International Journal of Criminal Justice Reform

FORENSIC EVIDENCE IN NIGERIA'S CRIMINAL JUSTICE SYSTEM: LEGAL CHALLENGES, INSTITUTIONAL DEFICIENCIES AND THE IMPERATIVE FOR POLICY REFORM

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DOI: HTTPS://DOI/10.5281/ZENODO.16282229

Abstract

Forensic evidence plays a crucial role in the criminal justice system, providing scientific means to support or challenge accusations, confirm facts, and contribute to solving crimes. In Nigeria, forensic evidence is increasingly gaining importance in criminal investigations, legal proceedings, and the overall administration of justice. However, the effective integration of forensic evidence into the criminal justice system faces various challenges, including underdeveloped forensic infrastructure, inadequate training of personnel, and a lack of legislative frameworks. The aim of this work is to explore the role and impact of forensic evidence in the Nigerian criminal justice system. The doctrinal method of research was employed in the course of the research, analyzing primary sources of laws, such as statutes and case laws, and secondary sources of laws, such as journals and articles. Relevant cases, including *Kasa v. State*, were analyzed to evaluate how the courts have treated forensic evidence and its role in resolving complex legal issues. Additionally, some key statutes, such as the Evidence Act, were examined to assess the extent to which Nigerian law has addressed the admissibility of forensic evidence. Thus, a systematic analysis of legal

DOI: HTTPS://DOI/10.5281/ZENODO.16282229
PUBLISHED 21-07-2025
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doctrines, principles and rules were explored to better understand the use of forensic evidence in the Nigerian criminal justice system. In view of the foregoing, this work focuses on the relevant legal and institutional framework in Nigeria that provides, either directly or indirectly, for forensic evidence, and examines how these provisions are implemented with a view to resolving complex legal issues within the criminal justice system. This work also undertakes a comparative analysis of other jurisdictions, particularly the United States, England and Wales, and Ghana, pointing out the lessons learnt from these jurisdictions. The work reveals that there is presently no piece of legislation expressly providing for the use of forensic evidence in details. Also, there are limited laboratories and as such, the analysis of forensic evidence in these laboratories are somewhat slow. It was recommended, *inter alia*, that there should be a specific law governing the admissibility of forensic evidence. In addition, the government should ensure that funds are provided to train experts on forensic activities, as well as provide funds to build and equip forensic laboratories in Nigeria.

Keywords: forensic science, forensic evidence, crime, criminal, justice.

Introduction

The use of forensic evidence, a key component in forensic science, in criminal justice systems globally has transformed crime investigation. Before delving specifically into the discussion on forensic evidence, it is essential to first consider the broader context: forensic science. According to the American Academy of Forensic Sciences (AAFS, 2025), any science used for the purposes of the law is a forensic science. It is widely used in the investigation of crimes, and is recognized as a valuable tool in administering justice (Koul *et al,* 2024). Forensic evidence, on the other hand, involves a broad range of scientific disciplines, including DNA analysis, toxicology, ballistics, fingerprinting, and digital forensics, all of which contribute valuable information for law enforcement agencies and courts, in the criminal justice system (Airout and Azam, 2025). Reaching back into history, numerous developments on forensic science can be identified, which have evolved into the practice of today and continue to shape its future trajectory. For instance, one of the earliest recorded applications of forensic science occurred in the 700s, when the Chinese used fingerprints to establish the identities of documents and clay sculptures (Han, 2019). Another notable happening in the history of forensic science was when the Chinese published the book "Xi Yuan Lu" which translates in English to mean *The Washing Away of Wrongs*, in 1248 (Han, 2019). The book was authored by Song Ci (1186 – 1249 AD), and is known to have distinguished drowning from strangulation (Epstein, 2018).

