

FORENSIC EVIDENCE IN NIGERIA: THE LEGAL PSYCHODYNAMICS IN QUALITY, CREDIBILITY AND UTILITY VALUES

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ABSTRACT: *Forensic evidence has become an essential component of modern criminal justice systems, providing scientific support for investigations and prosecutions. This study examined the role, challenges, and credibility of forensic evidence in Nigeria, with a focus on its scientific validity, judicial acceptability, and public trust. The research highlighted that while forensic science such as DNA profiling, toxicology, and digital forensics give objective and reliable tools for crime detection, its effectiveness in Nigeria is undermined by inadequate infrastructure, lack of accreditation, limited expertise, and systemic corruption. The study further revealed that weak legal provisions, inconsistent judicial practices, and poor chain-of-custody management diminish the admissibility and weight of forensic evidence in court proceedings. Additionally, public skepticism, shaped by corruption, wrongful convictions, and unrealistic expectations influenced by media portrayals, further erodes trust in forensic processes. Through an analysis of these challenges, the study proposes reforms including laboratory accreditation, capacity building, judicial training, and the establishment of independent forensic agencies. The findings emphasize the urgent need for systemic reforms to strengthen the credibility of forensic evidence, restore public trust, and enhance the fairness and effectiveness of Nigeria's criminal justice system.*

KEYWORDS: Forensic Evidence in Nigeria, Legal Psychodynamics, Quality, Credibility, Utility Values

INTRODUCTION

Forensic evidence has emerged as a cornerstone of modern criminal justice, offering scientific precision in crime detection, investigation, and prosecution. In Nigeria, where the justice system grapples with challenges of inefficiency, corruption, and public distrust, forensic science provides a promising pathway to strengthen legal processes and ensure justice delivery. Despite its global recognition as an indispensable tool in criminal jurisprudence, the integration of forensic evidence in Nigeria remains constrained by institutional weaknesses, inadequate infrastructure, and limited expertise (Adebayo, 2019; Okorie, 2022). The

underutilization of forensic science not only hinders effective prosecution of crimes but also perpetuates wrongful convictions, miscarriages of justice, and an overall erosion of public confidence in the judicial system.

Forensic evidence can be defined as scientifically derived information obtained from the application of various techniques including DNA analysis, fingerprinting, ballistics, toxicology, and digital forensics used to identify perpetrators and reconstruct crime events (Olaoye, 2020). Unlike testimonial evidence, which may be prone to human error or manipulation, forensic evidence provides objective and empirical support in establishing

facts before the court. Its relevance lies in its ability to corroborate witness testimony, identify offenders, and exclude the innocent, thereby serving as a critical safeguard against miscarriages of justice (Nwosu, 2021). In Nigeria, however, forensic science is often sidelined due to overreliance on confessional statements, eyewitness accounts, and circumstantial evidence, which are inherently susceptible to manipulation and coercion.

Globally, the role of forensic evidence aligns with modern criminological theories emphasizing scientific objectivity and technological innovation in criminal justice. In developed jurisdictions such as the United States and the United Kingdom, forensic science has become indispensable, with crime laboratories and expert testimony shaping legal outcomes (Houck, 2018). These advancements reflect a broader shift from traditional investigative methods toward an evidence-based justice model that prioritizes accuracy, reliability, and accountability. For Nigeria, embracing this global trajectory is critical for addressing systemic weaknesses in law enforcement and judicial credibility.

In the Nigerian context, forensic evidence is still at a developmental stage. Cases of violent crimes, terrorism, cybercrime, and financial fraud demand scientific approaches to investigation, yet law enforcement agencies often lack the resources and training to employ forensic tools effectively (Adebayo, 2019). High-profile cases such as electoral violence, kidnapping, and armed robbery often collapse in court due to weak or absent forensic corroboration. Furthermore, inadequate forensic laboratories, absence of national DNA databases, and poor chain-of-custody management undermine the admissibility of evidence in Nigerian courts (Okorie, 2022). These gaps not only frustrate justice delivery but also embolden criminality in a society where conviction rates remain dismally low.

From a psychological and legal perspective, reliance on weak evidence fuels public skepticism about the justice system. Victims lose confidence when perpetrators evade justice due to lack of forensic proof, while innocent individuals risk wrongful convictions

based on coerced confessions or unreliable witnesses (Olaoye, 2020). This dynamic erodes the legitimacy of law enforcement institutions and perpetuates cycles of distrust and vigilantism. In contrast, when properly applied, forensic science enhances judicial credibility, protects human rights, and ensures that legal outcomes are based on objective truth rather than arbitrary discretion (Nwosu, 2021).

On a societal level, the effective use of forensic evidence strengthens rule of law, deters crime, and fosters national security. By shifting focus from subjective testimonies to scientific accuracy, forensic science promotes fairness and equality before the law. In Nigeria, where socio-political tensions often influence judicial outcomes, forensic evidence offers a neutral and empirical basis for justice, minimizing bias and corruption (Okorie, 2022). Moreover, integrating forensic capacity into criminal justice contributes to broader development goals by promoting institutional trust, safeguarding civil liberties, and reinforcing democratic governance.

Theoretical frameworks such as legal positivism and routine activity theory help explain the significance of forensic evidence. Legal positivism underscores the necessity of objective, verifiable evidence in maintaining judicial integrity and upholding the rule of law (Hart, 1994). Routine activity theory, on the other hand, highlights how the certainty of detection through forensic science can act as a deterrent to crime (Cohen & Felson, 1979). These perspectives demonstrate the dual role of forensic evidence both as a corrective mechanism within the justice system and as a preventive measure against criminal activity.

Given these theoretical and practical considerations, this study seeks to critically examine the role of forensic evidence in strengthening Nigeria's modern criminal justice system. By exploring its contributions, challenges, and potential reforms, the study aims to advance discourse on justice delivery and institutional accountability. It adopts a non-empirical approach, relying on existing literature and theoretical analysis to highlight the importance of forensic science in ensuring accuracy, fairness, and efficiency within

Nigeria's justice framework. Addressing these challenges through investment in forensic infrastructure, capacity building, and legal reforms is imperative for fostering a credible justice system that commands public trust and upholds the ideals of democracy.

Statement of the Problem

The Nigerian criminal justice system is confronted with significant challenges in ensuring fairness, accuracy, and efficiency in the administration of justice. Despite global advancements in forensic science as a reliable tool for crime detection, investigation, and prosecution, Nigeria continues to rely predominantly on traditional investigative methods such as eyewitness testimony, confessional statements, and circumstantial evidence. These forms of evidence are often unreliable, prone to manipulation, and susceptible to human error, thereby increasing the risk of wrongful convictions and acquittals of actual offenders (Adebayo, 2019; Okorie, 2022).

The absence of adequate forensic infrastructure including modern laboratories, DNA databases, and trained forensic experts further exacerbates the inability of law enforcement agencies to effectively investigate crimes. As a result, many criminal cases, particularly those involving terrorism, armed robbery, kidnapping, and cybercrime, collapse in court due to insufficient scientific proof (Olaoye, 2020). Additionally, poor chain-of-custody practices and the lack of clear forensic legislation hinder the admissibility of scientific evidence, weakening prosecutorial outcomes and undermining judicial credibility.

This situation has contributed to widespread public distrust in Nigeria's justice system. Victims of crime frequently lose faith in the ability of courts to deliver justice, while perpetrators exploit systemic weaknesses to evade accountability. In a society already strained by insecurity, corruption, and institutional inefficiencies, the underutilization of forensic evidence not only threatens the credibility of the justice system but also erodes the rule of law and fosters impunity.

Therefore, the central problem lies in the persistent gap between the potential of forensic science as a tool for justice and its limited application within Nigeria's criminal justice system. Unless addressed through structural reforms, investment in forensic capacity, and legal recognition of forensic practices, the system will continue to struggle with inefficiency, bias, and a failure to meet international standards of justice.

Objectives of the Study

This study aims to examine the role of forensic evidence in strengthening the modern criminal justice system in Nigeria. The specific objectives are to:

1. To critically examine the current state and standards of forensic evidence in Nigeria
2. To explore how psychological factors influence the credibility and perception of such evidence
3. To evaluate the practical usefulness of forensic evidence in court proceedings
4. To recommend improvements through psychological and institutional reforms

LITERATURE REVIEW

THEORETICAL FRAMEWORK

Legal Positivism (Hart, 1961): Legal positivism, as articulated by H.L.A. Hart (1961), provided a robust framework for understanding the role of forensic evidence in strengthening the modern criminal justice system in Nigeria. The theory emphasized that the validity of law is derived from established rules and procedures rather than subjective moral interpretations. In essence, legal positivism maintains that legal systems must operate on objective, verifiable standards to guarantee justice. Forensic science embodies this principle by offering empirical, scientific evidence that reduces reliance on subjective testimonies and ensures that judicial outcomes are grounded in verifiable facts rather than discretionary biases.

In the Nigerian context, legal positivism sheds light on the need for forensic evidence as a safeguard against arbitrary rulings and judicial inefficiency. The system's historical overreliance on confessions, eyewitness

testimonies, and circumstantial evidence often contradicts the positivist requirement of objectivity and consistency in law. By integrating forensic science, Nigerian courts can align with the positivist ideal of legal certainty, ensuring that evidence presented in trials is not only relevant but also valid, reliable, and procedurally sound.

For Nigeria, the strains of inadequate forensic application arise from several factors. First, the absence of positively valued structures, such as modern forensic laboratories and standardized evidence-handling procedures, undermines the ability of courts to base decisions on empirical proof. Second, the presence of negatively valued practices, such as coerced confessions and poor chain-of-custody management, erodes the objectivity of the judicial process. Third, systemic gaps in legislation that fail to fully recognize and regulate forensic practices further alienate the justice system from the positivist goal of rule-based, impartial decision-making.

According to legal positivism, these deficiencies result in negative outcomes such as wrongful convictions, acquittals of actual offenders, and widespread public distrust in the justice system. For instance, when courts rely on confessional evidence obtained through coercion rather than forensic corroboration, the legitimacy of the justice system is weakened, contradicting the positivist vision of legal order. Conversely, when forensic evidence such as DNA analysis or digital forensics is admitted and properly weighed, it strengthens judicial credibility and fosters trust in the rule of law.

On a societal level, legal positivism underscores the necessity of forensic science for sustaining the rule of law and protecting citizens' rights. By institutionalizing forensic evidence, Nigeria can reduce arbitrariness in judicial outcomes, promote fairness, and deter crime through the certainty of punishment. This fosters broader social stability, as citizens are more likely to respect and adhere to legal norms when they perceive the system as objective and impartial.

The reliance on legal positivism to analyze the role of forensic evidence underscores the importance of institutional

reforms in Nigeria. The theory highlights the need for investment in forensic infrastructure, capacity-building of law enforcement officers, and enactment of comprehensive forensic legislation. Such measures would align Nigeria's justice system with the positivist principle that laws, and by extension judicial outcomes, must rest on objective rules rather than subjective judgments.

Key Tenets of Legal Positivism

- 1. Rule of Recognition:** Hart's "rule of recognition" asserts that laws derive validity from adherence to recognized procedures rather than moral judgment. In the Nigerian justice system, forensic evidence serves as a mechanism of recognition, ensuring that only scientifically validated facts are admissible in court. This strengthens the authority of legal rules by grounding them in objective standards.
- 2. Separation of Law and Morality:** Legal positivism maintains that law is distinct from morality; what is legally valid may not always be morally right. Forensic evidence reinforces this separation by providing objective proof independent of subjective moral or ethical considerations. In Nigeria, this reduces reliance on personal biases, witness emotions, or coerced confessions, thereby strengthening judicial neutrality.
- 3. Legal Certainty and Objectivity:** A core tenet of positivism is that the law must be clear, predictable, and consistently applied. Forensic science directly supports this ideal by offering objective, replicable findings that enhance the consistency of legal decisions. In Nigeria, where corruption and arbitrary rulings often undermine legal certainty, forensic evidence offers a pathway to restoring judicial integrity.
- 4. Institutional Legitimacy:** Positivism stresses that institutions derive authority when they apply rules consistently and objectively. By integrating forensic evidence, Nigerian courts can enhance

institutional legitimacy, foster public trust, and reinforce the principle that justice is based on evidence, not influence or sentiment.

Forensic Evidence and the Strains on Nigeria's Justice System

- 1. Failure to Achieve Positively Valued Goals:** Nigeria's inability to fully integrate forensic science undermines its goal of delivering fair and accurate justice. Without reliable evidence, the courts struggle to convict offenders while protecting the innocent.
- 2. Loss of Positively Valued Stimuli:** The absence of modern forensic infrastructure deprives the justice system of critical tools for investigation and prosecution. This gap weakens the credibility of legal institutions.
- 3. Presentation of Negatively Valued Stimuli:** The continued reliance on coerced confessions and unreliable eyewitness accounts creates systemic distortions that contradict positivist ideals of objectivity and rule-based justice.

Advantages of Legal Positivism for the Study

1. Provides a strong legal foundation for analyzing the importance of objective, scientific evidence in justice delivery.
2. Highlights the institutional reforms required to align Nigeria's justice system with international legal standards.
3. Explains how forensic evidence strengthens the rule of law by replacing subjective practices with verifiable proof.
4. Offers a framework for understanding how institutional legitimacy can be restored through scientific methods.

Limitations of Legal Positivism for the Study

1. Focuses heavily on rules and procedures, without fully addressing the moral or ethical implications of justice.
2. May overlook socio-economic and political constraints (e.g., corruption,

resource shortages) that affect forensic implementation.

3. Assumes a well-structured legal system, which may not fully apply in Nigeria's context of weak enforcement.
4. Does not sufficiently address the psychological impact of wrongful convictions or public distrust beyond institutional rules.

Types of Forensic Evidence in Nigeria

- 1. Physical Evidence:** Physical evidence refers to any tangible object that can establish the occurrence of a crime or provide a direct link to the victim or perpetrator (Saferstein, 2015). Unlike testimonial evidence, which is prone to memory lapses, bias, or coercion, physical evidence offers an objective and material foundation upon which criminal investigations and prosecutions can be built. In Nigeria, the recognition and use of physical forensic evidence remain critical, particularly in the context of violent crimes such as homicides, armed robberies, kidnappings, and burglaries, where physical traces often provide the most reliable leads. Common types of physical forensic evidence in the Nigerian criminal justice system include fingerprints, ballistics, and tool mark impressions.
- 2. Fingerprints:** Fingerprint analysis remains one of the oldest and most universally accepted forensic identification techniques, grounded in the principle that no two individuals possess identical ridge patterns (Lee & Gaensslen, 2014). Fingerprints can be classified as visible, plastic, or latent, and when properly collected, they serve as near-conclusive identifiers of suspects. Despite this evidentiary strength, fingerprint forensics in Nigeria faces serious structural and institutional limitations. Collection and analysis are largely uncoordinated, and the absence of a centralized biometric database severely restricts investigative efficiency

(Keltus, 2022). For instance, while advanced jurisdictions like the U.S. operate automated fingerprint identification systems (AFIS), Nigeria lacks such an integrated framework, relying instead on localized and manual methods of comparison (Okonkwo & Naish, 2018). Additionally, crime scene officers are often inadequately trained, leading to poor preservation and contamination of latent prints, which significantly diminishes their evidential weight in court (Igwe et al., 2020).

