

The Role of Artificial Intelligence Powered Drones In Strengthening Counter-Banditry Operations in North West Nigeria

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Abstract

The rapid pace of technological advancement has led to more complex warfare, with uncrewed aerial vehicles (UAVs), commonly known as drones, becoming central to military operations worldwide. The paper assesses the impact of AI-powered drones on improving counter-banditry efforts in North-West Nigeria. In this region, armed banditry has severely affected security and socio-economic stability. Using Network-Centric Warfare (NCW) Theory as its theoretical basis, the study explores how AI-driven unmanned aerial systems (UAS) can enhance real-time intelligence, surveillance, and reconnaissance (ISR), thereby facilitating quicker decision-making and better-coordinated actions among Nigerian security personnel. The paper employed a qualitative methodology, examining secondary data from journal articles, government documents, military publications, newspapers, and case studies on the use of AI and drones in conflict areas. The findings indicate that AI-enhanced drones can greatly improve target identification, predictive analytics, and rapid response capabilities, ultimately bolstering Nigeria's counter-banditry initiatives in the North West of Nigeria. The study concludes with policy suggestions for incorporating AI-driven drone technology into Nigeria's security framework while addressing ethical and legal issues.

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1. Introduction

The primary rationale for the social contract between the government and the governed, as emphasized by Hobbes in his social contract theory, is to safeguard citizens, national interests, fundamental values, and territorial sovereignty (Colin-Jaeger, 2025). This objective is evident in nations' determination to protect their human, material, and natural resources across land, sea, and air. The necessity of defending a nation's territorial sovereignty has led to the deployment of national power elements, such as the military, whenever required. Recently, the rise of terrorism, insurgency, banditry, and other security challenges in Nigeria has transformed the nature of armed conflict. Many of these violent non-state actors seek to destabilize the Nigerian state through actions such as bombings, hostage-taking, kidnapping, and territory seizures, among others (John, 2022). In response to these threats posed by these violent non-state actors, the Nigerian government, through its security agencies, particularly the Nigerian military, has adopted modern security measures as part of its evolving security strategy, including the use of AI-powered technologies.

The North West region of Nigeria has, alarmingly, become a strategic operational space for transnational terrorist entities, including the Islamic State in the Greater Sahara (ISGS), Jama'at Nusrat al Islam wal Muslimin (JNIM), and factions of Boko Haram, most notably the Islamic State in West Africa Province (ISWAP) and the Fulani herders of West Africa, once rated the fourth-deadliest terror group in the world (Ojewale, 2021). This convergence of criminal and terrorist elements necessitates a

multifaceted response that transcends conventional/traditional security measures. In response to this multifaceted threat posed by these violent groups in the North West region, the deployment of advanced technological solutions, particularly artificial intelligence (AI)-enhanced drone technology, is emerging as a critical strategy for the Nigerian military-led operation. AI-powered drones have the potential to revolutionize surveillance and reconnaissance operations, enabling real-time monitoring of vast, often inaccessible terrain (Jain et al., 2024). The deployment of drones has demonstrated the ability to analyze historical data, predict movement patterns, and identify potential conflict hotspots, thereby facilitating proactive interventions (Bhakhar et al., 2025). Furthermore, the ability to detect suspicious activities using advanced sensor technology and image processing can substantially enhance early warning systems, enabling security forces to respond promptly and effectively. The integration of artificial intelligence into drone technology represents a significant advancement in addressing widespread insecurity in North West Nigeria. It offers a pathway towards a more secure and stable environment for affected communities.

2. Literature Review

A. Banditry

The concept of banditry has experienced substantial transformations across various historical periods, geographic regions, and sociopolitical contexts. Although contemporary discourse frequently associates banditry with criminality, organized violence, and insecurity, its historical origins suggest a more nuanced interpretation (Okoro, 2021). In the 19th century, banditry in Europe, the Americas, and parts of Asia was often intertwined with resistance movements, social justice struggles, and anti-colonial uprisings (Hobsbawm, 1959). Numerous historical bandits were perceived as freedom fighters or social rebels who sought to challenge oppressive political systems, economic exploitation, and colonial domination. For instance, in Europe, figures such as Robin Hood in England and Italian brigands were romanticized as defenders of low-income people against feudal and state oppression (Nollen, 2015). In Latin America, bandits such as Pancho Villa in Mexico and Lampião in Brazil were viewed by some as revolutionary leaders combating socioeconomic injustices and government corruption (Dabové, 2007). Similarly, in parts of Asia, individuals engaged in banditry were sometimes resistance fighters against colonial rule, as evidenced by the activities of the Indian dacoits and Chinese rebels who opposed imperial and foreign dominance (Okoro, 2021).