Furthermore, various methods were employed in different parts of the world to identify suspects who were believed to have committed crimes. In ancient India, some suspects were made to fill their mouths with dried rice and spit it back out. It was believed that this test had some validity, since a guilty person would produce less saliva and have a drier mouth (Wikipedia, 2025), thus, the accused would be considered guilty if rice was sticking to their mouths in abundance. Also, in

ancient Middle-East cultures, the accused were made to lick hot metal rods briefly. The accused would be considered guilty if the rod severely burnt the tongue because of lack of adequate shielding from saliva (Wikipedia, 2025). With advancements in the development of forensic science, the first forensic laboratory was notably established in Lyon by the French criminalist Dr. Edmond Locard (1887-1966). He became known as the "Sherlock Holmes of France", Sherlock Holmes being a fictional character, an English detective precisely, in the work of the Scottish physician and writer, Sir Arthur Conan Doyle, whom Dr. Locard admired (Balláné, 2016). Subsequently, the Los Angeles Police Department founded its own crime laboratory in 1923, and this was followed by the Federal Bureau of Investigation in 1926 (Wikipedia, 2025) Presently, there are several established forensic labs around the world, both public and private, that provide scientific aid in solving legal issues.

In Nigeria, the use of forensic evidence is becoming increasingly important as the State seeks to improve its criminal justice system and enhance the efficiency and accuracy of criminal investigations. The use of forensic evidence in investigations and trials has steadily gained in popularity as an effective and powerful tool for seeking truth and justice (Oniha & Oniha, 2018). Over the time, the Nigerian legal system has recognized the importance of forensic evidence and its impact in strengthening investigation. However, its application has progressed at a sluggish pace due to a lack of infrastructure, skilled personnel, and legal frameworks. Despite these challenges, forensic evidence is becoming more prominent in criminal investigations, particularly in high-profile cases such as murder, sexual assault, and corruption. In the light of the above, it will be pertinent to explore the role of forensic evidence in Nigeria's criminal justice system, examining recent legislative developments, comparing Nigerian practices with those of other States, and highlighting the challenges and opportunities for improvement.

Definition of Key Concepts

DNA Profiling

In 1953, DNA was first described by Watson and Crick as double stranded molecule that adopts a helical arrangement (Bukyya, *et al,* 2021). It consists of two long twisted chains made up of nucleotides; each nucleotide contains one base, one phosphate molecule and the sugar molecule deoxyribose (NIGIS, *n.d*).

IJCJR VOL. 1, ISSUE 1, PP 01– 25, 2025
DOI: HTTPS://DOI/10.5281/ZENODO.16282229
PUBLISHED 21-07-2025
WWW.EMSAJPUBLISHERS.ORG/IJCJR

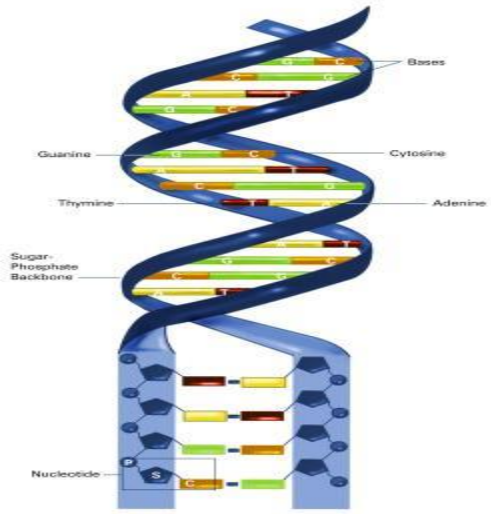


Fig. 1.0 Structure of a DNA (https://nigms.nih.gov/image-gallery/2542)

DNA profiling (also known as DNA fingerprinting) simply entails the process of determining an individual's deoxyribonucleic acid (DNA) characteristics (Wikipedia, 2025). DNA profiling is a core method of obtaining a positive identity, especially in the absence of antemortem dental (dental information collected before death) and medical records, that is, health-related records gathered during a person's life (Science Direct, 2025). Most importantly, it provides legal support in the investigation of crimes. Thus, it is a series of tests and techniques employed to evaluate and identify the genetic information contained within an individual's cell and in forensics; it is defined as the comparison of genetic information of a person to evidence found at the scene of crime (Science Direct, 2025). Steps in DNA profiling may include the collection of the DNA from the crime scene (Science Direct, 2025); DNA extractions, where the DNA is isolated from cells in a sample such as blood, saliva or tissue (which fall under biology evidence), and it ensures that the genetic material is purified and ready for analysis; quantification of the DNA, where after extraction, the DNA is measured to ensure there is enough accurate testing; application of human-specific (which is usually up to 23) short tandem repeat (ST) loci; and separation capillary columns, where the amplified DNA fragments are separated and analyzed using capillary electrophoresis - a method that permits scientists to measure the size of DNA fragments and make a comparison with reference samples (Linacre & Templeton, 2014).