3. **Ballistics Evidence:** Ballistics, another critical branch of physical evidence, involves the examination of firearms, ammunition, cartridge cases, and gunshot residues. In Nigeria, such evidence is occasionally presented in homicide, terrorism, or armed robbery prosecutions. Forensic ballistics experts can identify the type of weapon used, match bullets or shell casings to a suspect's firearm, and reconstruct shooting incidents by analyzing bullet trajectories and impact patterns (Nwogu, 2019). Such findings can help establish whether a suspect fired a weapon, the number of shots discharged, and the possible distance between shooter and victim. However, the Nigerian context is constrained by the scarcity of functional forensic ballistics laboratories, with existing facilities being grossly underfunded and under-resourced (Faduyile et al., 2015). As a result, backlogs in ballistics examination are common, and in some cases, courts rely on uncorroborated police testimony in lieu of scientific firearm analysis. This gap undermines the evidentiary strength of ballistics in the justice system and often delays the administration of justice.
4. **Tool Marks and Impressions:** Tool marks and impression evidence represent another important category of physical evidence. They are often recovered from burglary and robbery scenes where forced entry is involved.

Forensic experts can examine striation marks or impressions left by crowbars, screwdrivers, or cutting instruments, linking them to specific tools recovered from suspects (Houck & Siegel, 2018). Additionally, footwear and tire impressions can be analyzed to reconstruct offender movement patterns. In Nigeria, however, the forensic utility of such evidence is often neglected due to limited technical expertise and lack of modern comparison instruments (Igwe et al., 2020). Many investigators fail to recognize or preserve impressions at crime scenes, while the few cases where they are collected suffer from poor documentation and weak laboratory follow-up. Consequently, this type of evidence remains underutilized in Nigerian courts despite its significant potential.

Challenges with Physical Evidence in Nigeria

A persistent and systemic challenge is poor crime scene management. In Nigeria, crime scenes are often not properly secured, with untrained police officers, journalists, and even community members gaining access to sites of violent crime (Alemika, 2013). This uncontrolled access frequently leads to contamination, alteration, or outright destruction of valuable physical evidence. The chain of custody—the meticulous documentation of how evidence is collected, stored, and transferred—is another major weakness. Breaks in the chain often render physical evidence inadmissible in court, as defense attorneys successfully challenge the credibility and authenticity of exhibits (Onwubiko & Eboibi, 2020). Furthermore, weak institutional coordination between law enforcement agencies, forensic laboratories, and the judiciary creates a disjointed system where the full evidentiary potential of physical traces remains unrealized.

In sum, while physical evidence holds tremendous potential in strengthening Nigeria's criminal justice process, its utility is curtailed by infrastructural deficits, inadequate training, and procedural lapses. Without urgent reforms in crime scene preservation, the establishment of

centralized forensic databases, and sustained investment in laboratories, the Nigerian justice system will continue to underutilize one of the most objective forms of criminal evidence.

Biological Evidence: Biological evidence is one of the most powerful categories of forensic material used in modern criminal justice systems. It refers to any organic material originating from the human body — including blood, semen, saliva, skin cells, teeth, bones, and hair — that can be scientifically analyzed to establish identity, biological relationships, or the circumstances of a crime (Butler, 2015). Unlike physical evidence, which may be circumstantial, biological evidence is often considered highly probative because it can be subjected to DNA profiling, which has become the “gold standard” of forensic identification due to the genetic uniqueness of every individual (except identical twins). DNA typing not only allows investigators to directly link suspects to crime scenes but also plays a critical role in exonerating the innocent (Houck & Siegel, 2018).

In the Nigerian context, the use of biological evidence, particularly DNA analysis, is still at a relatively nascent stage compared to advanced jurisdictions. The establishment of the Lagos State DNA and Forensic Centre (LSD&FC) in 2017 marked a significant institutional milestone, representing one of the first government-led efforts to integrate DNA technology into the country’s criminal justice system (Lagos State Government, 2017). The Centre has been involved in analyzing evidence for cases of homicide, sexual assault, and paternity disputes, thereby demonstrating the growing recognition of DNA evidence as a reliable tool for justice delivery (Akinseye-George, 2020). Nonetheless, this facility, alongside a few private laboratories in Abuja and Port Harcourt, is insufficient to serve Nigeria’s population of over 200 million people (Nwogu, 2019).

DNA profiling in Nigeria is primarily used in high-profile cases, including sexual violence, homicide, terrorism, and paternity disputes, where the stakes of justice are particularly high. For example, in cases of rape,

DNA from semen samples can provide irrefutable links between the perpetrator and the victim, even when other forms of evidence are lacking. Similarly, in mass disaster situations, such as building collapses or insurgent attacks, DNA analysis is often employed to identify victims when visual recognition is impossible (Ogunleye, 2021). However, due to the high cost of DNA testing, which can range from ₦150,000 to ₦300,000 per sample, most law enforcement agencies do not routinely request such analysis unless mandated by the courts or demanded by influential individuals (Keltus, 2022).

The challenges facing the application of biological evidence in Nigeria are multifaceted:

1. **Delays in Sample Processing** – With only a handful of laboratories capable of DNA analysis, backlogs are common, leading to prolonged trial delays and frustration for victims seeking justice (Nwogu, 2019).
2. **Inadequate Storage Facilities** – Biological samples such as blood or semen require specialized storage (e.g., refrigeration or freezing) to prevent degradation. Unfortunately, many police forensic units in Nigeria lack the infrastructure to preserve samples properly, resulting in the loss of critical evidence (Igwe et al., 2020).
3. **Poor Quality Control Measures** – The absence of standardized protocols often leads to contamination, mislabeling, or mishandling of samples, which undermines the credibility of test results in court (Onwubiko & Eboibi, 2020).
4. **Lack of Skilled Personnel** – Forensic biology requires highly trained scientists, but Nigeria faces a significant shortage of forensic pathologists, molecular biologists, and crime scene investigators (Akinseye-George, 2020).
5. **Absence of a National DNA Database** – Unlike countries such as the U.K. or the U.S., Nigeria does not maintain a centralized DNA database of convicted offenders or arrestees. This absence limits the ability of investigators to compare DNA profiles across cases, thereby reducing the preventive and

deterrent value of biological evidence (Keltus, 2022).

Despite these barriers, biological evidence holds transformative potential for Nigeria's criminal justice system. Beyond criminal cases, DNA analysis is increasingly being applied in civil litigation, especially in paternity and inheritance disputes, where it provides objective answers to contentious issues of lineage and family rights (Ogunleye, 2021). Moreover, as public awareness of forensic science grows, there is increasing demand for the integration of DNA evidence into everyday policing and prosecution.

Psychological and Behavioural Evidence: Psychological and behavioural evidence refers to the analysis of the mental states, motivations, perceptions, and actions of suspects, victims, and witnesses within the context of criminal investigations and trials. Unlike physical or biological evidence, which is tangible and scientifically verifiable, psychological evidence is primarily based on human cognition, perception, and behaviour, making it inherently more subjective and prone to errors. Nevertheless, it continues to play a central role in the Nigerian criminal justice system, where traditional reliance on eyewitness accounts, confessions, and circumstantial reasoning often outweighs the use of scientific forensic techniques (Okonkwo & Naish, 2018).

Eyewitness Testimony: Eyewitness testimony is among the most common and influential forms of forensic evidence in Nigeria, particularly in cases of armed robbery, homicide, sexual assault, and kidnapping. Courts frequently depend on the accounts of eyewitnesses, sometimes as the sole basis for conviction, even in the absence of corroborating physical or biological evidence (Okonkwo & Naish, 2018). This judicial practice reflects a long-standing cultural and legal tradition that places significant trust in human recollection.

However, psychological research consistently shows that eyewitness memory is highly fallible, reconstructive, and vulnerable to distortion (Loftus, 2005). Factors such as poor lighting conditions, short exposure times, high

stress during the event, presence of weapons (weapon focus effect), cross-racial identifications, and long delays between the incident and testimony can severely undermine accuracy. In Nigeria, where police investigations are often prolonged, it is not unusual for witnesses to testify months or even years after an event, further reducing reliability (Igwe et al., 2020). Moreover, suggestive questioning by police officers, exposure to media reports, or intimidation by perpetrators can distort witness recollections. Despite these weaknesses, Nigerian courts have historically over-relied on eyewitness testimony, contributing to wrongful convictions and miscarriages of justice (Okafor, 2016).

Confessions: Another critical form of psychological evidence in Nigeria is confessional statements. Under Nigerian law, a confession is considered highly probative and, if deemed voluntary, can serve as the basis for conviction even without corroborating evidence (Evidence Act, 2011). This centrality of confessions reflects a colonial-era policing culture that prioritized suspect admissions over scientific investigation (Alemika, 2013).

Yet, confessions in Nigeria often raise serious human rights concerns. Numerous reports by human rights organizations, such as Amnesty International (2020), reveal that suspects are frequently subjected to coercion, intimidation, psychological manipulation, or outright torture to extract confessions. Common practices include beatings, threats, sleep deprivation, and prolonged detention without access to legal counsel. Such conditions cast doubt on the voluntariness and reliability of many confessional statements. Unfortunately, lower courts in Nigeria sometimes admit these confessions into evidence with minimal scrutiny, undermining the fairness and credibility of criminal trials (Onwubiko & Eboibi, 2020). Even though higher courts have occasionally overturned convictions based on coerced confessions, systemic reform is still lacking, and many suspects continue to face convictions based on involuntary admissions.

Criminal Profiling: Criminal profiling, though widely used in developed countries, is still

underdeveloped in Nigeria. Profiling involves inferring the characteristics of an unknown offender from crime scene behaviours, patterns, and psychological traits. It can assist investigators in narrowing down suspects, predicting offender behaviour, and identifying potential future targets (Turvey, 2012). In Nigeria, informal profiling techniques are sometimes employed by law enforcement agencies, particularly in cases of terrorism, ritual killings, serial murders, and organized crime (Igwe et al., 2020). For example, in combating insurgency in the Northeast, security agencies have attempted to build behavioural profiles of suspected Boko Haram operatives.

However, Nigeria faces significant limitations in the application of criminal profiling. First, there is a shortage of trained forensic psychologists, criminologists, and behavioural analysts, as forensic psychology is still an emerging field in Nigerian academia and practice (Akinseye-George, 2020). Second, there is an absence of systematic databases of criminal behaviours and offender typologies, which are critical for pattern recognition. Third, profiling efforts are often informal and lack the methodological rigor seen in jurisdictions like the U.S. or U.K. As a result, profiling in Nigeria remains largely speculative and investigative rather than scientific and evidentiary.

The reliance on psychological and behavioural evidence within Nigeria's criminal justice system presents serious practical, legal, and ethical challenges. These challenges not only undermine the integrity of investigations and trials but also raise profound implications for the protection of human rights, the credibility of judicial processes, and public trust in law enforcement institutions.

Challenges of Relying on Psychological and Behavioural Evidence in Nigeria

1. High Risk of Wrongful Convictions:

One of the most critical concerns is the heightened risk of wrongful convictions resulting from overdependence on eyewitness testimony and coerced confessions. Research in cognitive psychology shows that eyewitness memory is reconstructive rather than

reproductive, meaning that witnesses tend to "rebuild" their memories under the influence of perception, stress, and post-event information (Loftus, 2005). In Nigeria, wrongful convictions have been reported where courts relied almost exclusively on witness identifications, despite inconsistencies or lack of corroborating evidence (Okafor, 2016). Similarly, confessions obtained through torture or intimidation often serve as the sole basis for conviction, despite their questionable reliability (Amnesty International, 2020). This practice not only compromises justice for defendants but also allows actual perpetrators to remain free, perpetuating cycles of crime and impunity.

2. Lack of Safeguards in Police Interrogations:

In most developed legal systems, safeguards such as mandatory audio-visual recording of interrogations, presence of legal counsel during questioning, and independent oversight mechanisms are in place to protect suspects' rights. In Nigeria, however, such safeguards are either absent or weakly enforced. Reports from human rights groups indicate that police interrogations often occur behind closed doors, with suspects denied access to lawyers or family members (Alemika, 2013; Amnesty International, 2020). This environment fosters a culture of coercion, where physical abuse, psychological manipulation, and intimidation become normalized investigative tools. The absence of institutionalized safeguards thus perpetuates the production of unreliable evidence while violating constitutional guarantees of fair trial and due process.

3. Judicial Conservatism and Overvaluation of Testimonial Evidence:

Another major challenge is judicial conservatism, where courts place disproportionate weight on eyewitness accounts and confessions, while undervaluing or side-lining scientific forensic methods. This stems

partly from colonial legal traditions, where confessional evidence was historically seen as “the best evidence” (Akinseye-George, 2020). Even when physical or biological evidence is available, Nigerian courts often prefer the testimony of witnesses or a defendant’s confession, sometimes dismissing scientific evidence as inconclusive or unnecessary (Onwubiko & Eboibi, 2020). Such conservatism delays the modernization of the justice system and discourages investment in forensic technologies, as they are perceived to have little legal impact. The implication is a justice system that remains heavily reliant on subjective evidence at the expense of objective, scientific proof.

4. **Weak Institutional and Professional Capacity:** The absence of adequately trained forensic psychologists, behavioural analysts, and professional interrogators represents a major limitation in Nigeria’s reliance on psychological evidence. Unlike in countries where forensic psychology is a well-established discipline, Nigeria has very few universities offering specialized training in forensic psychology, criminology, or behavioural science (Igwe et al., 2020). As a result, police officers and investigators lack the technical expertise to properly assess witness reliability, detect deception in confessions, or apply structured offender profiling techniques. Instead, reliance is often placed on intuition, speculation, or unscientific methods, which reduces the evidentiary value of psychological and behavioural evidence in court. Furthermore, the absence of a national offender database, standardized interrogation protocols, and institutional support mechanisms worsens the credibility crisis surrounding such evidence.
5. **Digital Forensic Evidence:** The rise of cybercrime in Nigeria, popularly referred to as “*Yahoo Yahoo*” or

internet fraud, has significantly increased the relevance of digital forensic evidence in the criminal justice system. Digital forensics refers to the process of identifying, retrieving, analyzing, and interpreting electronic data from computers, mobile devices, storage systems, and online networks for use in criminal investigations and prosecutions (Casey, 2011). With the rapid growth of e-commerce, online banking, and social media, digital evidence has become critical in uncovering financial crimes, identity theft, hacking, terrorism financing, and money laundering activities.