Over time, the concept of banditry has evolved from being associated with political resistance to being linked with criminal activities, particularly in contemporary Africa and other developing regions. Currently, banditry is often connected with armed groups involved in kidnappings, cattle rustling, and violent assaults on communities, primarily for economic gain rather than ideological motives (Okoli et al., 2025). These groups have instilled fear in the North West region of Nigeria, and their activities have resulted in thousands of deaths, the destruction of properties, and humanitarian crises. In November 2021, the Nigerian government officially designated bandits as terrorists. This classification imposed stricter sanctions under the terrorism prevention act on suspected bandit gunmen, as well as their informants and supporters, including those involved in supplying these criminals with arms, fuel, and food.

B. Artificial Intelligence (AI)

Artificial intelligence (AI) represents a rapidly advancing technological domain that has attracted considerable interest from diverse stakeholders, including commercial investors, defence strategists, policymakers, and international competitors. The growing dependence on AI-driven solutions across various sectors is attributed to its potential to enhance efficiency, decision-making, and automation. Both governments and private organizations are investing substantially in AI research and development,

acknowledging its transformative impact on economic growth, national security, and technological innovation (Rashid & Kausik, 2024).

In the defence sector, AI has emerged as a crucial tool for modern warfare, intelligence gathering, and cybersecurity, prompting nations to allocate significant resources to its advancement (Raska & Bitzinger, 2023). The competitive nature of AI development has led to global rivalries, particularly between major powers such as the United States and China, each striving for strategic dominance in AI applications. Policymakers are increasingly focused on regulating AI ethics, ensuring transparency, and mitigating potential risks associated with biased algorithms, privacy concerns, and autonomous weapon systems (Renda, 2019). AI tools have demonstrated remarkable potential to enhance information-gathering and analytical capabilities across various sectors, including national security. The ability of AI to process vast amounts of data in real time, detect patterns, and predict potential threats has made it an invaluable asset in modern intelligence operations. West & Allen (2018) assert that AI is a comprehensive tool that enables individuals to rethink how information is integrated and how data is analyzed to produce results that inform decision-making. AI-driven systems can enhance the efficiency of security agencies by streamlining surveillance, automating intelligence assessments, and reducing human error in decision-making.

In Nigeria, the persistent challenges of inadequate intelligence sharing, inter-agency rivalry among security agencies, and delays in response to security threats have significantly impeded counterterrorism and law enforcement efforts (Adelani, 2024). AI offers a strategic advantage in addressing these issues by improving data integration, enhancing predictive analytics, and reducing operational inefficiencies. For instance, AI-powered surveillance systems, facial recognition technology, and predictive policing can assist security agencies in tracking criminal activities more effectively and responding proactively to emerging threats (Zakari, 2024).

C. AI-Powered Drones (Unmanned Aerial Vehicles)

Modern AI-powered drones are equipped with advanced navigation systems and intelligent algorithms, enabling them to function autonomously or semi-autonomously in complex environments (Layton, 2021). This capability is particularly vital in both symmetric and asymmetric warfare, where obstacles such as dense buildings, forests, and rugged terrain can hinder traditional surveillance methods. The integration of AI-powered obstacle-avoidance and object-tracking technology enables these drones to detect, analyze, and track potential threats with high precision. These features enhance security operations by enabling law enforcement and military personnel to respond swiftly to emerging security threats (Shetty et al., 2022).

AI-enhanced drones play a crucial role in predictive analytics for security forces (West & Allen, 2018). Utilizing machine learning algorithms, UAVs have demonstrated their ability to analyze historical data and real-time intelligence to predict the movement patterns of bandits and terrorist groups. This predictive capability enables security agencies to anticipate attacks, deploy preventive measures, and optimize resource allocation to high-risk areas. Consequently, security operations become more proactive rather than reactive, significantly improving the overall efficiency of counter-banditry efforts (Okwor, 2022).

AI-powered drones significantly enhance situational awareness for ground troops by delivering live-streaming footage and geospatial mapping, thereby aiding security forces in making more informed tactical decisions. Equipped with AI-driven image and facial recognition software, these drones can identify individuals, vehicles, and weaponry, thereby reducing operational risks and increasing mission success rates (Quamar et al., 2023). As the Nigerian government continues to integrate AI and drone technology into its security framework, further advancements in AI-powered defence systems are anticipated to enhance operational efficiency.