Forensic Ballistics

Ballistics is a science that deals with the motion of projectiles and forensic ballistics is the branch of forensic science that deals with every aspect of firearms, ammunitions and fire wounds (GFSL, 2024). Forensic ballistics entails the analysis of evidence related to firearms suspected to have been used to perpetrate criminal activities (NIST, *n.d)*. When a bullet is discharged from a firearm, the weapon imparts microscopic markings onto the bullet and cartridge case. These distinctive

markings, often referred to as "ballistic fingerprints," serve as unique identifiers, enabling investigators to link the evidence to a specific firearm (NIST, *n.d)*.



Fig 1.1 Special hollow-point bullet viewed from the side showing the intending terminal ballistics sometimes referred to as mushrooming (https://en.wikipedia.org/wiki/Forensic_firearm_examination)

Fingerprints

Fingerprints identification is a form of biometrics, which is a science that make use of people's physical or biological characteristics to identify them. When a fingerprint is found at a crime scene, it is referred to as a finger mark or latent print and comparing these prints against others have a potential of linking the suspect(s) to the scene of the crime (Interpol, *n.d.*). Notably, no two fingerprints are the same, not even those of identical twins.



Fig 1.2 Image of a fingerprint (https://images.app.goo.gl/gLFUnrkKwJQrk5jU7)

Forensic Toxicology

Forensic toxicology involves the examination of biological specimens to detect the presence of toxins, including pharmaceutical and illicit substances. A toxicology report offers critical insights into the types of substances present in an individual and assesses whether their concentrations align with therapeutic levels or exceed toxic thresholds (NIJ, *n.d.*). These findings are instrumental in evaluating the potential role of a substance in contributing to an individual's death, illness, or mental and physical impairment.

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PUBLISHED 21-07-2025
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Odontological Evidence

This deals with the handling and demonstration of dental evidence in the court of law. Forensic odontology plays a pivotal role in identifying the human remains of victims, not only those of mutilated, burnt and decomposed but also victims of bioterrorism and mass disasters (Mohammed *et al,* 2023).

Review of Related Literature

It is vital to explore other relevant works on forensic evidence to gain a broader understanding of its role within the Nigerian criminal justice system. This section reviews existing scholarly works on forensic evidence in Nigeria, with particular reference to contributions by leading legal authors and academics. Wakili, S.A., *et al.*, in their work, highlighted that forensic science has become the backbone of criminal investigation around the world in terms of supporting law enforcement agencies in the collection and analysis of evidence before its presentation in court (Wakili, S.A., *et al,* 2025). They noted that with this 'sophisticated technology', the accuracy of legal proceeding increases substantially, reducing the burden of witness testimony on which the court has to rely but which sometimes end up being incorrect. They further noted that although much effort has been made to integrate forensic science into the Nigerian criminal justice system, problems remain in the legal, institutional and technical areas. Thus, they identified issues such as inadequate infrastructure, inconsistent judicial interpretation, lack of specialized training for law enforcement officers etc. Notwithstanding the extensive discussion of the authors on forensic science and how it has played its role in the Nigerian criminal justice system, the authors did not adequately compare developments in other jurisdictions so as to illustrate how forensic science and evidence has improved and impacted in these other jurisdictions.