Types of Digital Forensics in Nigeria

1. **Computer Forensics:** Computer forensics involves the recovery and examination of data stored on personal computers, laptops, or servers. Investigators extract files, browsing histories, deleted documents, emails, and cached data to establish criminal activity. For example, in cyber-fraud cases, forensic experts analyze transaction logs, phishing scripts, and email correspondences to trace fraudulent financial activities (Casey, 2021).
2. **Mobile Forensics:** Given Nigeria’s high rate of mobile phone usage, mobile forensics plays a pivotal role in criminal investigations. It enables the retrieval of call records, SMS, WhatsApp messages, multimedia files, and GPS locations from smartphones. In many *Yahoo Yahoo* cases, perpetrators rely on mobile applications for scam communications. Thus, mobile forensics is particularly useful for linking suspects to victims, establishing timelines, and reconstructing fraudulent schemes (Onwubiko & Eboibi, 2020).
3. **Network Forensics:** Network forensics focuses on monitoring and interpreting internet traffic and online activities. It is crucial in detecting money laundering schemes, online fraud, cyberterrorism,

and illicit cryptocurrency transactions. Investigators track IP addresses, server logs, and online financial transfers to establish links between cybercriminals and illegal activities. In Nigeria, where cyber-enabled fraud is rampant, network forensics supports agencies in mapping syndicates and tracing transnational fraud networks (Onwubiko & Eboibi, 2020).

4. **Cloud Forensics:** Though underdeveloped in Nigeria, cloud forensics is increasingly relevant as more cybercriminals store data remotely on cloud-based platforms such as Google Drive or Dropbox. Investigators must rely on advanced forensic tools to access, preserve, and analyze such remotely stored digital evidence, often requiring international cooperation with service providers.

Institutional Role in Digital Forensics in Nigeria

The institutional framework for digital forensics in Nigeria is anchored primarily in law enforcement agencies and specialized regulatory bodies tasked with combating cybercrime and financial fraud. Chief among these institutions is the Economic and Financial Crimes Commission (EFCC), the Nigeria Police Force (NPF) Cybercrime Unit, and other emerging agencies such as the National Information Technology Development Agency (NITDA) and the Nigerian Communications Commission (NCC). Each plays a distinct but interrelated role in the detection, investigation, and prosecution of technology-enabled crimes.

Economic and Financial Crimes Commission (EFCC): Established in 2003 under the EFCC Act, the EFCC is Nigeria's foremost anti-corruption and anti-financial crime agency. Over the years, it has expanded its scope to include cyber-enabled crimes such as internet fraud, identity theft, card cloning, phishing, online money laundering, and cryptocurrency-related scams (Alemika, 2013).

The EFCC's Cybercrime Unit is equipped with digital forensic capabilities to retrieve, preserve, and analyze electronic data

from computers, mobile phones, and online networks. Investigators often rely on advanced forensic tools to trace fraudulent emails, reconstruct online transactions, and recover deleted files. In many high-profile "Yahoo Yahoo" cases, the EFCC has been instrumental in securing convictions by presenting digital evidence such as chat logs, IP addresses, and online financial transfers (Keltus, 2022).

However, despite its relative success, the EFCC struggles with case backlogs, inadequate laboratory facilities, and over-reliance on foreign forensic software. Moreover, given the scale of cybercrime in Nigeria, EFCC's resources are often stretched thin, leading to selective prosecution of only high-profile cases.

Nigeria Police Force Cybercrime Unit: The NPF Cybercrime Unit complements the work of the EFCC by focusing on a broader range of criminal activities involving electronic evidence. This includes kidnapping, terrorism, extortion, cyberstalking, and digital harassment, in addition to financial crimes. Mobile and computer forensics are particularly important for police investigations, as kidnappers and terrorists often rely on encrypted communication apps and digital payment channels to coordinate their activities (Onwubiko & Eboibi, 2020).

Nevertheless, the NPF Cybercrime Unit faces severe logistical and institutional constraints. Many officers lack specialized training in forensic technology, and available forensic laboratories are concentrated in urban centers such as Lagos and Abuja, leaving many states without access to advanced digital investigative tools. This creates gaps in nationwide cybercrime enforcement.

Other Agencies and Institutional Actors

Beyond the EFCC and NPF, other agencies also play supporting roles:

- The National Information Technology Development Agency (NITDA) is responsible for regulating Nigeria's information technology sector and ensuring cybersecurity compliance among businesses.
- The Nigerian Communications Commission (NCC) provides technical

support in tracking mobile communications, SIM card registrations, and internet traffic that can be useful in digital investigations.

- The Office of the National Security Adviser (ONSA) coordinates national cybersecurity strategies and oversees the National Cybersecurity Policy and Strategy (NCPS), which includes provisions for strengthening digital forensic capacities.

While these institutions contribute to Nigeria's digital forensic landscape, their roles are often fragmented, with limited inter-agency collaboration. Overlapping mandates sometimes result in turf wars, inefficiencies, and duplication of effort.

Institutional Limitations

Despite their importance, Nigerian institutions engaged in digital forensics face several constraints:

1. **Inadequate Funding:** Forensic laboratories and digital investigation units are chronically underfunded, leading to reliance on outdated technologies.
2. **Shortage of Skilled Personnel:** There is a significant shortage of trained forensic analysts, cybersecurity experts, and forensic psychologists to support digital investigations.
3. **Poor Inter-Agency Collaboration:** Lack of coordinated frameworks between the EFCC, NPF, and regulatory agencies weakens Nigeria's capacity to respond effectively to cybercrime.
4. **Legal Bottlenecks:** Institutional efforts are undermined by outdated legal provisions on the admissibility of digital evidence and weak enforcement of the Cybercrime Act of 2015 (Nwogu, 2019).

Quality of Forensic Evidence in Nigeria

The quality of forensic evidence is a critical determinant of its admissibility and reliability in criminal trials. In many advanced jurisdictions, forensic science is highly standardized, governed by strict quality assurance protocols, accreditation of

laboratories, and adherence to international best practices (Butler, 2015). However, in Nigeria, the quality of forensic evidence is undermined by systemic, technical, and institutional shortcomings, which limit its effectiveness in ensuring justice.

1. Standardization and Reliability:

A major concern regarding forensic evidence in Nigeria is the lack of standardized procedures for evidence collection, preservation, and analysis. Unlike developed countries with well-regulated forensic laboratories, Nigeria lacks a nationally recognized accreditation framework to regulate forensic practices (Onwubiko & Eboibi, 2020). This results in significant variations in how evidence is collected and processed across different regions and institutions, raising doubts about its reliability in court. The chain of custody, which ensures that evidence is preserved in its original state and safeguarded from contamination, is frequently broken in Nigerian investigations. Poor documentation, inadequate storage, and tampering of exhibits undermine evidentiary integrity, making otherwise strong forensic material inadmissible in court (Nwogu, 2019).

2. Infrastructural and Technical Capacity:

The quality of forensic evidence in Nigeria is also constrained by limited infrastructure and technical expertise. Only a handful of functional forensic laboratories exist, such as the Lagos State DNA and Forensic Centre (LSD&FC), which was established in 2017 (Lagos State Government, 2017). Despite its significance, this facility is insufficient to serve the entire nation, leading to delays and backlog of cases. Furthermore, many Nigerian investigators lack specialized training in forensic science, which often leads to improper handling of evidence. For instance, biological samples are sometimes stored in non-sterile

conditions, compromising their viability for DNA testing (Faduyile et al., 2015). The scarcity of qualified forensic experts, especially in toxicology, ballistics, and digital forensics, further diminishes the quality of forensic outputs (Igwe et al., 2020).

3. Legal and Judicial Scrutiny: Another important aspect of forensic quality lies in how courts assess and admit evidence. Although the Evidence Act 2011 recognizes forensic and electronic evidence, many Nigerian judges and lawyers lack adequate technical knowledge to critically evaluate such evidence (Alemika, 2013). Consequently, courts may either dismiss valid forensic findings due to misinterpretation or admit flawed evidence without sufficient scrutiny. In addition, conflicting expert testimonies are common, as defense and prosecution often hire different specialists, sometimes leading to contradictory findings that undermine public confidence in forensic reliability (Okonkwo & Naish, 2018).

4. Ethical and Corruption-Related Issues: The credibility of forensic evidence is also affected by issues of corruption and ethical misconduct. Reports suggest that in some cases, law enforcement officials manipulate or suppress forensic results to favor certain parties, particularly in politically sensitive or high-profile cases (Amnesty International, 2020). This compromises the objectivity of forensic practice and erodes public trust in the justice system. Moreover, coerced confessions are sometimes presented as forensic or psychological evidence, despite international best practices prohibiting evidence obtained under torture (Loftus, 2005). Such practices not only reduce the evidentiary quality but also violate human rights obligations.

5. Emerging Reforms and Opportunities: Despite these challenges, there are growing reforms

aimed at improving the quality of forensic evidence in Nigeria. The establishment of the LSD&FC has demonstrated the potential of DNA analysis in resolving complex criminal cases. Similarly, the EFCC's investment in digital forensic laboratories for cybercrime investigations shows progress in strengthening technical capacity (Alemika, 2013). To ensure sustainable improvement, Nigeria needs to adopt quality assurance frameworks, such as ISO/IEC 17025 accreditation for forensic laboratories, continuous training of forensic personnel, and greater judicial awareness of forensic science (Butler, 2015). Strengthening the chain of custody procedures and creating a national DNA database would also enhance the reliability of forensic evidence in court.

Credibility of Forensic Evidence in Nigeria

The credibility of forensic evidence refers to the extent to which such evidence is considered trustworthy, objective, and persuasive in judicial proceedings. In criminal justice systems worldwide, forensic evidence is often viewed as the "gold standard" for establishing facts, corroborating witness testimonies, and linking suspects to crimes (Butler, 2015). Its credibility stems from the perception that forensic science relies on objective, scientific methods rather than subjective human judgment. However, in the Nigerian context, the credibility of forensic evidence is highly contested due to legal, institutional, technical, and socio-cultural limitations.

The credibility of forensic evidence rests on a dual foundation: *scientific validity* and *judicial acceptability*. These dimensions intersect to determine whether forensic evidence can be considered trustworthy, admissible, and influential in judicial decision-making.

Scientific Validity: Forensic evidence derives its credibility from its grounding in scientific principles, standardized methodologies, and reproducibility. The National Research Council

(2009) emphasizes that evidence must be based on methods that have undergone rigorous peer review, validation studies, and established error rates. Techniques such as DNA profiling, ballistics analysis, toxicology, and fingerprint examination are considered scientifically valid because they are supported by decades of empirical research and application in diverse jurisdictions (Butler, 2015).

However, in Nigeria, the scientific validity of forensic practices is frequently compromised. Laboratories often lack internationally accredited standards such as ISO/IEC 17025 certification, which governs testing and calibration in forensic science. Moreover, inadequate training of forensic experts, coupled with obsolete equipment, undermines the reliability of results (Faduyile et al., 2015). For instance, improper collection or preservation of biological samples can lead to contamination, rendering DNA results inconclusive. Similarly, poor ballistic matching due to outdated microscopes or mismanaged databases raises doubts about accuracy. Thus, while forensic science theoretically offers objectivity, in practice, Nigeria's weak scientific infrastructure undermines credibility, creating skepticism among both lawyers and judges regarding the evidentiary weight of forensic submissions.

Judicial Acceptability: The second pillar of forensic credibility is its acceptance within the legal framework. Evidence must meet the statutory requirements of admissibility, relevance, and reliability under Nigerian law. The Evidence Act 2011 (ss. 84–85) explicitly provides for the admissibility of electronic and scientific evidence, thereby recognizing the legitimacy of forensic methods. Courts are expected to evaluate whether such evidence was properly collected, whether the chain of custody was preserved, and whether the expert presenting it is qualified.

Yet, judicial practice in Nigeria reflects inconsistent application of these standards. While higher courts sometimes adopt progressive interpretations that embrace scientific evidence, lower courts often continue to rely heavily on eyewitness testimony and

confessions, even when forensic evidence is available (Okonkwo & Naish, 2018). Moreover, the adversarial nature of the Nigerian legal system allows defense counsel to challenge forensic evidence on grounds of improper handling, lack of expert accreditation, or doubts about authenticity. In cases where laboratories are underfunded or experts lack credibility, such objections frequently succeed, eroding judicial confidence in forensic science (Onwubiko & Eboibi, 2020).

Interplay Between Science and Law:

Theoretically, the credibility of forensic evidence lies at the intersection of science and law. Scientific methods must not only be valid but must also be perceived by courts as reliable and trustworthy. This reflects the Daubert standard developed in U.S. jurisprudence, which emphasizes scientific testing, peer review, error rates, and general acceptance within the scientific community (Daubert v. Merrell Dow Pharmaceuticals, 1993). Though Nigeria does not explicitly apply Daubert, its underlying logic is instructive: forensic evidence must satisfy both scientific integrity and legal admissibility to be credible.

Challenges in the Nigerian Context

In Nigeria, achieving credibility faces multiple barriers:

1. **Poor Quality Control:** Many forensic laboratories lack routine proficiency testing and fail to maintain international standards (Nwogu, 2019).
2. **Limited Expertise:** A shortage of forensic pathologists, toxicologists, and digital forensic analysts weakens the credibility of expert testimony.
3. **Systemic Corruption:** Allegations of evidence tampering, bribery, and manipulation undermine public and judicial trust in forensic outcomes (Amnesty International, 2020).
4. **Judicial Conservatism:** Courts often display reluctance in admitting novel forensic techniques, defaulting instead to traditional testimonial evidence.

Public Trust in Forensic Evidence in Nigeria

Public trust is a critical determinant of the effectiveness of forensic science within any criminal justice system. In developed jurisdictions, forensic evidence enjoys relatively high public confidence because it is perceived as objective, scientific, and resistant to manipulation (Butler, 2015). In Nigeria, however, trust in forensic evidence is comparatively low, shaped by widespread skepticism about law enforcement agencies, judicial institutions, and the reliability of forensic processes.