D. Counter Banditry

Counter-banditry encompasses the strategic measures, policies, and operations designed to counteract the activities of armed criminal groups engaged in robbery, kidnapping, looting, and violent attacks, particularly in rural or unstable regions. Banditry, which often flourishes in areas characterized by weak governance structures, porous borders, and socio-economic vulnerabilities, poses a significant threat to national security, economic stability, and public safety (Okoli & Ngom, 2023). Consequently, counter-banditry strategies integrate military interventions, intelligence-driven policing, community engagement, and socio-economic initiatives to address the root causes of criminal insurgency. In Nigeria, a primary counter-banditry approach involves deploying security forces, including military units and specialized police squads, to dismantle bandit networks and restore law and order. Many governments, particularly in West Africa, have initiated joint military operations to counter the growing influence of bandit groups (Adewale, 2021). However, the exclusive reliance on force has often proven inadequate, as bandit groups adapt their tactics and exploit weak state presence in remote areas. Thus, surveillance technology has become an essential component of contemporary counter-banditry efforts (Adelani, 2024).

3. Method

The notion of theory has been extensively examined in academic discourse, particularly within the disciplines of political science, international relations, and strategic studies. As articulated by Wacker (1998), a theory is a structured framework of hypotheses that delineates relationships among variables or conditions. These hypotheses are formulated with the primary objective of describing, explaining, and predicting diverse phenomena, while also proposing methods to implement positive changes to achieve specific ethical objectives. Fundamentally, theories serve as guiding instruments that aid scholars and policymakers in comprehending complex issues by providing a systematic approach to analysis.

This paper employs the Network Centric Warfare Theory as its theoretical framework. Network-Centric Warfare (NCW) theory, developed by Arthur K. Cebrowski and John Garstka, emphasizes the integration of advanced technologies, real-time data exchange, and decentralized decision-making to enhance military efficiency (Cebrowski & Garstka, 1998). The theory asserts that improved information and connectivity lead to enhanced situational awareness, facilitating more accurate, timely, and coordinated responses to threats. NCW is particularly relevant to counter-banditry efforts in North West Nigeria, where traditional kinetic methods have proven inadequate against the dynamic and asymmetric nature of banditry. AI-powered drones align with NCW principles by augmenting intelligence, surveillance, and reconnaissance (ISR) capabilities. These drones can autonomously monitor, identify, and evaluate bandit activities using machine learning algorithms, thereby reducing human risk and operational delays (Groh, 2008). The real-time transmission of data from drones to command centres enables swift decision-making, allowing security forces to act proactively rather than reactively. Furthermore, AI-powered drones enhance force coordination by integrating with other surveillance assets and communication networks, ensuring seamless interagency collaboration.

In the North West region, where dense forests and rugged terrain favour bandits, AI-driven unmanned systems can provide unparalleled access to hostile environments, disrupting criminal logistics and hideouts. The significance of NCW to this study lies in its emphasis on leveraging technology to achieve operational superiority over adversaries. By adopting AI-powered drones, Nigerian security forces can implement a networked approach to counter-banditry, reducing operational gaps and improving response efficiency. This aligns with global best practices in modern warfare, where digital transformation is crucial in addressing non-traditional security threats. However, NCW has its limitations. Firstly, it presumes that technological superiority alone ensures battlefield success,

neglecting factors such as human intelligence, socio-political dynamics, and insurgent adaptability. Additionally, NCW heavily relies on uninterrupted digital connectivity, which may be challenging in remote areas with weak communication infrastructure (Lambert & Scholz, 2005). Despite these limitations, integrating AI-powered drones within an NCW framework offers a strategic advantage in Nigeria's counter-banditry efforts, enhancing situational awareness, operational precision, and overall national security.