Eboibi & Mac-Barango (2020), explored the application of digital forensic evidence in Nigeria. They pointed out that the global advancement of information and communication technology (ICT) has resulted in the use of a computer in general daily activities, such as commercial services, research, online marketing/advertisement, online banking etc. They noted that these devices contain digital evidence that can be of help in the event where any dispute arise (Eboibi & Mac-Barango, 2020). In their work, they raised some important questions such as whether there is a law regulating digital forensic evidence in Nigeria, whether digital forensic evidence can take the place of a presiding judge or magistrate, or whether there are any circumstances in which digital forensic evidence can be discarded. Importantly, also, they examined the judicial approach to the admissibility of forensic evidence and noted that where the court is desirous of a forensic expert, the competence of the expert may determine the acceptability of the opinion rendered before the court. That being the case, the authors noted rightly that an expert only aids the court in forming an opinion regarding a particular circumstance. Such an expert is not in court to insist that the court must accept his opinion or that the forensic evidence is final. While the authors recommended the enactment of a separate law to regulate digital forensic and digital expert evidence, they failed to make other vital recommendations such as establishing and equipping more forensic laboratories in Nigeria,

Olude (2024) examined the acquisition and utilization of trace evidence in Nigeria within the human rights framework. In other words, through a human rights lens, it explored the potential risks of abusing trace evidence and advocates for safeguards to protect individual rights. He noted in his work that trace evidence analysis is used to identify, compare, and individualize the source of evidence to aid in crime scene reconstructions. He rightfully pointed out that the use of forensic evidence ought to be in alignment with fundamental rights principles to ensure fairness, accuracy and justice in the legal process. Thus, his work basically examined the intersection of human rights and forensic evidence. However, while the author made an effort to explore the topic from the lens of fundamental rights, there were insufficient discussion on the broader legal framework governing the admissibility of forensic evidence, with an overreliance on the Evidence Act 2011. This work seeks to fill these gaps by providing a detailed explanation of the legal framework governing forensic evidence in Nigeria, pointing out the challenges and loopholes in the extant laws, identifying inadequacy in the performance of relevant institutions, and giving a comparative analysis of other jurisdiction. This will aid in understanding global best practices for forensic evidence and how Nigeria could strengthen its legal and institutional frameworks.

Methodology

The doctrinal method of research was adopted in this work, which is very appropriate for analyzing legal rules, principles and judicial interpretations. This method involves a careful examination of statutes, case law, legal texts and scholarly works, so as to highlight the extant legal position on the subject of forensic evidence and its admissibility in Nigeria. Primary sources of law such as the Evidence Act 2011 (as amended) and the NAFDAC Act 2004; and relevant case laws were examined. The work also looked at secondary sources including journals, articles, newspaper publications and commentaries by legal scholars to provide context, critique and comparative insights. Additionally, references were made to other jurisdictions where necessary in order to highlight best practices regarding the subject of forensic evidence.

Legal Frameworks of Forensic Evidence

It is deeply concerning that, despite the technological advancements of the modern era, Nigeria still lacks a comprehensive legislation regulating forensic evidence. This omission in the legal framework, particularly within the realm of criminal law, highlights a critical oversight. Even the authors acknowledge the gravity of this issue, noting the substantial implications of this gap in legal regulation. What is the nature of law? One fundamental fact that Nigerian legislators fail to understand is that law is organic; it evolves over time and adapts to societal changes and needs. It is shaped by the history, current events, and potential future developments of a society. It develops with time and expands its scope to cover what was left uncovered and what was never covered in the first place. It also redefines and reshapes existing provisions. If any piece of legislation is to remain useful, it must as far as is reasonably practicable be responsive to the needs and challenges facing the society that it is designed to serve (Adangor, 2015).

IJCJR VOL. 1, ISSUE 1, PP 01– 25, 2025
DOI: HTTPS://DOI/10.5281/ZENODO.16282229
PUBLISHED 21-07-2025
WWW.EMSAJPUBLISHERS.ORG/IJCJR

Forensic evidence, as was earlier noted in this work, is only a component of the broader field of forensic science. Thus, there is need for a legislation that puts together all these components of forensic science, make it whole, and regulate the application of such in the practice of law in Nigeria. However, there is no one particular law dedicated solely for the provision of the application of forensic evidence in the practice of law in Nigeria, and in Criminal Law as in this context, it is imperative to examine other provisions that likely provided for the application of forensic evidence in the criminal justice system in Nigeria.