1. Corruption within Law Enforcement:

One of the foremost barriers to public trust in forensic evidence in Nigeria is institutional corruption. Citizens often view forensic reports as susceptible to manipulation by powerful political or financial interests. Amnesty International (2020) notes that forensic evidence has, in some cases, been altered or suppressed to shield influential suspects from prosecution or to unjustly incriminate vulnerable individuals. Such perceptions weaken confidence in the impartiality of forensic science and reinforce a belief that justice in Nigeria can be "bought."

2. Wrongful Convictions and Miscarriages of Justice:

Another major contributor to distrust is the history of wrongful convictions. In several instances, Nigerian courts have convicted individuals based on unreliable eyewitness testimonies, coerced confessions, or poorly preserved forensic evidence (Alemika, 2013). For example, mishandling of biological samples and contamination of physical evidence have produced flawed results that undermine justice. These miscarriages of justice have created a perception among the public that forensic evidence is not necessarily more reliable than traditional testimonial evidence. Consequently, instead of being seen as a safeguard against error, forensic science in Nigeria is sometimes

regarded as just another flawed aspect of the criminal justice system.

3. Media Sensationalism and the "CSI Effect":

The Nigerian media has also played a paradoxical role in shaping public perceptions of forensic evidence. Inspired by popular Western television series such as *CSI: Crime Scene Investigation*, the media often presents forensic science as infallible, conclusive, and always available (Houck & Siegel, 2018). This has given rise to what is termed the "CSI effect", where the public—and sometimes even jurors—expect forensic evidence in every criminal case. When such evidence is absent, delayed, or inconclusive, it fosters disappointment and disillusionment, further eroding trust. In reality, Nigeria lacks the infrastructure, trained personnel, and resources to provide forensic evidence in all cases, particularly routine ones.

4. Lack of Transparency and Public Awareness:

Public trust is also hampered by the lack of transparency in forensic procedures. Forensic laboratories rarely publish reports on their methodologies, standards, or error rates, leaving the public in the dark about the reliability of results. Moreover, there is limited public education on the scope and limitations of forensic science. Without such understanding, many Nigerians continue to view forensic evidence with suspicion, believing it to be either unreliable or inaccessible to ordinary citizens seeking justice (Nwogu, 2019).

5. Institutional Weakness and Delays:

Trust is further undermined by the slow pace of forensic processing in Nigeria. Backlogs in crime labs, delays in DNA profiling, and bureaucratic bottlenecks frustrate victims and their families, reinforcing the perception that forensic evidence is ineffective or irrelevant to timely justice. In cases where suspects are released due to inconclusive or

delayed forensic reports, public faith in the system diminishes further.

Implications of Low Public Trust

The erosion of trust in forensic evidence has serious implications for Nigeria's criminal justice system:

- 1. Reduced cooperation with law enforcement:** Citizens may be reluctant to volunteer samples, cooperate in investigations, or testify in court if they believe forensic evidence will be manipulated.
- 2. Overreliance on traditional evidence:** Courts and prosecutors may fall back on confessions and eyewitness testimony, perpetuating cycles of wrongful convictions.
- 3. Weak deterrence against crime:** If the public perceives forensic evidence as unreliable, criminals may feel emboldened, knowing that scientific detection methods are unlikely to secure convictions.
- 4. Erosion of justice system legitimacy:** A justice system perceived as corrupt or incompetent risks losing legitimacy in the eyes of the people, undermining rule of law.

Judicial Attitudes Toward Forensic Evidence

The judiciary plays a central role in determining the credibility of forensic evidence. In Nigeria, judicial officers are empowered under the Evidence Act 2011 to admit forensic materials, including digital, biological, and physical evidence. However, several issues affect judicial trust:

- 1. Limited technical expertise:** Many Nigerian judges and lawyers lack adequate training in forensic science, making it difficult to critically assess expert testimony (Nwogu, 2019). This sometimes leads to blind acceptance of expert opinions or outright dismissal of valid scientific evidence.
- 2. Contradictory expert reports:** Courts are often faced with conflicting forensic analyses from prosecution and defense experts, which reduces the perceived

credibility of forensic science (Okonkwo & Naish, 2018).

- 3. Over-reliance on eyewitness testimony:** Despite global recognition of its fallibility, Nigerian courts still place disproportionate weight on eyewitness accounts and confessions, even where forensic evidence contradicts them (Loftus, 2005).

Institutional Weaknesses and Their Impact on Credibility

Institutional deficiencies undermine credibility of forensic science in Nigeria. Key challenges include:

- 1. Poor Chain of Custody –** Improper documentation and handling of evidence often result in contamination or loss, casting doubt on its authenticity (Igwe et al., 2020).
- 2. Limited Forensic Infrastructure –** With only a handful of functional laboratories, including the Lagos State DNA and Forensic Centre, forensic testing is not widely accessible (Lagos State Government, 2017).
- 3. Lack of Accreditation –** Most Nigerian forensic laboratories lack international accreditation (ISO/IEC 17025), which raises questions about the scientific reliability of their results (Butler, 2015).
- 4. Corruption and Political Interference –** In politically sensitive cases, forensic reports may be deliberately suppressed, altered, or disregarded to protect influential individuals (Amnesty International, 2020).

Ethical Issues and Human Rights Concerns

The credibility of forensic evidence in Nigeria is also undermined by unethical practices. Coerced confessions presented as forensic proof: Many suspects allege torture and psychological coercion, yet such confessions are admitted in lower courts as credible evidence (Alemika, 2013).

- 1. Bias in expert testimony:** Some forensic practitioners lack independence, as they are employed by law enforcement agencies rather than

neutral institutions, creating a risk of partiality (Houck & Siegel, 2018).

- 2. Violation of international standards:** Nigeria is a party to international human rights instruments that prohibit the use of torture-based evidence (UN CAT, 1984), yet violations persist, undermining forensic credibility.

Comparative Insights

Comparisons with other jurisdictions highlight Nigeria's forensic credibility gap. For instance, in the United States and UK, forensic evidence undergoes rigorous peer review, and experts are subject to cross-examination based on established scientific benchmarks (National Research Council, 2009). In South Africa, forensic laboratories are ISO-accredited and operate under independent regulatory oversight, enhancing public and judicial confidence (Mabunda, 2016). By contrast, Nigeria's forensic practice remains underdeveloped, inconsistent, and vulnerable to manipulation.

Recommendations for Enhancing Credibility of Forensic Evidence in Nigeria

The credibility of forensic evidence within Nigeria's criminal justice system is not solely a scientific matter but also a legal, institutional, and socio-cultural issue. For forensic science to attain its full potential, systemic reforms are essential across multiple dimensions. The following recommendations provide a roadmap for strengthening credibility and ensuring that forensic evidence can serve as a reliable pillar of justice in Nigeria:

- 1. Accreditation and Standardization of Forensic Laboratories:** A key step towards enhancing credibility is the formal accreditation of forensic laboratories in Nigeria. Currently, many existing laboratories lack standardized operating procedures, resulting in inconsistencies in evidence collection, analysis, and reporting (Onwubiko & Eboibi, 2020). Adoption of ISO/IEC 17025 standards—the global benchmark for testing and calibration laboratories—would ensure methodological uniformity, scientific accuracy, and international recognition of Nigerian

forensic reports. Standardization would also promote cross-border cooperation in criminal investigations, particularly in transnational crimes such as cybercrime, human trafficking, and terrorism.

- 2. Capacity Building and Human Resource Development:** The shortage of trained forensic scientists, police investigators, and legal practitioners remains a central obstacle to credibility. Regular and intensive capacity-building programs are essential for forensic experts – Training in DNA analysis, ballistics, toxicology, and digital forensics to keep pace with global advancements.
- 3. Police officers** – Skills in crime scene management, evidence preservation, and chain-of-custody protocols to avoid contamination or inadmissibility of evidence.
- 4. Judges and lawyers** – Training on scientific principles underlying forensic techniques to enhance their competence in interpreting expert testimony and ruling on admissibility.
- 5. Partnership:** Partnerships with international forensic institutions, universities, and organizations such as INTERPOL and UNODC could provide technical assistance, scholarships, and exchange programs to bridge Nigeria's expertise gap.
- 6. Judicial Reforms and Specialized Forensic Panels:** The Nigerian judiciary must be better equipped to evaluate complex forensic evidence. Introducing specialized forensic courts or dedicated scientific evidence panels within existing courts would enhance judicial competence in handling forensic-related cases. These panels, composed of judges with scientific training and accredited forensic experts, would ensure that forensic reports are critically assessed, reducing the risk of wrongful convictions or unjust acquittals (Nwogu, 2019). Additionally, updating the Evidence Act 2011 to incorporate clearer provisions on admissibility,

reliability, and chain-of-custody requirements for forensic evidence would strengthen judicial safeguards.

7. **Transparency, Independence, and Institutional Reforms:** Forensic institutions in Nigeria are often perceived as extensions of the police or government, leading to suspicions of bias and manipulation. Establishing independent forensic agencies, free from direct political or law enforcement control, would greatly enhance credibility. Such agencies could operate under the supervision of a National Forensic Science Board, ensuring neutrality, accountability, and oversight. Furthermore, routine public reporting and audits of forensic laboratories—covering case handling, success rates, and error margins—would promote transparency and public confidence.
8. **Public Awareness and Civic Education:** Low public trust in forensic science is partly due to limited awareness of its scope, strengths, and limitations. A comprehensive public education campaign is needed to:
9. Correct misconceptions created by the “CSI effect,” which fosters unrealistic expectations of forensic science as always conclusive.
10. Educate citizens about the importance of preserving crime scenes and cooperating with forensic investigations. Such education can be promoted through schools, universities, media campaigns, and community engagement programs.
11. Increase awareness of how forensic science protects both victims and suspects by reducing wrongful convictions and enhancing fairness in trials. Civic literacy on forensic science would foster realistic expectations, discourage skepticism, and enhance citizen cooperation with law enforcement.
12. **Investment in Forensic Infrastructure and Technology:** Expanding the number of forensic laboratories across the six geopolitical zones, equipping

them with modern technologies (e.g., automated fingerprint identification systems, DNA sequencers, cyber-forensic tools), and ensuring sustainable funding would improve nationwide access to credible forensic services. Public-private partnerships could also be leveraged to reduce financial burdens and integrate cutting-edge innovations.

Utility Value of Forensic Evidence in Nigeria

Forensic evidence holds immense utility value in strengthening the criminal justice system, as it provides scientific, objective, and reliable means of crime detection, investigation, and adjudication. Unlike traditional forms of evidence such as eyewitness testimony or confessions, which are prone to error, bias, or coercion, forensic evidence offers a more evidence-based and fact-driven approach to justice (Butler, 2015). Its utility can be analyzed from several perspectives:

Enhancing Crime Detection and Investigation: The foremost utility of forensic evidence is its ability to detect, analyze, and reconstruct criminal activities in a scientifically rigorous manner. Traditional investigative methods in Nigeria, which often rely heavily on eyewitness testimony, confessions, and circumstantial evidence, have been repeatedly criticized for their susceptibility to human error, coercion, and manipulation (Okafor, 2016). In contrast, forensic evidence introduces objectivity, precision, and reliability into the investigative process.

DNA profiling remains the “gold standard” in modern forensic science because of its ability to uniquely identify individuals. Biological materials such as blood, semen, saliva, hair follicles, or skin cells recovered from crime scenes can be subjected to DNA analysis, conclusively linking suspects to criminal acts (Butler, 2015). In sexual assault and paternity-related crimes, DNA evidence is particularly indispensable. For instance, the Lagos State DNA and Forensic Centre (LSD&FC), established in 2017, has begun assisting in homicide and rape investigations, although its capacity is still limited compared to demand (Lagos State Government, 2017).

Ballistics evidence also plays a crucial role in crime detection in Nigeria, especially given the country's high rate of armed robberies, political assassinations, and communal conflicts. By examining fired bullets, cartridge casings, and gunshot residues, forensic experts can determine the type of firearm used, reconstruct shooting incidents, and even match ammunition to a suspect's weapon (Nwogu, 2019). In cases of extrajudicial killings by security forces, ballistics evidence could provide impartial verification of weapon use—though such applications are often constrained by institutional resistance and lack of transparency.

Toxicological evidence is another critical dimension, particularly in cases of suspected poisoning, drug-related deaths, and substance abuse crimes. Forensic toxicology helps investigators identify the presence of alcohol, narcotics, or chemical agents in the bodies of victims or suspects, thereby providing clues to the circumstances of death or impairment. Despite its potential, Nigeria's forensic toxicology infrastructure remains weak, with few laboratories capable of handling complex analyses (Faduyile et al., 2015).

Digital forensics has become increasingly relevant in Nigeria's fight against cybercrime and technologically-facilitated offenses. Techniques such as mobile phone forensics, computer data retrieval, and network analysis enable investigators to trace communications, financial frauds, and ransom payments in kidnapping cases (Onwubiko & Eboibi, 2020). For instance, the Economic and Financial Crimes Commission (EFCC) has used digital forensic tools to successfully prosecute several cases of internet fraud ("Yahoo Yahoo"), which is rampant among Nigerian youths.

In addition to individual techniques, the integration of forensic disciplines enables investigators to reconstruct entire crime events. For example, in a homicide case, DNA evidence may establish the identity of the suspect, ballistics may reveal the weapon used, and toxicology may determine whether the victim was drugged prior to death. This holistic approach provides a scientifically corroborated narrative of criminal activity, thereby minimizing reliance on subjective accounts.

However, in Nigeria, the effectiveness of forensic evidence in crime detection is undermined by several challenges. Crime scenes are frequently contaminated due to poor preservation, lack of trained first responders, and weak chain-of-custody protocols (Onwubiko & Eboibi, 2020). Many police officers lack adequate training in forensic awareness, leading to the neglect or mishandling of crucial evidence. Furthermore, corruption and political interference sometimes result in the suppression or manipulation of forensic findings, eroding their value in practice (Amnesty International, 2020).

Despite these setbacks, forensic evidence still represents a transformative tool for crime detection in Nigeria, particularly as the country struggles with rising violent crime, terrorism, and cyber-related offenses. Its effective integration into criminal investigations has the potential to greatly enhance accuracy, impartiality, and speed, thereby strengthening both law enforcement and the justice system.

Strengthening Prosecution and Judicial Processes: Forensic evidence plays a pivotal role in strengthening the prosecutorial process by providing objective, corroborative, and scientifically verifiable proof. In the adversarial system of justice practiced in Nigeria, where the burden of proof rests on the prosecution, forensic evidence can decisively tilt the scales by substantiating allegations with concrete, empirical data. This elevates the quality of judicial decision-making and enhances the credibility of court proceedings (Nwogu, 2019).