4. Result and Discussion

A. Impact of Banditry on the North West Region of Nigeria

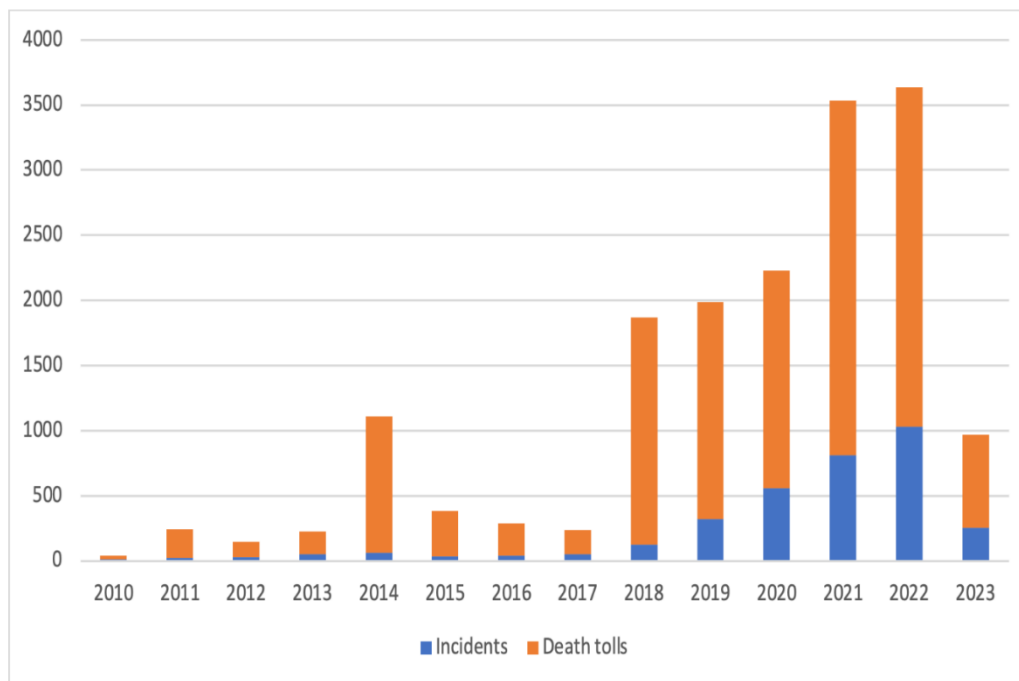
Nigeria has experienced the emergence and intensification of a novel form of violence, particularly in the North West region, notably in four of the seven states: Zamfara, Katsina, Kaduna, and Sokoto. Criminal gangs operating in these areas, commonly referred to as bandits by state security agencies and the media, have significantly contributed to widespread instability and humanitarian crises in the region. Unlike insurgent groups in the Northeast region, which are driven by ideological or religious motivations, bandit groups primarily engage in criminal activities such as kidnapping for ransom, cattle rustling, extortion, and village raids (Okoli et al., 2025). Banditry has now become a major security challenge, compounding Nigeria's long-standing struggle with non-state armed groups. Alongside Boko Haram and its breakaway faction, the Islamic State West Africa Province (ISWAP), which operates in the northeast, Nigeria has also faced threats from Niger Delta militants in the south-south who engage in oil-related sabotage and attacks on energy infrastructure (Sohn, 2020). Additionally, separatist movements in the southeast, such as the Indigenous People of Biafra (IPOB), have intensified calls for secession, leading to periodic clashes with security forces (Onyemaobi et al., 2023). The emergence of banditry in North West Nigeria is particularly concerning due to its impact on rural communities, food security, and national development. Bandit groups exploit weak state presence, porous borders, and arms proliferation, rendering counter-banditry efforts complex and challenging.

The escalation of armed banditry in Northwest Nigeria has resulted in a significant increase in violent incidents and fatalities in recent years. The activities of these armed groups have profoundly impacted the region's socioeconomic stability. According to data from the Armed Conflict Location & Event Data Project (ACLED), as cited by Ojewale (2024) banditry-related incidents surged from 124 in 2018 to 1,031 in 2022, marking a 731% increase. This rise in violent activities has led to approximately 13,485 deaths between 2010 and May 2023. The proliferation of illicit weapons among bandit groups has further destabilized the region, exacerbating insecurity and impeding economic activities. Farmers, who form the backbone of rural economies in the northern region, have been particularly affected. Frequent attacks have led to the abandonment of farmlands, resulting in decreased agricultural productivity and heightened food insecurity. Additionally, the expansion of conflict zones has disrupted local trade networks, further impoverishing rural communities.