The Evidence Act 2011 (as amended)

The Evidence Act is the principal legislation governing the admissibility of evidence in a court of law in Nigeria. It applies to all judicial proceeding in or before any court established in the Federal Republic of Nigeria, though it does not apply generally to:

a. proceeding before an arbitrator;
b. a field general court martial; or
c. judicial proceeding in any civil cause or matter in or before any Sharia Court of Appeal, Customary Court of Appeal, Area Court of Customary Court… (Evidence Act, 2011, s. 256)

Some evidence gotten from forensic science can be regarded as forms of opinion evidence. An opinion evidence refers to a belief not based on certainty or knowledge but on what seems true or probable (Akinseye-George, 2001). An opinion has a different meaning from a "fact", as the latter is defined by the Evidence Act to include anything, state of things or relation of things, capable of being perceived by the senses, and any mental condition of which any person is conscious (Evidence Act, 2011, s. 256). Generally, the opinion of a person regarding the existence or non-existence of a fact is irrelevant and inadmissible in court. The Act provides that the opinion of any person as to the existence or non-existence of a fact in issue or relevant to the fact in issue is inadmissible (Evidence Act, 2011, s. 67). Thus, in accordance with the foregoing discussion, some forensic evidence in the context of criminal law, *simpliciter*, can be described as the expert opinion of what an analyst thinks is the cause or probable cause of a crime. The Act provides that when the court has to form an opinion upon a point of foreign law, customary law or custom, or of science or art, or as to the identity of handwriting or finger impressions, the opinions of persons specially skilled in the above areas are admissible (Evidence Act, 2011, s. 68(1)). Notably, the persons that are so specially skilled in the aforementioned fields are called experts (Evidence Act, 2011, s. 68(2)). Additionally, the Supreme Court in *Omisore & Anor v. Aregdelete besola & Ors* (2015) described an expert witness as one who has made the subject upon which he speaks a matter of particular study, practice or observation and he must have a particular and special knowledge of the subject.

In the light of the above, some of the evidence derived from forensic science are not facts. This is especially where the nature of the evidence is not one that is perceived by any of the senses. Thus, there becomes a need for a forensic expert to be called by a party in order to aid the court form an

"opinion" on the scientific nature of the evidence before it. That being the case, forensic evidence, whether a fact or an opinion, is admissible in court by virtue of section 68 of the Evidence Act 2011 (as amended). Since it has been established that forensic evidence is admissible in court, it is pertinent at this juncture to delve into the historical development (under the Evidence Act) of forensic evidence in Nigeria, tracing its origins and evolution in the Nigeria's legal system. The Evidence Act of 1945, which is the very first Act established in Nigeria for the purpose of giving evidence in court, made a similar provision with the extant Act regarding the nature of an opinion evidence and the admissibility of such.

Notably, the early engagement of the courts in Nigeria with forensic evidence were predominantly on digital forensic evidence (Haruna *et al.,* 2024). For clarity, digital forensics can be referred to as the process by which digital evidence is collected and analyzed in a way that maintains its integrity and admissibility in court (Badman & Forrest, (2024). It is the branch of forensic science that deals with recovering, investigating and preserving digital evidence while upholding legal standards (Mohanakrishnan, 2022). It technically involves gathering evidence from any form of digital device. Having pointed this out, it becomes imperative to understand the perception of the court and legal practitioners then towards the admissibility of a digital forensic evidence. Notwithstanding the exception made for the admissibility of opinion evidence under the Evidence Act of 1945, through which forensic evidence provided by an expert becomes admissible, it garnered limited acceptance due to the nature of the evidence. Summarily, section 2 of the Act defines a document as including books, maps, plans, graphs, drawings, photographs, and any matter expressed or described on any substance using letters, figures, marks, or a combination thereof, intended or capable of being used to record that matter. The fact that digital forensic evidence has an electronic nature meant that the content of section 2 of the Evidence Act 1945 did not accommodate electronically generated evidence (Wakili, 2025). Thus, this limitation arguably led to the decrease of the use of digital forensic evidence to settle disputes then, in the Nigerian courts. However, with the enactment of the Evidence Act 2011, one of the innovations of the Act is the inclusion of the admissibility of an electronic generated evidence (like a video from a phone or digital camera, a screenshot of a WhatsApp text or an email). The law provides that in any proceeding a statement contained in a document produced by a computer shall be admissible as evidence of any fact stated in it of which direct oral evidence would be admissible (Evidence Act, 2011, s. 84(1)). For it to be admissible, the following conditions must be in place:

a. that the document containing the statement was produced by the computer during the period over which it was used regularly to store or process information for the purpose of activities regularly carried on over that period;
b. that over that period, information of the same kind contained in the statement was regularly supplied to the computer in the ordinary course of activities;
c. that throughout the material part of that period the computer was operating properly or, if not, that in any respect in which it was not operating properly or out of operation during that part of the period was not such as to affect the production of the document or the accuracy of its contents; and

d. that the information contained in the statement is derived from information supplied to the computer in the ordinary course of business (Evidence Act, 2011, s. 84(2)).

Hence, with the above provision, digital forensic evidence can now be admissible in court provided the conditions for the admissibility of such evidence are satisfied. For instance, where a video recorded by a closed circuit television (CCTV) is sought to be tendered to prove that a defendant was at a crime scene, the conditions in section 84(2) of the Evidence Act must be met. Furthermore, in cases where the defendant challenges the authenticity of the video, an expert could be called by the prosecution in court to analyze the video for signs of manipulation, or verify the metadata to confirm when and how the video was recorded. Such evidence by the expert would be admissible under section 68 of the Act, so far the expert states their qualifications before the court. Such evidence must equally be relevant, and if in a civil case, pleaded and ought to be tendered by the forensic expert in person so that they would be cross examined on the document (*Abiodun v FRN*, 2016).

The Evidence Act 2011 significantly enhances the admissibility of forensic evidence by providing a framework that allows for advancements in technology. For physical forensic evidence, there is no need for compliance with section 84 of the Act, as what is required is that an expert attends the court proceeding and give their opinion on the evidence (that is where an expert is required). However, for digital forensic evidence, the provisions of section 84 of the Evidence Act must be strictly adhered to. Thus, these provisions collectively ensure that forensic evidence, including digital and physical forms, can be effectively used in Nigerian courts, fostering the integration of science into legal proceedings. It is worthy of note that although the Act makes provisions for the admissibility of evidence, generally, there is no detailed provision for the admissibility of forensic evidence, and this leaves it open to the court's discretion to either accept or reject such evidence. Forensic evidence is unique in nature, as it involves the application of science and technology in the practice of law. For the fact that many legal practitioners and judges may have limited scientific knowledge, there is need for a clear judicial guidance on the admissibility of such evidence. It is imperative at this juncture to study some relevant cases on the Evidence Act and forensic evidence, and the position of the court with respect to same, in order to buttress the point on the importance of the utilization of forensic evidence in crime investigation in Nigeria.

In *Kasa v State* (1994), the appellant together with another accused person were convicted of culpable homicide punishable with death by the High Court of Sokoto State sitting at Gausau. The deceased was discovered dead in her bedroom by her mother (PW1) on the morning of the incident. PW1 found the house door open, blood covering the bedroom, and the deceased lying on her back. PW1 exclaimed that the 1st defendant had fulfilled his threat to kill the deceased. She summoned one Mamman (PW2), who subsequently reported the matter to the Village Head (PW3). The PW3 confirmed the incident and directed the PW2 to notify the police. Three policemen visited the scene and reported the case to Zuru Divisional Crime Branch, prompting the PW7 (the Investigating Police Officer) to investigate the matter. The PW7 transported the deceased's body to the General Hospital at Zuni for a post-mortem. The appellant and the 2nd defendant were arrested based on intelligence and volunteered statements, which were tendered as evidence.

Further investigation led the PW7 to the appellant's residence, where a blood-stained shirt and shorts were recovered. At the deceased's house, a blood-stained pillowcase was also found. Also, a blood-stained pair of trousers was discovered at the 2nd defendant's residence. The learned trial judge convicted the appellant and 2nd defendant and sentenced them to death.