Unlike traditional forms of evidence such as confessions and eyewitness testimony, which are highly susceptible to error, manipulation, or coercion, forensic evidence is rooted in scientific principles, replicable methodologies, and internationally recognized standards (Butler, 2015). Confessions in Nigeria are often obtained through physical abuse, psychological intimidation, or inducements, and courts—especially at the lower levels—have historically admitted such evidence without sufficient scrutiny (Amnesty International, 2020). Similarly, eyewitness testimony, although frequently relied upon, is vulnerable to

distortions caused by poor lighting, stress, and memory decay (Loftus, 2005). Forensic science mitigates these risks by anchoring evidence in objective laboratory findings rather than human perception or flawed interrogation practices.

Forensic reports, when properly collected, analyzed, and presented, function as independent arbiters of fact. For instance, DNA evidence can conclusively establish biological relationships in paternity disputes or link suspects to violent crimes such as rape and homicide. Ballistic evidence can identify the exact firearm used in a crime, thereby corroborating or discrediting witness statements. Toxicology reports can reveal whether a victim died from poisoning or substance abuse, clarifying ambiguous circumstances of death (Faduyile et al., 2015). In each of these cases, the scientific reliability of forensic evidence reduces the possibility of wrongful acquittals or convictions and helps ensure that justice is both done and seen to be done.

In Nigeria, however, the prosecutorial utility of forensic evidence remains constrained by systemic weaknesses. Many trial courts lack judges and lawyers with sufficient training to interpret forensic reports, often leading to their undervaluation or outright rejection. This judicial conservatism reinforces overdependence on confessional statements, even in cases where forensic data could provide more accurate insights (Okafor, 2016). Furthermore, forensic reports are sometimes delayed due to the shortage of accredited laboratories, resulting in prolonged trials and miscarriages of justice.

A further challenge concerns the admissibility of digital and electronic evidence. While the Evidence Act of 2011 (Sections 84–85) formally recognizes electronic records, Nigerian courts still struggle with their consistent application, partly because of limited judicial familiarity with cyber-forensics and partly due to skepticism regarding authenticity (Onwubiko & Eboibi, 2020). In cybercrime cases, prosecutors frequently rely on digital forensics—such as call records, email trails, and transaction logs—but defense lawyers often contest such evidence on technical grounds, exploiting institutional gaps.

Despite these challenges, forensic evidence remains a cornerstone of prosecutorial success. Its integration into the criminal justice process enhances fairness, impartiality, and public confidence, by reducing reliance on contested or unreliable forms of evidence. Importantly, its use aligns Nigerian courts with global best practices, where scientific evidence is recognized not just as supplementary, but often as the decisive factor in achieving just outcomes.

To fully maximize its prosecutorial value, Nigeria must strengthen judicial education, improve laboratory accreditation, and enforce strict chain-of-custody rules to ensure that forensic reports presented in court withstand both scientific and legal scrutiny. By doing so, forensic evidence can move from being an underutilized tool to a primary pillar of justice administration in Nigeria.

Exonerating the Innocent: One of the most significant utilities of forensic evidence lies in its ability to exonerate innocent individuals who have been wrongfully accused or convicted. This corrective function of forensic science not only ensures fairness within the judicial process but also strengthens public confidence in the integrity of the criminal justice system. Among the various forensic tools, DNA profiling has emerged globally as the most powerful instrument in overturning wrongful convictions, as it provides highly individualized and scientifically reliable evidence that can exclude a suspect beyond reasonable doubt (Butler, 2015).

In the Nigerian context, where the justice system continues to grapple with overreliance on eyewitness testimony and coerced confessions, the potential of forensic science as a safeguard against miscarriages of justice cannot be overstated. Eyewitnesses, though often sincere, are prone to memory distortions, stress-induced errors, and suggestibility, especially in traumatic events such as armed robberies or assaults (Loftus, 2005). Similarly, coerced confessions remain widespread due to aggressive interrogation practices, intimidation, and even torture, particularly at the level of police investigations (Amnesty International, 2020). When courts

place undue reliance on such forms of evidence, the risk of convicting innocent individuals rises sharply (Okafor, 2016).

Forensic evidence provides an essential counterbalance to these weaknesses. For example, a DNA test can exclude a suspect whose biological material does not match samples recovered from a crime scene. Ballistic analysis can demonstrate that a firearm in a suspect's possession was not the weapon used in a crime. Digital forensics can show that a suspect was not at the scene of a cybercrime, by establishing alternative digital footprints such as GPS logs, timestamps, or communication records (Onwubiko & Eboibi, 2020). In this way, forensic science acts as a protective mechanism against wrongful incrimination.

Importantly, exoneration through forensic evidence also serves a broader societal function. By clearing innocent individuals, the justice system avoids subjecting them to the lifelong stigma, economic hardship, and psychological trauma that accompany wrongful convictions. Furthermore, it prevents the real perpetrators from escaping accountability, since wrongful arrests divert investigative attention from the actual offenders. This aligns with the constitutional principle of the presumption of innocence, which guarantees that no individual should be punished unless proven guilty beyond reasonable doubt (Constitution of the Federal Republic of Nigeria, 1999, s. 36).

Despite its potential, however, Nigeria has yet to fully harness forensic evidence for exonerative purposes. DNA profiling, though available at facilities such as the Lagos State DNA and Forensic Centre, is rarely applied to post-conviction reviews, unlike in countries such as the United States, where organizations like the Innocence Project have used forensic science to free hundreds of wrongfully convicted persons (Nwogu, 2019). Institutional limitations—including lack of a national DNA database, inadequate legal frameworks for post-conviction appeals, and insufficient judicial awareness of forensic science—restrict its utility in preventing miscarriages of justice.

To strengthen this function, Nigeria must not only expand access to forensic technologies but also establish legal and

institutional mechanisms for the systematic review of questionable convictions using forensic evidence. Such reforms would not only uphold constitutional rights but also restore public confidence in the justice system by demonstrating that science can correct the errors of flawed human judgment.

Deterrence of Criminal Activities: Beyond its investigative and prosecutorial functions, forensic evidence also plays an essential preventive role by deterring potential offenders. The deterrent value of forensic science lies in its capacity to increase the perceived certainty of detection and conviction, which according to classical criminological theories, is a stronger deterrent than the severity of punishment itself (Beccaria, 1764/1995). When criminals know that advanced scientific techniques—such as DNA profiling, ballistics analysis, or digital forensics—can reliably link them to a crime, they may be discouraged from committing unlawful acts in the first place.

In Nigeria, where the criminal justice system has historically been plagued by inefficiency, corruption, and overreliance on weak forms of evidence, many offenders have operated with relative impunity. For example, armed robbers and kidnappers have long relied on poor investigative methods and judicial loopholes to evade conviction (Alemika, 2013). However, the gradual introduction of forensic practices, such as the establishment of the Lagos State DNA and Forensic Centre and the adoption of cybercrime investigation units within the Economic and Financial Crimes Commission (EFCC), has begun to signal a shift toward more science-based policing (Lagos State Government, 2017). This, in turn, is reshaping the psychology of criminal behaviour, as offenders become more cautious of leaving behind biological, physical, or digital traces.

A good illustration is the realm of cybercrime, particularly the “Yahoo Yahoo” internet fraud schemes. Fraudsters once operated with near impunity, exploiting weak regulatory frameworks and poor investigative capacity. However, as digital forensic techniques such as IP tracing, call log analysis, and financial transaction monitoring became more

sophisticated, certain cybercriminals have either reduced their activities or adopted more covert methods (Onwubiko & Eboibi, 2020). This demonstrates that the very presence of forensic capacity, even when not universally applied, has a psychological deterrent effect on would-be offenders.

The deterrent role of forensic evidence also extends to violent crimes. In jurisdictions where DNA profiling is widely used, offenders are often deterred from leaving behind biological materials such as blood or semen, knowing that such traces could conclusively link them to the crime scene (Butler, 2015). In Nigeria, though DNA evidence is not yet universally applied, the increasing awareness of its potential has already introduced a measure of caution among certain categories of offenders, particularly in urban centers where forensic capabilities are more visible.

However, the deterrent value of forensic science in Nigeria is currently undermined by systemic weaknesses. Many criminals still perceive the risk of detection as low due to infrastructural gaps, lack of nationwide forensic laboratories, and frequent breakdowns in the chain of custody (Nwogu, 2019). Moreover, widespread corruption within law enforcement often allows offenders to bribe their way out of investigations, thereby reducing the psychological deterrent effect of forensic capacity (Amnesty International, 2020).

To maximize deterrence, Nigeria must not only expand forensic infrastructure but also ensure consistent application and integrity in the use of forensic evidence. Public awareness campaigns about forensic technologies could further amplify their deterrent effect by making potential offenders aware that their actions can be scientifically traced. In this way, forensic science would evolve beyond being a reactive investigative tool to becoming a proactive crime prevention strategy, contributing significantly to long-term social order.

Supporting Policy and Institutional Reforms:

The application of forensic evidence goes beyond the courtroom; it also provides critical intelligence for policymaking, institutional reforms, and crime prevention strategies.

Forensic laboratories, through their routine analysis of crime-related materials, accumulate extensive datasets that, if properly managed, can serve as a national crime intelligence reservoir. Such data can reveal patterns in criminal behaviour, highlight emerging threats, and guide law enforcement agencies in deploying resources more effectively.

For example, ballistic forensics enables the linking of multiple shootings to a single firearm, thereby identifying serial offenders or organized criminal groups (Saferstein, 2015). Similarly, DNA databases, widely used in countries such as the United States and the United Kingdom, have helped to track repeat offenders, solve cold cases, and deter recidivism by keeping potential offenders under constant forensic surveillance (Butler, 2015). In Nigeria, where crimes such as armed robbery, kidnapping, and terrorism often recur with similar patterns, the development of a centralized forensic database could transform national security operations by allowing investigators to connect seemingly isolated incidents into broader criminal networks.

Currently, Nigeria faces significant challenges in crime data collection and integration. Most law enforcement agencies operate in silos, with weak coordination between the police, the EFCC, the Department of State Services (DSS), and other security institutions (Alemika, 2013). Records are often paper-based, poorly maintained, and inaccessible for intelligence purposes. The adoption of forensic science, particularly digitalized laboratory records, could help address these gaps by creating a centralized criminal intelligence system accessible to multiple stakeholders across the justice sector.

In addition to intelligence gathering, forensic evidence has institutional reform implications. By generating objective data on crime trends and criminal justice outcomes, forensic science can inform policy evaluation. For instance, toxicological data on rising cases of drug-related deaths could shape public health interventions, while digital forensic data on cybercrime can guide legislative updates on electronic evidence and online security laws. In this sense, forensic laboratories act not just as

technical units but as policy think tanks that feed evidence-based insights into governance.

Furthermore, the systematic application of forensic evidence could strengthen Nigeria's compliance with international standards on criminal justice and human rights. Organizations such as INTERPOL and the United Nations Office on Drugs and Crime (UNODC) emphasize the role of forensic intelligence in combating transnational crimes, including terrorism, human trafficking, and money laundering. Nigeria's ability to integrate forensic data into regional and international crime databases would enhance its global security cooperation while also boosting domestic credibility (UNODC, 2016).

However, the potential of forensic science to inform policy in Nigeria is constrained by underfunding, lack of skilled personnel, and weak political will. Policymakers often underutilize forensic intelligence due to limited awareness of its strategic value. Additionally, corruption within law enforcement sometimes leads to the deliberate suppression or manipulation of forensic data, undermining its utility for reform (Amnesty International, 2020).

To maximize its policy impact, Nigeria must establish independent forensic institutions with statutory mandates not only to support prosecutions but also to generate national crime intelligence reports for policymakers. These institutions should be linked to universities and research centers to encourage continuous study of crime trends. Moreover, the adoption of digital forensic databases at both state and federal levels could gradually replace fragmented paper-based systems, ensuring that forensic intelligence becomes a cornerstone of criminal justice policy.

Increasing Public Confidence in the Justice System: Forensic evidence has the unique potential to restore and strengthen public confidence in Nigeria's criminal justice system, which has long suffered from credibility deficits due to corruption, inefficiency, and bias (Amnesty International, 2020). A justice system perceived as unjust not only undermines its own legitimacy but also fuels a cycle of lawlessness, as citizens may resort to self-help, mob justice,

or distrust of law enforcement. Forensic science, through its objective and scientific orientation, offers a pathway toward rebuilding institutional legitimacy.

One major way forensic evidence fosters trust is by reducing the influence of human subjectivity in legal processes. Traditionally, Nigeria's courts have relied heavily on eyewitness testimony and confessions—two forms of evidence that are highly vulnerable to manipulation. Eyewitness accounts are often distorted by memory lapses, fear, or external influence, while confessions are sometimes extracted under torture or duress (Okafor, 2016). By contrast, forensic methods such as DNA profiling, toxicology tests, digital forensics, and ballistics analysis offer verifiable, repeatable, and scientifically validated results that minimize the risks of wrongful convictions. When the public observes that justice outcomes are rooted in science rather than coercion or political pressure, confidence in the fairness of trials increases.

Moreover, forensic evidence can counteract corruption in law enforcement and the judiciary. A persistent problem in Nigeria is the perception that justice can be bought or manipulated, especially in high-profile cases involving influential individuals. Forensic evidence, when transparently collected, analyzed, and presented, creates a paper trail and audit system that makes it more difficult for corrupt actors to fabricate outcomes. For instance, an unbiased DNA match or digital footprint cannot easily be altered without exposing tampering, unlike witness testimonies that may be coerced or bribed. This scientific objectivity helps to insulate investigations from political influence, reassuring citizens that justice is not reserved only for the powerful.

In addition, the visibility of forensic science in courtrooms and criminal investigations plays an important psychological role in shaping public perceptions. The "CSI effect" often dramatized by media portrayals of forensic investigation, while sometimes misleading, has raised public expectations that science should underpin justice (Houck & Siegel, 2018). In Nigeria, where public skepticism about the justice system is high, the

consistent use of forensic evidence in trials could bridge the gap between citizen expectations and actual judicial practices. When people see that forensic science is actively used in prosecuting crimes—whether in robbery, homicide, terrorism, or cybercrime cases—it signals a shift towards modernization and impartiality in justice administration.

Furthermore, forensic evidence contributes to democratic governance and the rule of law. A justice system that the public trusts is more likely to gain cooperation from citizens in crime reporting, witness testimony, and compliance with court rulings. This cooperation is essential in a country like Nigeria, where security challenges such as terrorism, kidnapping, and cybercrime require strong partnerships between law enforcement and communities. By demonstrating impartiality and fairness, forensic-based justice can transform adversarial relationships between the public and security agencies into collaborative alliances.