Kidnapping for ransom, a form of banditry, has emerged as a significant security challenge in Nigeria, particularly in the North West region, where armed groups engage in widespread abductions for financial gain. According to Oloyede (2020) between 2011 and April 2020, Nigerians collectively paid at least \$18.34 million to kidnappers to secure the release of abducted family members. This alarming trend shows the increasing profitability of kidnapping, which has evolved into an organized criminal enterprise, often linked to banditry and insurgency. The situation has been particularly difficult in Zamfara State, a hotspot for banditry, where armed groups operate with impunity. Under the administration of former Governor Bello Matawalle, the state witnessed a surge in violent attacks and ransom-driven abductions. Table 1 shows that between 2011 and 2019, bandits reportedly killed 2,619 people and extorted over N970 million from victims' families as ransom payments (Isenyo, 2021). These statistics show the dire security situation in Nigeria and the financial burden placed on victims' families,

who are often left with no choice but to comply with ransom demands to secure the safety of their loved ones. Moreover, the substantial sums of money exchanged in ransom payments fuel further criminal activities, enabling the purchase of more sophisticated weaponry, which exacerbates the cycle of violence and insecurity in the region (Ejiofor, 2025). These figures likely underestimate the true extent of ransom payments, given the clandestine nature of negotiations and the reluctance of some families to report such incidents. The substantial financial flows to bandit groups have not only emboldened their criminal activities but have also had severe socioeconomic repercussions. The diversion of household resources to pay ransoms has impoverished families, while the pervasive threat of abduction has disrupted agricultural activities and local trade, particularly in rural communities. This climate of insecurity has hindered economic development and exacerbated poverty in the North West region.

Table 1. Incidents and Death Tolls in 2010-2023



Source: Ojewale (2024)

B. Nigerian Government Response to Banditry in North-West Nigeria

The Nigerian government has undertaken a series of initiatives to address banditry in the North West geopolitical region. These measures have included a variety of military and security operations aimed at mitigating the threat posed by bandits. Rosenje & Adeniyi (2021) contend that the Nigerian government's response to the escalating threat of banditry has been predominantly slow and reactive, rather than proactive. It was not until 2014 that a more structured and coordinated approach began to emerge in addressing this menace. A notable initiative in this context was the establishment of the Task Force on Cattle Rustling and Associated Crimes by the Nigerian Police Force, under the leadership of the then Inspector-General of Police, Suleiman Abba. The task force's primary mandate was to conduct intelligence-driven operations to curb cattle rustling, a crime that had become a major driver of rural insecurity, particularly in the Northwest region. The unit was responsible for patrolling affected areas, gathering intelligence on organized rustling syndicates, and launching targeted operations against criminal networks. Additionally, the task force was charged with investigating reported cases of cattle rustling and, where possible, ensuring the prosecution of perpetrators. While this initiative marked a significant step in addressing the crisis, its overall effectiveness remained limited due to several

challenges, including inadequate resources, corruption, and the vast, often ungoverned terrain in which these crimes occurred (Rosenje & Adeniji).

According to Ogidigben & Otite (2022), in 2019, an agreement was reached between armed bandits and the governors of Katsina, Sokoto, and Zamfara States as part of efforts to address the escalating security crisis in Nigeria's North West region. This agreement included several critical components, such as the disarmament of bandits, the release of kidnapped victims, and the granting of amnesty to repentant members of these armed groups. The initiative was motivated by the urgent need to de-escalate violence, restore peace, and mitigate the increasing incidents of abductions, cattle rustling, and other criminal activities that had afflicted these states. The complexities informed the decision to negotiate the security situation, as conventional military and law enforcement strategies had achieved limited success in eradicating banditry. By offering pardons in exchange for disarmament and the safe return of hostages, the governors aimed to create an avenue for dialogue and the peaceful reintegration of former bandits into society. However, the effectiveness of this approach remains a subject of debate among security analysts and policymakers. While some argue that the agreement provided temporary relief and reduced hostilities in the short term, others contend that it inadvertently legitimized criminal activities and emboldened other criminal non-state actors.

According to Okoro (2021) in 2018, the federal government of Nigeria mobilized a joint military force consisting of 1,000 personnel from the Nigerian Army, Nigerian Air Force (NAF), Nigerian Police Force, and Nigerian Security and Civil Defence Corps (NSCDC). This force was tasked with executing targeted offensives and periodic operations against bandits in various towns and villages across Kaduna and Zamfara States. Furthermore, the government ordered the deployment of NAF fighter jets to Katsina, the nearest operational base to Zamfara and Kaduna States, to enhance the rapid-response capability of security forces.

