-scan static baggage x-ray scanners, live-scan auto vans, body scanners, document verification equipment, astro search II metal detectors, mobile connectivity solutions, Max ID systems, backscatter vans, binoculars, telescopes, geographic positioning systems (GPS), and closed-circuit television (CCTV). It is essential to embrace innovative and technologically advanced equipment in the realm of maritime border protection, thereby superseding antiquated tools that ought to be utilised effectively and efficiently for border management. This

encompasses the prevention, detection, reduction, and investigation of criminal activities along the borders of South Africa. The most recent advancements encompass a range of devices such as cameras and sensors, identification systems, unmanned aerial vehicles (UAVs), drones, automatic license plate recognition (ALPR), radiation detectors, tethered aerostat radar systems (TARS), radar coverage, and electronic language translators. Additionally, the South African Police Services have Visible Policing K9 Units dedicated at various international airports to conduct searches to recover stolen vehicles, firearms, and make serious crime arrests. The research advocates for subsequent enquiries that focus on utilising technology in the governance and regulation of borders within South Africa.

Recommendation

South Africa must incorporate technology into its border management framework. The integration of technology alone cannot lead to a substantial decrease in border crime without the involvement of other government departments and agencies engaged in border operations. Implementing a technology-focused strategy for managing South Africa's land, sea, and air borders. This approach would enhance the efforts of the South African military, police, and various border control agencies, as well as other stakeholders, in addressing border crime in South Africa.

The contemporary landscape of travel and trade necessitates a unified authority to oversee ports of entry and border control in South Africa. This authority ought to advance a model of security networks, fostering collaboration and partnerships with all pertinent stakeholders to ensure effective service delivery and the attainment of objectives.

The evidence-based policing approach utilises scientific evidence as a fundamental basis for decision-making in law enforcement. The approach relies on the principle that research identifies areas with the highest demand for police presence. This approach involves police reviewing evidence when selecting or testing a tactic, followed by the use of internal evidence to assess the effectiveness of those tactics. This strategy should be utilised to enhance efficiency.

Security networks are expanding among nations in response to global issues such as illegal migration, drug and human trafficking, smuggling, organ trafficking, organised crime, terrorism, and border-related offences. Implementing a security network strategy prompts the criminal justice system to engage various agencies and stakeholders in the effort against crime. This includes collaboration with customs and border control, immigration authorities, military and defence agencies, as well as organisations tasked with national security, to enhance the prevention, detection, reduction, and investigation of border-related crimes and offences. The design and integration of multi-agency approaches to border management are motivated by security networks.

Border law enforcement activities within designated areas and at ports of entry are to be conducted solely by officers of the Border Management Authority. The authority's functions include facilitating and managing the legitimate movement of individuals and goods within the border law enforcement area and at ports of entry. Additionally, it is responsible for cooperating and coordinating its border law enforcement activities with other state organs, border communities, and relevant stakeholders.

The adoption of technology aids in addressing illegal immigration, contraband smuggling, and the associated loss of customs and excise revenues, as well as human trafficking, wildlife poaching, and the spread of zoonotic diseases across borders through the establishment of the Border Management Authority. South Africa ought to examine how border technology has assisted the neighbouring BRICS member Brazil in resolving its border management challenges over the past decade, with the aim of implementing an effective and comprehensive border management solution.

The implementation of integrated security technology systems aims to optimise customs and immigration processes, facilitate timely information sharing, minimise waiting times, and improve the detection of illicit trans-border activities. Additionally, the deployment of unmanned aerial vehicles (UAVs) will provide reliable surveillance that integrates with land- and naval-based radar systems. Technology's success is contingent upon the support of established border frameworks. Enhancing the application of satellite technology for monitoring illegal migration, poaching, and trafficking syndicates is essential. Improving staff development and addressing growth issues, including frequent promotions and enhancing working conditions for personnel at the borders, is essential.

The Border Management Authority is responsible for enforcing South African immigration laws, safeguarding borders, and ensuring the effective management and protection of all South African ports of entry. Synergy is essential among network security agencies, inter-agency collaboration, and various governmental organisations to effectively coordinate and implement policies, as well as conduct operations focused on the prevention, detection, reduction, and investigation of border-related crimes in South Africa.

Border management and control must be conducted by various state organs tasked with securing South Africa's borders and safeguarding national interests, in alignment with the Constitution and both international and domestic law, to promote the Republic's socio-economic development. This should ensure effective and efficient border law enforcement functions at ports of entry and the borders; contribute to the facilitation of legitimate trade and secure travel; contribute to the prevention of smuggling and trafficking of human beings and goods; prevent illegal cross-border movement; contribute to the protection of the Republic's environmental and natural resources; and protect the Republic from harmful and infectious diseases, pests, and substances. The Defence Force, South African Police Service, and South African Revenue Service must implement border management protocols to ensure mandatory coordination of their functions within the border law enforcement domain and at ports of entry. It is necessary to enhance incentives for officials stationed at border locations. To mitigate border crime, it is essential to provide sufficient training for immigration

officers, border control management personnel, customs officials, stakeholders, and security agencies responsible for border protection. There is a necessity for sufficient supervision of personnel and for the training and retraining of officials regarding current government policy and its implementation.

Innovative technologies, including cameras, sensors, identification systems, unmanned aerial vehicles (UAVs), drones, automatic license plate recognition (ALPR), radiation detectors, tethered aerostat radar systems (TARS), radar coverage, and electronic language translators, can effectively address border crime along the South African borders.

The Border Management Authority Act, 2020 emphasises the importance of integrated and coordinated border management that aligns with the Constitution and both international and domestic law, ultimately contributing to the socio-economic development of South Africa. The Act underscores the necessity of ensuring effective and efficient border law enforcement operations at ports of entry and along the border. The Act facilitates legitimate trade and secure travel, prevents smuggling and trafficking of humans and goods, curtails illegal cross-border movement, safeguards South Africa's environmental and natural resources, and protects the nation from harmful and infectious diseases, pests, and substances.

Limitations of the Study

The study encountered limitations during data collection. The researcher encountered unavailability among many respondents; however, alternative strategies were employed, including waiting for them post-work hours and conducting interviews on office premises. However, these limitations did not negatively impact the study.

Acknowledgment

This study was supported by the School of Public Management Governance and Public Policy, College of Business and Economics, University of Johannesburg, South Africa.

Author Contributions: By author. Author has read and agreed to the published final version of the manuscript.

Institutional Review Board Statement: Ethical review and approval were obtained for this study.

Data Availability Statement: During data collection, a written request to allow the researcher collect information from the respondents were sent and based on the reply, an appointments were made. Consent to share and use data obtained from the respondents were sort and granted. The data collected from the respondents were anonymized in order to protect the privacy of research participants. Data relating to this study the and materials supporting this work can be made available upon request.

Funding Statements: This study was funded by the University of Johannesburg, South Africa.

Disclosure of interest: There are no conflicts of interests to declare.

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