However, the potential of forensic evidence to build trust is constrained by systemic limitations. Inadequate forensic infrastructure, poor crime scene management, and the occasional misuse or suppression of forensic reports undermine public confidence. Citizens may view forensic science as just another tool subject to political manipulation if transparency, independence, and accountability are not ensured (Onwubiko & Eboibi, 2020). To avoid this, Nigeria must institutionalize independent forensic laboratories, adopt international quality standards, and establish clear judicial guidelines on the admissibility of forensic evidence.

Challenges of Forensic Evidence in the Nigerian Context

Despite its transformative potential in modernizing Nigeria's criminal justice system, the application of forensic evidence faces a range of structural, institutional, cultural, and legal challenges that significantly constrain its effectiveness. These challenges undermine both the credibility and utility value of forensic science in Nigeria, limiting its contribution to justice delivery and crime prevention.

Infrastructural Deficiencies: A major challenge is the shortage of forensic laboratories and modern equipment, which severely limits the scope and reliability of scientific investigations in Nigeria. In developed countries, forensic science operates through extensive networks of laboratories, each specialized in diverse areas such as DNA analysis, toxicology, ballistics, trace evidence, toxicology, digital forensics, and forensic pathology. These facilities are equipped with advanced technologies, including automated DNA sequencers, ballistic imaging systems, gas chromatographs, spectrometers, and high-performance computing for digital investigations, enabling rapid, precise, and large-scale evidence processing (Butler, 2015).

By contrast, Nigeria possesses only a handful of functional forensic facilities, the most notable being the Lagos State DNA and Forensic Centre (LSD&FC), established in 2017 (Lagos State Government, 2017). While this center marked an important milestone in institutionalizing forensic science, its capacity remains limited both in terms of personnel and infrastructure. Other forensic units exist within the Nigeria Police Force and the Economic and Financial Crimes Commission (EFCC), but they are underfunded, under-equipped, and often dependent on outdated technology (Faduyile et al., 2015). As a result, even when forensic evidence is collected, its analysis is often delayed for months, undermining timely investigations and prosecutions.

The absence of regional forensic centers further compounds the problem. Most forensic facilities are concentrated in Lagos and Abuja, leaving vast parts of Nigeria, particularly rural and conflict-prone regions in the North-East and North-Central, without access to scientific crime investigation. Crimes committed in these areas rarely benefit from forensic input, which means investigators often rely on traditional methods such as eyewitness testimony, coerced confessions, or circumstantial evidence. This uneven distribution of resources creates a two-tiered justice system, where access to forensic science is largely determined by geography.

Moreover, where forensic laboratories do exist, they frequently suffer from poor

maintenance, irregular power supply, inadequate funding, and bureaucratic bottlenecks. High costs of importing reagents and specialized instruments mean laboratories often run out of supplies, forcing investigators to either suspend tests or seek foreign assistance. In some cases, forensic evidence has had to be sent abroad for analysis, which is costly, time-consuming, and raises questions of data security and sovereignty. The cumulative effect of these infrastructural deficiencies is a criminal justice system that remains overwhelmingly dependent on non-scientific methods of investigation, despite the proven superiority of forensic evidence. Without significant investment in modern laboratories, Nigeria risks lagging further behind global standards in evidence-based policing and justice delivery.

Shortage of Skilled Personnel: Nigeria suffers from an acute shortage of trained forensic experts across multiple specialized fields, including forensic pathology, toxicology, forensic psychology, ballistics, DNA analysis, and digital forensics. This shortage poses a major obstacle to the full integration of forensic science into the criminal justice system. While developed jurisdictions maintain robust pipelines of forensic professionals trained through universities, research institutes, and continuous professional development programs, Nigeria's forensic workforce remains small, overstretched, and unevenly distributed (Nwogu, 2019).

A significant portion of existing forensic experts are concentrated in major urban centers such as Lagos and Abuja, where facilities like the Lagos State DNA and Forensic Centre (LSD&FC) or EFCC's Cybercrime Unit are located. This concentration leaves vast rural and conflict-affected regions underserved, particularly in the North-East and North-West, where crimes such as terrorism, kidnapping, and communal violence occur frequently but are rarely subjected to rigorous forensic analysis. The imbalance in distribution means that access to forensic services is essentially a privilege of urban centers, exacerbating inequalities in the delivery of justice.

The problem is compounded by limited opportunities for specialized forensic education and professional development within Nigeria. Few universities offer degree programs in forensic science, and those that do often lack modern laboratories and partnerships with law enforcement agencies. As a result, many Nigerian forensic professionals must seek training abroad, an option available only to a privileged few. Moreover, opportunities for in-service training, workshops, and international exchange programs are rare due to weak government funding and a lack of institutional prioritization (Faduyile et al., 2015). This has created a stagnant professional environment where skills are outdated, and practitioners struggle to keep pace with the rapidly evolving nature of forensic science, particularly in areas like digital forensics and DNA technology.

The lack of expertise directly undermines the quality of forensic practice in Nigeria. Poor evidence collection at crime scenes — such as failure to preserve biological samples properly, contamination of fingerprints, or improper handling of ballistic materials — is widespread due to insufficient training of first responders. Even when evidence reaches laboratories, the scarcity of highly trained specialists often results in delayed analysis, misinterpretation of results, or inconclusive findings, which weakens prosecutorial cases in court. Judges and lawyers, who themselves often lack forensic literacy, are further handicapped in interpreting expert reports, creating a cycle of inefficiency and mistrust in forensic testimony (Onwubiko & Eboibi, 2020).

This shortage of skilled professionals also has broader implications for crime prevention and national security. For instance, terrorism cases involving improvised explosive devices (IEDs) require skilled forensic chemists and bomb experts, while cybercrime investigations demand advanced digital forensic analysts. The absence of sufficient expertise in these areas leaves Nigeria vulnerable to sophisticated criminal networks who exploit these weaknesses to evade detection and prosecution.

Ultimately, without significant investment in forensic education, recruitment,

and continuous professional training, Nigeria risks perpetuating a cycle where forensic evidence remains underutilized, misapplied, or distrusted. Expanding capacity in this area is therefore not only a technical requirement but also a fundamental necessity for achieving a credible and modern criminal justice system.

Poor Crime Scene Management: Crime scene management is a critical foundation of forensic practice because the integrity of evidence begins at the point of collection. However, in Nigeria, this vital process remains grossly inadequate and poorly institutionalized, significantly undermining the reliability of forensic investigations. One of the most pressing issues is the lack of adequate training for first responders, including police officers and crime scene investigators. Many officers tasked with securing crime scenes have limited or no specialized forensic training, which results in haphazard approaches to evidence handling. For example, biological samples such as bloodstains may be improperly collected without gloves or sterile tools, leading to contamination. Similarly, firearms and ballistic materials may be touched, moved, or even discharged, thereby destroying crucial evidentiary value (Onwubiko & Eboibi, 2020).

The problem is compounded by a severe shortage of modern equipment and standardized protocols. In many cases, investigators lack basic forensic kits, protective clothing, fingerprint powders, digital imaging devices, or secure storage facilities. As a result, evidence is often collected with rudimentary tools or improvised methods that fail to meet international standards. Unlike in developed countries where crime scene units deploy advanced technologies like 3D laser scanners for reconstruction or chemical sprays to detect trace evidence, Nigerian investigators frequently rely on manual sketching and photographs of questionable quality, which are easily challenged in court.

Another critical issue is the contamination of crime scenes by onlookers, family members, or even police officers themselves. In many Nigerian contexts, crime scenes are not cordoned off effectively, allowing

large crowds of curious residents to enter and disrupt crucial traces. In some instances, tampering occurs deliberately, either by corrupt officials seeking to manipulate evidence or by associates of suspects attempting to erase incriminating materials. Such breaches compromise the chain of custody, which is essential for ensuring admissibility in court proceedings (Saferstein, 2015).

The chain of custody—the documented and unbroken process of handling evidence from collection to courtroom presentation—is frequently broken in Nigeria. Investigators often fail to label, seal, and log evidence properly. In some cases, evidence is stored in unsecured police stations for months, where it risks being misplaced, contaminated, or tampered with. Consequently, when such evidence is tendered in court, defense lawyers successfully challenge its admissibility, rendering it useless despite its potential probative value (Nwogu, 2019).

Poor crime scene management has wider institutional and societal implications. It erodes public trust in the criminal justice system, as citizens perceive investigations as careless or deliberately flawed. It also emboldens criminals, who recognize that even when caught, weak forensic procedures may fail to secure their conviction. Furthermore, it burdens the judiciary, as cases collapse due to technical errors rather than lack of evidence.

Ultimately, Nigeria's weakness in crime scene management reflects systemic failures in training, resource allocation, and accountability. Without urgent reforms—including the establishment of specialized crime scene units, adoption of standardized protocols aligned with international best practices, and investment in modern technology—Nigeria will continue to experience miscarriages of justice rooted not in the absence of forensic science, but in the mismanagement of crime scenes where such science should begin.

Legal and Judicial Constraints: Nigeria's legal framework, though significantly updated with the Evidence Act of 2011, still contains notable gaps and ambiguities in regulating the admissibility and use of forensic evidence. While Sections 84–85 of the Act formally

recognize the admissibility of electronic evidence and other scientific proofs, their application in practice remains inconsistent. Courts frequently face challenges in determining whether forensic reports meet the necessary thresholds of reliability, relevance, and authenticity (Okonkwo & Naish, 2018).

A central problem lies in the limited scientific literacy among judges, magistrates, and legal practitioners. Many members of the judiciary lack formal training in forensic science, which makes it difficult for them to assess expert testimony critically. This often leads to two extremes: on one hand, judges may over-rely on weak or unverified scientific claims, accepting them at face value without probing their methodological soundness. On the other hand, they may reject valid forensic reports outright, either due to lack of understanding or skepticism about their credibility (Nwogu, 2019). Both tendencies undermine the credibility of forensic evidence as a tool of justice.

Moreover, judicial conservatism in Nigeria reinforces outdated practices by privileging eyewitness testimony and confessions over scientific evidence. Despite global recognition of the fallibility of eyewitness accounts and the risk of coerced confessions, Nigerian courts often give such forms of evidence decisive weight, while treating forensic reports as supplementary rather than primary (Loftus, 2005; Okafor, 2016). This imbalance contributes to wrongful convictions and weakens the role of forensic science in promoting justice.

Another critical challenge is the lack of standardized guidelines for forensic expert witnesses. Unlike jurisdictions such as the United States, where the Daubert standard provides clear criteria for assessing the admissibility of expert scientific testimony, Nigeria lacks a uniform benchmark. As a result, the acceptance of forensic evidence varies widely from one court to another, depending largely on the discretion and scientific awareness of the presiding judge. This inconsistency creates legal uncertainty and weakens public trust in judicial outcomes (National Research Council, 2009).

The problem is further compounded by systemic corruption within the judicial and law enforcement sectors. There are widespread perceptions that forensic reports can be manipulated to serve political or financial interests, with cases where expert witnesses or forensic scientists allegedly tailor their findings to satisfy parties in power (Amnesty International, 2020). This perception erodes the legitimacy of forensic science and reinforces the public's skepticism about its utility in Nigerian courts.

Finally, Nigeria's slow judicial processes exacerbate the challenges. Forensic evidence, particularly biological or digital samples, is often time-sensitive and requires swift analysis and tendering in court. However, judicial delays mean that by the time forensic results are presented, they may have lost relevance or be subjected to questions about tampering. This delay further diminishes the effectiveness of forensic science in strengthening criminal adjudication.

In sum, while the Evidence Act of 2011 marked progress, Nigeria's legal and judicial environment remains ill-equipped to fully integrate forensic science into criminal justice. Without continuous judicial education, standardized admissibility criteria, and robust safeguards against corruption, forensic evidence will remain underutilized or misapplied, perpetuating reliance on less reliable forms of proof.

Financial Constraints: Forensic science is inherently resource-intensive, demanding advanced laboratories, highly sensitive equipment, expensive reagents, and sophisticated analytical software. In developed jurisdictions, continuous government investment ensures that forensic institutions remain technologically up-to-date, enabling them to handle a wide range of cases with precision. By contrast, in Nigeria, chronic underfunding of the criminal justice sector has left forensic facilities grossly under-equipped and structurally weak (Faduyile et al., 2015).

The Lagos State DNA and Forensic Centre (LSD&FC), inaugurated in 2017, was a landmark achievement in providing in-country

capacity for DNA analysis, toxicology, and other forensic services. However, this facility—and the very few others scattered across the country—remain overstretched and unable to meet national demand (Lagos State Government, 2017). The absence of well-distributed regional forensic laboratories means that vast areas, particularly rural and conflict-prone regions, are effectively excluded from accessing forensic services. Evidence from such areas is often either abandoned or sent abroad for analysis, leading to significant delays and questions about chain-of-custody integrity.

A major financial constraint lies in the prohibitive cost of forensic testing, particularly DNA analysis. The process requires imported reagents, consumables, and equipment that are expensive and not locally produced. Consequently, DNA profiling is often reserved for high-profile cases, such as murder, terrorism, or sexual assault involving influential persons, while everyday crimes—armed robbery, burglary, fraud, or domestic violence—rarely benefit from forensic support (Keltus, 2022). This selective application undermines the egalitarian promise of forensic science and perpetuates inequalities in access to justice, leaving ordinary citizens without scientific recourse.

Additionally, Nigeria's dependence on foreign technology and expertise exposes forensic institutions to vulnerability. Specialized forensic software for digital forensics, database management, and DNA analysis is often imported at high cost, while local technicians and scientists face inadequate training opportunities for independent operation. This dependence not only escalates costs but also raises questions of sustainability—if foreign partners withdraw or costs escalate, Nigeria risks losing critical forensic capacity (Nwogu, 2019).

The lack of sustained government funding also results in frequent breakdown of existing equipment, inadequate maintenance, and shortages of basic consumables, such as chemicals for toxicology or kits for fingerprint analysis. In some cases, forensic facilities function at minimal capacity, with investigators forced to rely on traditional investigative methods—confessions, eyewitness testimony,

and circumstantial evidence—that are far less reliable.

Moreover, the funding crisis extends to the human resource dimension. Many forensic scientists in Nigeria are demoralized due to poor remuneration, lack of research grants, and limited career development opportunities. This underinvestment contributes to the persistent brain drain of skilled professionals to more advanced jurisdictions where forensic careers are better funded and valued.