In response to escalating security concerns, Yahaya (2018) noted an increase in security deployments within Zamfara State. Consequently, on November 22, 2017, the then President of Nigeria, Muhammadu Buhari, approved the request of the Minister of Defence, General Mansur Dan-Ali (rtd), for the establishment of a full Battalion of Special Forces in Zamfara State. Additionally, the newly established 8 Division of the Nigerian Army in Sokoto was operationalized as part of the New Order of Battle (ORBAT). In a related development, the 1 Brigade of the Nigerian Army, previously stationed in Sokoto, was relocated to Gusau upon the commencement of operations by the 8 Division. Moreover, six units of the Mobile Police Force, comprising approximately 400 personnel, were deployed to the state. At the same time, troops from the Nigerian Army and other security agencies were stationed along the Kaduna-Abuja and Kaduna-Birnin Gwari highways to curb banditry in the region. The federal government also authorized several large-scale military operations to bolster its counter-banditry strategy. These included Operation Ayem Akpatuma (Operation Cat Race), Operation Harbin Kunama (Operation Scorpion Sting) I, II, and III, Operation Crocodile Smile, Operation Egwu Eke (Operation Python Dance), Operation Whirl Punch, Operation 777, and the more recent Operation Sharan Daji (Operation Forest Cleanup). In support of these ground operations, the Nigerian Air Force conducted extensive air raids and strategic bombardments targeting bandit enclaves, particularly in Zamfara and Kaduna States, significantly impairing their operational capacity. Notably, Operation Sharan Daji, initiated in 2016, was specifically designed to suppress banditry in Kaduna and Zamfara States, as well as adjoining areas. The operation engaged bandits on multiple fronts, leading to the recovery of significant assets. According to Brigadier General John Agim, the then Acting Director of Defence Information, security forces confiscated 55 motorcycles, 1,444 cattle, 478 sheep, 11 camels, 14 donkeys, 56 rams, and 293 goats during the operation (Yahaya, 2018). Similarly, Operation Harbin Kunama, launched on April 1, 2019, aimed to eliminate banditry in the region decisively and recorded notable successes in this objective.

On May 10, 2019, the Defence Headquarters (DHQ) undertook a restructuring of Operation Sharan Daji, implementing enhanced strategies and augmenting personnel to improve its efficacy. This reorganization led to the operation being renamed Operation Hadaran Daji. According to a press release from the Defence Headquarters dated July 23, 2019, the rebranded operation achieved significant milestones in combating banditry. Among its notable accomplishments was a rescue mission during which troops engaged bandits in combat, resulting in the neutralization of 54 insurgents. Furthermore, security forces recovered 39 firearms, including 16 AK-47 rifles, one light machine gun, 14 dane guns, two pump-action rifles, three semi-automatic rifles, three pistols, and 2,437 rounds of 7.62mm special ammunition. Concurrently, the Nigerian Air Force (NAF) initiated Operation Dirani Mikiya on July 31, 2018. This operation constituted an intensive aerial campaign aimed at identifying and eliminating bandit hideouts and other criminal strongholds, thereby restoring peace to the affected regions. To support the mission, the NAF deployed various aircraft, including Alpha Jets, Diamond 42 surveillance aircraft, Mi-35 attack helicopters, EC-135 helicopters, and Agusta 109 helicopters. On August 25, 2018, the Nigerian Air Force announced that the Air Task Force (ATF) of Operation Dirani Mikiya had successfully conducted airstrikes that targeted and destroyed additional bandit encampments in both Kaduna and Zamfara States (Okoro, 2021).

According to a This Day Live publication dated April 29, 2019, the Acting Inspector General of Police, Mr. Mohammed Adamu, launched Operation Puff Adder on April 5, 2019. This initiative involved deploying a Joint Intervention Team of approximately 1,000 police personnel. The team comprised seven Mobile Police Force units, led by an Assistant Commissioner of Police, alongside operatives from the Counter Terrorism Unit (CTU), the Federal Special Anti-Robbery Squad (FSARS), the Explosive Ordnance Disposal (EOD) unit, the Department of State Services (DSS), and conventional police officers. The primary objective of this operation was to dismantle criminal networks involved in armed banditry, ransom kidnappings, and cattle rustling across identified hotspots in Zamfara State.

C. The Role of AI-Powered Drones in Strengthening Counter-Banditry Operations in North West Nigeria

The escalating banditry crisis in North West Nigeria constitutes a multifaceted security challenge, marked by pervasive violence, kidnapping, and cattle rustling. Traditional counter-insurgency approaches have achieved limited success, necessitating the exploration of innovative solutions. Among these, the integration of Artificial Intelligence (AI)-powered drones has emerged as a potentially transformative strategy. AI technologies have significantly enhanced drone capabilities, redefining their role in contemporary security, defence, and intelligence operations. Advanced machine learning algorithms enable drones to process vast quantities of real-time data, thereby enhancing their ability to detect, track, and analyze targets with unprecedented precision (Rass et al., 2020).