In summary, the resource and funding deficit represents one of the most significant barriers to the advancement of forensic science in Nigeria. Without adequate, sustained investment in infrastructure, consumables, technology, and personnel, the forensic sector cannot deliver on its promise of revolutionizing criminal justice. This underfunding not only limits capacity but also restricts the democratization of forensic services, confining them to elite cases while leaving the majority of citizens dependent on unreliable traditional methods of evidence collection.

Corruption and Political Interference:

Corruption within law enforcement and the judiciary significantly undermines the credibility of forensic evidence in Nigeria. Despite the global reputation of forensic science as an objective and scientific discipline, its effectiveness in the Nigerian context is frequently compromised by systemic corruption at multiple levels of the justice system (Amnesty International, 2020).

At the law enforcement stage, there are recurring reports of manipulated forensic reports, deliberate destruction of evidence, and selective handling of cases. For instance, evidence that could implicate powerful individuals is sometimes tampered with, withheld, or entirely erased to protect political or financial interests. Conversely, forensic evidence may be fabricated or selectively presented to implicate political opponents or marginalized groups, thereby weaponizing science for partisan ends. Such practices not only erode the impartiality of forensic investigations but also feed into the public

perception that justice in Nigeria is “for sale to the highest bidder” (Alemika, 2013).

The problem extends to the judiciary, where judges—entrusted with the duty of evaluating forensic reports—are not immune to corruption. In some cases, judicial officers may dismiss credible forensic findings if they contradict political expectations, while accepting questionable or manipulated reports that serve the interests of influential actors. This judicial inconsistency reinforces skepticism about the objectivity of forensic processes and discourages investment in forensic science as a credible justice tool.

Political interference represents another dimension of the corruption problem. In high-profile cases involving election violence, terrorism, or large-scale corruption, there have been allegations that forensic evidence is deliberately suppressed or ignored to shield politically exposed persons. Such interference undermines not only specific cases but also the institutional independence of forensic agencies, making them appear as extensions of political machinery rather than neutral scientific bodies.

These patterns of corruption have serious implications for public trust. Citizens, already disillusioned by the inefficiency of the justice system, view forensic science with suspicion, believing it can be manipulated just like eyewitness testimony or confessions. The promise of forensic evidence as an objective safeguard against wrongful convictions is therefore severely diminished. Moreover, the perception of bias and impunity discourages victims from coming forward and reduces cooperation with law enforcement, further weakening the fight against crime.

Beyond public perception, corruption also affects the international credibility of Nigerian forensic practices. Courts in other jurisdictions may hesitate to recognize Nigerian forensic reports in cross-border cases, particularly in cybercrime and terrorism investigations, where international cooperation is essential. This lack of credibility limits Nigeria’s ability to participate in global crime-fighting networks and undermines regional security efforts.

In summary, corruption within law enforcement and the judiciary is one of the most formidable obstacles to the effective use of forensic evidence in Nigeria. By distorting the neutrality of science, corruption transforms forensic processes from tools of justice into instruments of manipulation, thereby perpetuating impunity and weakening democratic governance. Restoring credibility will therefore require structural reforms that ensure the independence of forensic institutions, stricter accountability for compromised officials, and mechanisms that insulate forensic processes from political influence.

Cultural and Institutional Resistance: There is widespread cultural reliance on confessions and eyewitness accounts in Nigeria’s criminal justice culture, a legacy of both colonial legal traditions and indigenous customary practices (Okafor, 2016). From the colonial period, British common law placed significant emphasis on oral testimony, which was reinforced by traditional African dispute-resolution systems that valued community witnesses and personal narratives as the primary means of establishing truth. This historical orientation has persisted into the present-day Nigerian justice system, where confessions and eyewitnesses remain the cornerstone of criminal investigations and prosecutions, even in cases where scientific forensic methods could provide more reliable evidence.

For law enforcement officers, confessions are often perceived as the most straightforward and conclusive form of evidence. Investigators, facing high caseloads and limited resources, see securing a confession as a faster route to closing cases than engaging in the time-consuming processes of collecting, preserving, and analyzing forensic evidence. This preference is compounded by the lack of technical training in modern investigative methods, which reinforces a dependence on traditional approaches. In many instances, suspects are pressured, coerced, or tortured into providing confessions—further entrenching this cultural bias while simultaneously undermining the credibility of the justice system (Amnesty International, 2020).

Similarly, eyewitness testimony continues to be heavily relied upon in courts. Judges and prosecutors often place more weight on the words of an eyewitness than on complex forensic reports, especially in rural and less-resourced judicial settings where access to forensic expertise is limited. The reliance on human testimony, however, is problematic given its susceptibility to memory distortions, biases, and external influences (Loftus, 2005). In practice, wrongful convictions have resulted from mistaken eyewitness identifications, yet the cultural and institutional confidence in such testimony persists.

This resistance to forensic science is not only a matter of tradition but also of perception. Many law-enforcement officers and judicial actors view forensic methods as “elitist,” overly technical, or impractical within the Nigerian policing environment. The lack of visible forensic infrastructure across the country reinforces the belief that forensic processes are unnecessary or unrealistic. Even where forensic reports are available, some judges express skepticism, preferring what they perceive as the “certainty” of direct human testimony over the “complexities” of scientific interpretation (Okonkwo & Naish, 2018).

The implications of this cultural reliance are profound. It delays the integration of forensic science into routine policing, perpetuates investigative inefficiency, and increases the risk of miscarriages of justice. Moreover, it fosters a justice culture that is reactive rather than proactive, emphasizing securing confessions after a crime rather than preventing or solving crimes through scientific detection. In contrast, countries that have successfully integrated forensic science into their criminal justice systems demonstrate higher rates of case resolution, stronger safeguards against wrongful convictions, and greater public trust in the system (Butler, 2015).

In essence, the persistence of this confession- and testimony-centered justice culture represents both a practical barrier and a cultural obstacle to the modernization of Nigeria’s criminal justice system. Overcoming it will require not only the expansion of forensic infrastructure but also a cultural reorientation

through training, legal reforms, and sustained advocacy for the value of scientific evidence in achieving justice.

Lack of Centralized Databases: Forensic evidence thrives on integrated databases that allow investigators to connect seemingly isolated crimes and identify patterns across jurisdictions. Globally, national DNA registries, fingerprint repositories, and ballistic matching systems have revolutionized criminal investigations by enabling the rapid linking of suspects to crime scenes and the detection of serial offenders. For example, the United States maintains the Combined DNA Index System (CODIS) and the National Integrated Ballistics Information Network (NIBIN), both of which provide real-time forensic intelligence that strengthens investigations and prosecutions (Butler, 2015). Similarly, the United Kingdom and South Africa operate comprehensive biometric and ballistic registries, which have proven crucial in solving violent and organized crimes.

In contrast, Nigeria lacks such centralized and integrated forensic databases, creating a major obstacle to the effective use of scientific evidence in law enforcement. DNA samples collected from crime scenes are often analyzed in isolation, with results stored in fragmented laboratory records rather than in a national registry. This prevents cross-referencing across states or linking cases involving repeat offenders. Similarly, fingerprint records maintained by the Nigeria Police are neither systematically digitized nor integrated into a searchable national database, limiting their usefulness in investigations (Igwe et al., 2020).

The absence of a ballistic matching system also hampers efforts to trace the origins of firearms, a critical issue in Nigeria given the proliferation of small arms fueling violent crimes, banditry, and terrorism. Without a centralized database, recovered bullets and casings cannot be systematically compared to existing firearm evidence, making it nearly impossible to track the movement of weapons across different regions.

Compounding the problem is fragmented record-keeping and weak data-

sharing protocols between law enforcement agencies. The Economic and Financial Crimes Commission (EFCC), the Department of State Services (DSS), and the Nigeria Police Force all maintain their own investigative records, but coordination is minimal. This siloed approach means that valuable forensic intelligence often remains confined within specific institutions, reducing the overall effectiveness of forensic investigations at the national level.

Furthermore, Nigeria's lack of data infrastructure raises serious implications for criminal intelligence and justice delivery. Without integrated systems, law enforcement cannot establish crime patterns, track serial offenders, or link related crimes across state and regional boundaries. This gap not only weakens investigative capacity but also undermines the deterrent value of forensic science, as criminals exploit these systemic blind spots.

Addressing this challenge would require large-scale investment in forensic informatics—including the establishment of a national DNA registry, a digitized fingerprint system, and a ballistic information network—coupled with clear protocols for inter-agency data sharing. Such measures would not only enhance the accuracy and speed of criminal investigations but also bring Nigeria's forensic infrastructure in line with global best practices.

Weak Regulatory and Quality Assurance Systems: Unlike developed countries where forensic laboratories are strictly regulated and regularly audited, Nigerian forensic laboratories lack consistent accreditation frameworks and quality assurance systems. In advanced jurisdictions, international standards such as ISO/IEC 17025 provide a rigorous benchmark for competence in testing and calibration laboratories, ensuring that forensic analyses meet globally recognized thresholds of accuracy, reliability, and reproducibility. Accreditation under these standards not only enhances the scientific validity of laboratory work but also assures courts, investigators, and the public that forensic results are credible and defensible (National Research Council, 2009).

By contrast, Nigerian forensic laboratories operate with minimal regulatory

oversight and fragmented operational procedures. There are no comprehensive national guidelines mandating uniform protocols for evidence handling, chain of custody, laboratory testing, or reporting standards. As a result, practices vary widely across institutions, with some laboratories relying on improvised methods or outdated equipment. This inconsistency severely undermines the reproducibility of results, a cornerstone of scientific credibility, and weakens the evidentiary value of forensic reports in judicial proceedings.

Another major problem is the absence of independent accrediting and monitoring bodies. In countries like the United States, the American Society of Crime Laboratory Directors/Laboratory Accreditation Board (ASCLD/LAB) and similar agencies conduct regular evaluations to ensure compliance with best practices. Nigeria lacks such independent structures, leaving forensic institutions vulnerable to poor internal regulation, political interference, and corruption. Consequently, courts and legal practitioners often express skepticism about the reliability of forensic results, and defense counsel can easily challenge their admissibility.

Moreover, weak quality control mechanisms contribute to a high risk of errors. Laboratories frequently operate without blind proficiency testing, external audits, or standardized peer review systems. Without such safeguards, false positives, contamination, and analyst bias can go undetected. This problem is exacerbated by inadequate documentation of analytical processes, making it difficult to verify or replicate findings when cases are appealed or re-examined.

The credibility gap created by the lack of accreditation has far-reaching consequences for justice delivery. In many cases, forensic results are either dismissed by courts due to questionable reliability or accepted uncritically without proper validation, both of which undermine the balance of justice. Victims may be denied justice if crucial evidence is excluded, while accused persons risk wrongful conviction if flawed results are admitted.

Addressing this challenge requires Nigeria to institutionalize forensic laboratory accreditation through mandatory compliance with ISO/IEC 17025 standards and the establishment of a national forensic science regulatory authority. This body should oversee laboratory operations, enforce uniform protocols, and conduct periodic audits to ensure reliability. Additionally, continuous training of analysts on ethical and scientific standards, combined with inter-laboratory collaborations and international partnerships, would enhance quality assurance and strengthen the overall credibility of forensic evidence in Nigeria.

Cybercrime and Digital Forensics Challenges

With the rise of cybercrime in Nigeria, popularly referred to as “Yahoo Yahoo”, the role of digital forensics has become increasingly critical in criminal investigations and prosecutions. Digital forensics involves the identification, preservation, extraction, analysis, and presentation of data from electronic devices such as computers, mobile phones, and online networks (Casey, 2011). Its application is especially vital in addressing cybercrimes such as internet fraud, identity theft, money laundering, online scams, terrorism financing, and mobile-based financial crimes, which have proliferated with the growth of digital technology.

Despite its importance, Nigeria faces significant challenges in effectively deploying digital forensics. First, there is a limited pool of technical expertise capable of conducting sophisticated digital investigations. Skilled digital forensic analysts are scarce, and most law enforcement agencies lack adequately trained personnel. This capacity gap forces many agencies to rely on external experts or foreign collaborations, which slows down investigations and raises concerns about the security of sensitive data (Onwubiko & Eboibi, 2020).

Second, Nigeria remains heavily dependent on foreign forensic software and tools. Many advanced forensic applications, such as EnCase, Cellebrite, and FTK, are costly and proprietary. Nigerian agencies often lack the financial resources to procure and maintain these technologies, creating overdependence on

international support. This dependence not only increases operational costs but also limits national autonomy in managing critical digital investigations, especially those involving politically sensitive or high-profile cases.

Third, technological obstacles such as encryption and data deletion pose major challenges. Cybercriminals often employ sophisticated methods to conceal their digital footprints, including the use of VPNs, encrypted messaging platforms, and data-wiping software. Nigerian law enforcement agencies frequently struggle to recover encrypted communications or deleted files, making it difficult to secure strong evidence that can withstand judicial scrutiny. The rapid pace of technological advancement also means that forensic methods must constantly evolve, yet Nigeria’s institutional capacity lags behind global trends.

Furthermore, Nigeria’s legal framework for electronic evidence remains weak and inconsistent. Although the Evidence Act 2011 (Sections 84–85) introduced provisions for the admissibility of electronic records, judicial application of these provisions is uneven. Many judges and lawyers lack sufficient understanding of digital forensics, leading to conflicting interpretations and frequent rejection of electronic evidence. Some courts adopt an overly conservative stance, requiring burdensome certification processes that delay trials, while others admit evidence without rigorous evaluation, creating inconsistency and unpredictability in case outcomes (Okonkwo & Naish, 2018). These legal and technical shortcomings have serious implications for cybercrime control in Nigeria. Criminals often exploit these weaknesses, knowing that gaps in forensic capacity or admissibility rules may prevent their prosecution. This not only emboldens cybercriminal networks but also undermines public trust in the ability of the justice system to tackle financial crimes, terrorism, and digital fraud.

To address these challenges, Nigeria must invest heavily in digital forensic infrastructure and human capacity development. This includes training forensic experts, equipping law enforcement with cutting-edge tools, and fostering collaborations with global

cybersecurity institutions. In addition, legal reforms should aim to simplify and harmonize the admissibility of electronic evidence while ensuring that forensic processes meet international standards of credibility and reliability. Finally, public awareness campaigns highlighting the risks and consequences of cybercrime would complement forensic efforts by promoting deterrence and societal vigilance.

Recommendations on Forensic Evidence and the Modern Criminal Justice System in Nigeria

Forensic evidence has the potential to revolutionize Nigeria's criminal justice system by improving accuracy, fairness, and efficiency in investigations and prosecutions. However, realizing this potential requires deliberate reforms across legal, institutional, educational, and societal domains. The following recommendations are crucial:

1. **Strengthening Forensic Infrastructure:** Nigeria must invest in the establishment of regional forensic laboratories equipped with facilities for DNA analysis, toxicology, ballistics, fingerprinting, and digital forensics. Existing centers such as the Lagos State DNA and Forensic Centre (LSD&FC) should be expanded and replicated across all geopolitical zones. This would reduce delays, increase accessibility for rural and conflict-prone regions, and ensure that scientific analysis becomes a routine part of policing nationwide.
2. **Human Capacity Development:** A major gap in Nigeria is the acute shortage of skilled forensic professionals. Government and universities should establish specialized forensic science programs in partnership with international institutions to train forensic pathologists, toxicologists, psychologists, ballistic experts, and digital forensic analysts. Continuous professional development, exchange programs, and certifications would enhance expertise. Equipping law enforcement officers with basic crime scene management skills would also

improve the quality of evidence collected.

3. **Legal and Judicial Reforms:** Nigeria's legal framework must be updated to keep pace with technological advances. Specific reforms include:
 - a. Full implementation of the Evidence Act 2011 with consistent application of provisions on electronic evidence.
 - b. Judicial training programs to enhance judges' and lawyers' understanding of forensic science, ensuring proper evaluation of expert testimony.
 - c. Establishment of specialized forensic courts or forensic panels within existing courts to handle complex scientific evidence.
 - d. Adoption of clear admissibility standards, aligned with international best practices such as the Daubert standard, to ensure that only scientifically valid and reliable evidence is admitted.
4. **Standardization and Accreditation:** Forensic laboratories must adopt international quality assurance standards, such as ISO/IEC 17025, to ensure accuracy, reliability, and reproducibility of results. A national regulatory body should oversee forensic services, ensuring compliance with standardized protocols and minimizing risks of manipulated or flawed reports.
5. **Transparency and Independence:** To reduce corruption and political interference, forensic institutions should be structured as independent agencies separate from law enforcement. Such autonomy would safeguard impartiality, build credibility, and reassure the public that forensic science serves justice rather than political or personal interests.
6. **Integrated Forensic Databases:** Nigeria should establish national forensic databases, including DNA

registries, fingerprint repositories, and ballistic networks. These databases would enable law enforcement to track serial offenders, connect crimes across states, and improve intelligence-led policing. Data-sharing protocols among security agencies should be strengthened to enhance interagency collaboration.

7. **Investment in Digital Forensics:** Given the rise of cybercrime, Nigeria must prioritize digital forensic capacity-building. This includes acquiring modern forensic tools, developing indigenous forensic software, and training experts in advanced areas such as encryption recovery, blockchain analysis, and social media forensics. Legal provisions should also be refined to ensure smooth admissibility of electronic evidence.
8. **Adequate Funding and Resource Allocation:** The criminal justice system must receive increased budgetary allocations specifically earmarked for forensic science. Public-private partnerships could also be leveraged to fund forensic laboratories and training programs. Sustainable financing would reduce overdependence on foreign assistance and ensure consistent growth.
9. **Public Awareness and Trust-Building:** Public education campaigns should highlight the role and limitations of forensic evidence, countering misconceptions fueled by the “CSI effect.” By promoting transparency in forensic processes, authorities can enhance citizens’ trust in the justice system and reduce reliance on unreliable eyewitness testimony and coerced confessions.
10. **Regional and International Collaboration:** Nigeria should strengthen collaborations with international forensic bodies (e.g., INTERPOL, United Nations Office on Drugs and Crime) for technical support, capacity-building, and adoption of global best practices. Regional partnerships with other African states

could also foster joint forensic intelligence databases to combat transnational crimes such as trafficking, terrorism, and cyber fraud.

Implications of the Research Findings

The findings of this study on forensic evidence in Nigeria carry significant implications for the country’s criminal justice system, law enforcement practices, judicial processes, policymaking, and broader societal perceptions of justice. These implications can be examined under four broad dimensions:

1. **Implications for the Criminal Justice System:**

The research highlights that forensic evidence has the potential to transform Nigeria’s justice system from one heavily reliant on eyewitness testimony and confessions to a system grounded in scientific credibility and objectivity. This implies a shift towards greater accuracy in judicial outcomes, reduced risks of wrongful convictions, and increased fairness in criminal adjudication.

However, the identified challenges—such as inadequate forensic infrastructure, poor crime scene management, limited expertise, and judicial conservatism—indicate that the current justice framework is ill-equipped to fully harness the benefits of forensic science. This has serious implications for case backlogs, conviction rates, and public confidence in the courts.

2. **Implications for Law Enforcement Practice:**

The findings reveal that Nigerian law enforcement agencies still prioritize confessional statements and eyewitness accounts over forensic analysis. This reliance implies a policing culture that is reactive and outdated. The implication is that law enforcement officers need capacity building in evidence collection, crime scene management, and digital forensics to enhance investigative efficiency. Poorly handled forensic evidence not only undermines prosecutions but also erodes the credibility of police work. The

research therefore points to the necessity of systemic retraining and reorientation of the police force towards science-driven investigations.

3. **Implications for the Judiciary:** The study reveals that many judges and lawyers lack adequate understanding of forensic science, leading to either undue reliance on weak scientific claims or outright rejection of credible forensic evidence. The implication here is twofold:

- a. Without judicial literacy in forensic science, Nigeria risks a justice system that is unbalanced and inconsistent in its use of evidence.
- b. The courts may continue to privilege unreliable traditional evidence (such as eyewitness accounts and confessions) over scientific findings, perpetuating miscarriages of justice. This underscores the urgent need for judicial reforms and training programs to ensure forensic evidence is assessed with the rigor and objectivity it demands.

4. **Implications for Policy and Governance:** The findings suggest that Nigeria lacks the institutional, financial, and legislative frameworks to sustain a credible forensic system. Without targeted policy reforms, the credibility of forensic evidence will remain compromised.

- a. Policymakers must prioritize funding forensic science, as underfunding perpetuates dependence on foreign laboratories and hinders everyday crime resolution.
- b. Legal reforms are needed to strengthen the admissibility and regulation of forensic evidence, particularly in the context of digital forensics and electronic data.
- c. Establishing independent forensic institutions free from

political interference will enhance transparency and accountability, thereby improving governance and strengthening rule of law.

5. **Implications for Society and Public Trust:** The findings demonstrate that public trust in forensic evidence in Nigeria remains weak due to corruption, manipulated reports, and systemic inefficiencies. This has implications for the legitimacy of the justice system:

- a. If forensic evidence is perceived as unreliable or politically manipulated, citizens may continue to doubt the fairness of trials.
- b. Conversely, if properly implemented, forensic science has the potential to rebuild public confidence in the justice system by ensuring impartiality, fairness, and objectivity in investigations and prosecutions.
- c. Ultimately, strengthening forensic credibility has implications for social stability, crime deterrence, and democratic governance in Nigeria.

6. **Implications for Academic Research:** Finally, the research findings highlight the need for further academic inquiry into forensic science in Nigeria. Scholars could explore issues such as:

- a. Comparative studies between Nigeria and other African countries with more advanced forensic systems.
- b. The socio-cultural barriers to forensic adoption, including overreliance on confessions.
- c. The role of technology and artificial intelligence in advancing forensic science in Nigeria.
- d. This suggests that forensic evidence remains an under-researched area in Nigerian

criminology and law, with significant potential for academic and practical contributions.

Suggestions for Further Research

While this study has explored the role, challenges, and implications of forensic evidence in Nigeria's criminal justice system, several areas remain underexplored and call for deeper academic inquiry. These suggestions for further research include the following:

1. **Comparative Studies on Forensic Systems in Africa:** Future studies should compare Nigeria's forensic infrastructure, policies, and practices with those of other African countries such as South Africa, Kenya, and Ghana, where forensic science has made relatively greater progress. Such comparative research would provide lessons Nigeria can adopt and reveal region-specific challenges unique to West Africa.
2. **Forensic Education and Capacity Development:** Another crucial area is the state of forensic education in Nigeria. Few universities currently offer specialized programs in forensic science. Future research should explore how integrating forensic curricula into law, criminology, medicine, and police academies can help build a sustainable pipeline of experts.
3. **Public Perception and Trust in Forensic Evidence:** Public trust in Nigeria's criminal justice system is low, and skepticism extends to forensic practices. Future studies should employ survey-based and ethnographic research to investigate how citizens perceive forensic evidence and what social, cultural, or political factors influence their trust or distrust.
4. **Digital Forensics and Emerging Crimes:** The rapid rise of cybercrime, financial fraud, and terrorism underscores the importance of digital forensics. However, little academic research has been done on how Nigeria can overcome challenges of encryption, cloud computing, and cross-border digital evidence sharing. Future studies should address the impact of new technologies, such as blockchain, artificial intelligence, and the Internet of Things (IoT), on digital investigations.
5. **Legal and Judicial Attitudes Toward Forensic Evidence:** There is a research gap concerning how Nigerian judges, prosecutors, and defense lawyers actually understand, interpret, and apply forensic evidence in court. Future research could involve qualitative interviews or courtroom observations to analyze judicial attitudes and the consistency of forensic admissibility rulings.
6. **Forensic Databases and Criminal Intelligence:** Nigeria currently lacks a centralized national DNA, fingerprint, and ballistics database. Future research could examine the feasibility, ethical implications, and potential effectiveness of developing such national forensic databases, especially for tackling serial crimes and terrorism.
7. **Cost-Benefit Analysis of Forensic Investment:** Forensic science is resource-intensive, and Nigeria faces chronic underfunding in the justice sector. Future research should focus on cost-benefit analyses, evaluating whether investments in forensic infrastructure yield measurable improvements in crime detection, conviction rates, and public trust compared to traditional methods.
8. **The Role of Forensic Psychology and Behavioural Sciences:** Psychological and behavioural forensics remain underdeveloped in Nigeria. Future studies could explore how forensic psychology, criminal profiling, and lie-detection technologies could be institutionalized to complement physical and digital forensics in investigations.
9. **Anti-Corruption Safeguards in Forensic Practice:** Given the prevalence of corruption in Nigeria's justice system, further research should investigate how to build safeguards against manipulation of forensic reports, including independent oversight bodies, transparency mechanisms, and international collaborations.

REFERENCES

- Akinseye-George, Y. (2020). *Forensic science, human rights, and the Nigerian justice system*. Centre for Socio-Legal Studies.
- Alemika, E. E. O. (2013). *Police practice and the crisis of legitimacy in Nigeria*. University of Jos Press.
- Amnesty International. (2020). *Nigeria: Torture, ill-treatment, and unlawful detention in the criminal justice system*. Amnesty International Publications.
<https://www.amnesty.org>
- Beccaria, C. (1995). *On crimes and punishments* (R. Bellamy, Ed. & R. Davies, Trans.). Cambridge University Press. (Original work published 1764)
- Butler, J. M. (2015). *Advanced topics in forensic DNA typing: Interpretation*. Academic Press.
- Casey, E. (2021). *Handbook of digital forensics and investigation* (2nd ed.). Academic Press.
- Cohen, L. E., & Felson, M. (1979). Social change and crime rate trends: A routine activity approach. *American Sociological Review*, 44(4), 588–608.
- Constitution of the Federal Republic of Nigeria. (1999). *Chapter IV, Section 36*. Abuja: Federal Government of Nigeria.
- Evidence Act. (2011). *Laws of the Federation of Nigeria*. Federal Government of Nigeria.
- Faduyile, F. A., Olopade, F. E., & Oyebade, T. A. (2015). Challenges of forensic pathology practice in Nigeria. *Nigerian Journal of Medicine*, 24(1), 55–61.
- Hart, H. L. A. (1994). *The concept of law* (2nd ed.). Oxford University Press.
- Houck, M. M., & Siegel, J. A. (2018). *Fundamentals of forensic science* (3rd ed.). Academic Press.
- Igwe, P. N., Adeoye, A. A., & Uche, I. C. (2020). Forensic science and the Nigerian criminal justice system: Prospects and challenges. *Nigerian Journal of Criminology and Security Studies*, 7(2), 91–112.
- Keltus, D. O. (2022). Fingerprint analysis and forensic practice in Nigeria: Challenges and opportunities. *African Journal of Forensic Sciences*, 4(1), 33–49.
- Lagos State Government. (2017). *Commissioning of the Lagos State DNA and Forensic Centre*. Ministry of Justice.
- Lee, H. C., & Gaensslen, R. E. (2014). *Advances in fingerprint technology* (3rd ed.). CRC Press.
- Loftus, E. F. (2005). Planting misinformation in the human mind: A 30-year investigation of the malleability of memory. *Learning & Memory*, 12(4), 361–366.
- Mabunda, C. (2016). The role of forensic science in crime investigation in South Africa. *South African Journal of Criminal Justice*, 29(2), 145–163.
- National Research Council. (2009). *Strengthening forensic science in the United States: A path forward*. National Academies Press.
- Nwogu, V. C. (2019). The challenges of forensic evidence in Nigeria's criminal justice system. *Journal of African Law and Practice*, 11(1), 65–84.
- Nwosu, C. J. (2021). Forensic science and the admissibility of scientific evidence in Nigerian courts. *Journal of Law and Forensic Studies*, 9(2), 77–95.
- Ogunleye, R. T. (2021). DNA evidence and its admissibility in Nigerian courts: A critical review. *Ilorin Journal of Law*, 8(2), 119–134.
- Okafor, I. C. (2016). Eyewitness testimony and wrongful convictions in Nigeria. *Journal of Criminal Law and Criminology*, 14(1), 41–60.
- Okonkwo, C. O., & Naish, G. (2018). *Evidence in Nigerian law* (3rd ed.). Spectrum Law Publishing.
- Okorie, E. U. (2022). *The integration of forensic evidence in Nigeria's criminal justice system*. Justice and Security Press.
- Olaoye, A. K. (2020). The role of forensic science in curbing crime in Nigeria. *Nigerian Journal of Legal Studies*, 15(2), 101–120.
- Onwubiko, C., & Eboibi, O. (2020). Forensic investigation and electronic evidence in Nigeria: Problems and prospects. *Benin Journal of Public Law*, 9(1), 201–221.
- Saferstein, R. (2015). *Criminalistics: An introduction to forensic science* (11th ed.). Pearson Education.
- Turvey, B. E. (2012). *Criminal profiling: An introduction to behavioural evidence analysis* (4th ed.). Academic Press.

United Nations. (1984). *Convention against Torture and Other Cruel, Inhuman or Degrading Treatment or Punishment (UNCAT)*. UN General Assembly.

United Nations Office on Drugs and Crime (UNODC). (2016). *Handbook on forensic science and criminal justice cooperation*. Vienna: UNODC Publications.