AI-powered drones now play a pivotal role in intelligence gathering, as they can autonomously survey extensive areas, identify potential threats, and relay actionable insights to decision-makers with minimal human intervention (Kumar et al., 2021). In the domain of surveillance, AI-driven drones employ computer vision and pattern recognition to monitor high-risk areas continuously. These drones can identify suspicious activities, distinguish between civilians and hostile actors, and even predict potential security breaches through behavioral analysis (Zhang et al., 2022). Such advancements have rendered AI-enhanced drones indispensable in border security, counterterrorism operations, and law enforcement efforts.

One of the most significant applications of AI-powered drones lies in enhancing situational awareness. These drones, equipped with advanced sensors and AI algorithms, can deliver real-time, high-resolution imagery and video footage of expansive, often inaccessible terrain (Joshi et al., 2024).

AI-driven object detection and tracking algorithms can autonomously identify and classify potential threats, such as armed bandits, their hideouts, and movement patterns. This capability is particularly crucial in regions such as the North West of Nigeria, where dense forests and rugged landscapes provide substantial cover for criminal elements. As noted by Horowitz (2016) the ability to perceive and comprehend the battlespace is a fundamental prerequisite for effective military operations. In this context, AI-powered drones function as force multipliers, extending the reach and effectiveness of ground troops. Furthermore, AI-enabled drones can substantially enhance intelligence gathering and surveillance. Traditional intelligence-gathering methods are often slow and resource-intensive. In contrast, drones can be deployed rapidly and persistently, providing continuous surveillance of suspected bandit locations. AI algorithms can analyze vast amounts of data collected by drones, identifying patterns and anomalies that may indicate impending attacks or criminal activity (Alzahrani, 2024). This predictive capability can enable security forces to preemptively disrupt bandit operations, thereby reducing civilian casualties and property damage. The ability to identify and track individuals of interest, including their vehicles and communication patterns, can be achieved through advanced AI-driven facial recognition and signal intelligence capabilities.

AI-powered drones are increasingly integral to enhancing operational efficiency and precision in military contexts. These drones can be deployed for targeted strikes, thereby minimizing collateral damage and civilian casualties, a significant concern in the complex operational environment of North West Nigeria. AI-driven navigation and targeting systems enable precise delivery of munitions, thereby enhancing the effectiveness of military operations. Additionally, drones serve logistical functions, delivering essential supplies to remote outposts and facilitating communication in areas with limited infrastructure. AI-powered flight control systems enable autonomous or semi-autonomous flight, reducing the need for human pilots and minimizing personnel risk. The operational efficacy of drones is particularly evident in their deployment by the Nigerian military, notably the Nigerian Air Force (NAF), in counter-banditry operations across North West Nigeria. Given the region's vast and often inaccessible terrain, AI-powered drones have proven to be invaluable assets in intelligence-led security strategies. They facilitate real-time aerial reconnaissance, allowing security forces to monitor movement patterns, detect threats, and respond swiftly to emerging security challenges. Through advanced imaging technologies, such as infrared sensors and high-resolution cameras, AI-powered drones enhance precision targeting, minimizing collateral damage while increasing the effectiveness of military strikes against insurgent groups and criminal networks. A primary advantage of drones in counter-banditry operations in the North West is their ability to provide persistent surveillance of high-risk areas without exposing personnel to danger. The Nigerian Air Force has increasingly relied on UAVs to track and monitor bandit groups' activities in Kaduna, Katsina, Zamfara, and Sokoto states, significantly improving situational awareness and operational efficiency. Integrating artificial intelligence (AI) and real-time data processing, drones have the potential to autonomously analyze the movement patterns of these bandits in the region and provide actionable intelligence to ground troops, thereby enhancing decision-making in security operations.

D. Challenges Associated With AI-Powered Drones in Counter-Banditry Operations in North West Nigeria

The increasing utilization of drones in military operations globally, including in Nigeria, presents several ethical and legal challenges. The deployment of AI-powered drones in counter-banditry operations in North West Nigeria is fraught with difficulties. Legal and ethical considerations surrounding the use of lethal autonomous weapons systems (LAWS) are of paramount importance. These challenges primarily involve the risks of civilian casualties, inadequate legal frameworks, and the necessity for enhanced transparency to foster public trust. Scholars advocate for comprehensive

reforms that balance the military advantages of drones with the ethical and humanitarian issues they present in conflict zones. A primary ethical concern in drone warfare in North West Nigeria is the potential for civilian casualties. Between 2017 and 2023, numerous reports highlighted the devastating impact of unintended military airstrikes in Nigeria, resulting in significant civilian casualties. According to Odeniyi (2023), over 426 innocent individuals lost their lives due to erroneous airstrikes conducted by the Nigerian military, which were originally intended to target bandits and terrorists but tragically struck unintended locations in Doma Local Government Area of Nasarawa State, leading to multiple fatalities. Similarly, in December 2023, a tragic drone strike by the Nigerian Army's drone unit in Tudun Biri, Kaduna State, resulted in the deaths of approximately 120 people. Additionally, News Express (2024) reported another accidental bombing by the Nigerian Air Force in November 2024, which targeted Shawu village in the Ruwan Godiya district of Faskari Local Government Area in Katsina State, resulting in significant loss of life. These incidents raise concerns about the precision of military operations and the necessity of improved intelligence, coordination, and targeting mechanisms to prevent further loss of innocent lives in counterterrorism efforts. The remote nature of drone operations may desensitize operators to the human cost of conflict, potentially lowering ethical barriers and resulting in indiscriminate violence.

Oghogho et al. (2024) highlight the significance of ethical frameworks that emphasize accountability and the minimization of harm to non-combatants. They argue that drones, by creating a physical and psychological distance between operators and the battlefield, can lead to the dehumanization of warfare, thereby facilitating the justification of lethal force without adequately addressing its repercussions. Their study advocates for more stringent operational protocols and improved training for drone operators to reduce civilian casualties.

Gupta & Molyneux (2024) further explore the direct and indirect impacts of drone warfare on civilian populations, particularly in densely populated regions. Although drones provide military advantages, their deployment frequently results in civilian harm. The authors call for stronger international regulations to ensure that drone usage adheres to humanitarian principles, emphasizing the necessity for legal frameworks that prioritize civilian protection in conflict zones. The legal frameworks governing drone operations remain insufficiently developed, both globally and within Nigeria. While national laws regulate drone operations in Nigeria, they must align with international humanitarian law (IHL) and international human rights law (IHRL). In Nigeria, the deployment of drones for both internal security and cross-border conflicts necessitates the establishment of clear legal guidelines. The increasing use of drones for surveillance and intelligence gathering in civilian areas in North West Nigeria underscores the urgent need for robust legal safeguards.

5. Conclusion

Nigeria's adoption of drones aligns with global trends in the militarization of uncrewed aerial vehicles (UAVs), reflecting the increasing reliance on drone technology for intelligence, surveillance, and reconnaissance (ISR) operations. Ukwuoma et al. (2020) highlight how nations such as the United States, Israel, and Turkey have integrated drones into their broader defence strategies, utilizing them alongside advanced information and communication technologies (ICT) to enhance security operations and manage ungoverned spaces. These countries have developed sophisticated drone programs that leverage artificial intelligence (AI), real-time data analytics, and automated decision-making to improve situational awareness and operational precision.

Nigeria's adoption of drones aligns with global trends in the militarization of uncrewed aerial vehicles (UAVs), underscoring the growing reliance on drone technology for intelligence, surveillance, and reconnaissance (ISR) operations. Ukwuoma et al. (2020) emphasize that countries such as the United States, Israel, and Turkey have incorporated drones into their comprehensive defence strategies, employing them alongside advanced information and communication technologies (ICT) to enhance

security operations and manage ungoverned spaces. These nations have developed sophisticated drone programs that utilize artificial intelligence (AI), real-time data analytics, and automated decision-making to enhance situational awareness and operational precision.

Despite aligning with this global trajectory, Nigeria encounters significant challenges in fully integrating drones into its security framework due to deficiencies in regulatory policies and technological infrastructure. Nigeria has made notable strides in acquiring and deploying UAVs, particularly for counter-banditry efforts in North West Nigeria; however, the legal framework governing drone operations remains nascent. The lack of comprehensive policies regulating airspace usage, data privacy, and ethical considerations has raised concerns about the long-term sustainability of Nigeria's drone program. Studies indicate that nations such as the United States, South Africa, Israel, and India have established clearer regulatory mechanisms and institutional support for UAV operations, ensuring compliance with international aviation standards (Mukhtar & Singh, 2020). These countries have invested in research, development, and capacity-building initiatives to integrate drone technology into civilian and military applications. For Nigeria to fully realize the potential of AI-powered drones in security and defence, it must prioritize policy formulation, technological investment, and inter-agency coordination to establish a robust and sustainable drone ecosystem.

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