At the Supreme Court, it was held (upholding the judgement of the Court of Appeal) that the discovery of the bloodstained shirt in the appellant's house has not proved anything worth considering as corroborative evidence in the absence of a forensic report which confirms the stains on the shirt as human blood and that it was the blood of the deceased that stained the shirt. The court further held that the investigation in that regard had not been conducted to its logical conclusion. In essence, the Supreme Court is saying that the discovery of a bloodstained shirt in the appellant's house is not sufficient to prove corroborative evidence that the deceased was killed by the appellant, unless it was confirmed by a forensic report and the report will confirm that the blood stain was that of human and belonged to the deceased. Thus, without this confirmation, the bloodstain shirt cannot be relied upon as evidence linking the appellant to the crime. The pronouncement of the court in this case reveals the importance of forensic evidence in court proceedings. It is likely to encourage the prosecution to resort to the utilization of forensic evidence to corroborate other evidence tendered for the purposes doing justice and securing a conviction. Defendants, on the other hand, may also leverage forensic evidence to dispute the evidence tendered by the prosecution, and establish their innocence.

In another case, the Court of Appeal stressed on the importance of a forensic laboratory. The Court in *State v Danjummai* (1996) held that "the whole mark of a forensic laboratory test is to enable a court of law, through its analysis, to arrive at a proper conclusion on a contested question which affects the life or property of a person and therefore a report from a forensic laboratory is akin to a medical report. This judicial recognition of the importance of forensic laboratories may have contributed to the establishment of the few existing forensic laboratories in Nigeria by the government. Finally, it is noteworthy that a party has the right to summon a forensic expert or analyst to cross-examination, as failure to do it timeously can shut such party out from doing so, and the claim that the right to fair hearing was denied the party cannot hold water. In *Blessing v FRN* (2015) the appellant, who was charged with a three count charge for unlawful possession and unlawfully dealing with Indian hemp, contended that the Drug Analysis Report (Exhibit 4) was improperly admitted in the circumstances of the case on the ground that it was tendered by the PW1 (one Ahmed A. Suleiman) who was neither the maker nor an expert in the field of drug analysis and who therefore could not be cross-examined on its contents. She further contended that even if the maker (one Afolabi, P.O.) who signed the document as a Forensic Analyst under the NDLEA was called to tender Exhibit 4, it would not cure its inadmissibility because a Forensic Analyst is not one of the specified officers named in section 55 of the Evidence Act 2011. In its finding, the Court held that the evidence was properly admitted, having found the PW1 to be an expert in the field of drug analysis. The court further held that (since the appellant claimed the drug analyst was not called by the prosecution) she had the option of applying to the court to summon the analyst (Afolabi, P.O.), for cross-examination but failed to take advantage of this option, and that therefore, it was too late in the day to complain at the Supreme Court. The

DOI: HTTPS://DOI/10.5281/ZENODO.16282229
PUBLISHED 21-07-2025
WWW.EMSAJPUBLISHERS.ORG/IJCJR

importance of the application of forensic science in crime investigation in Nigeria cannot be overemphasized, as it has often aided the court in reaching a conclusive prove that a crime was committed or not committed by a defendant.

The Chartered Institute of Forensic and Certified Fraud Investigators of Nigeria (Establishment) Act, 2022

This is an Act that establishes the Chartered Institute of Forensic and Certified Fraud Investigators of Nigeria (CIFCFIN), to provide for the regulation and control of its membership, promote the practice of forensics and fraud investigation in Nigeria, among other connected matters. The Institute is a body corporate which have a common seal and may sue or be sued in its corporate name (CIFCFIN 2022, s. 1).

The Institute has such objectives as:

a. organizing and providing professional training in the specialist areas of forensics and fraud investigation;
b. professionalizing forensics and fraud investigation with a commitment to raise great leaders in all sectors of the economy;
c. promoting art and science in the area of forensic and fraud investigation;
d. educating, conducting, and establishing approaches to the forensic and fraud investigation practice;
e. facilitating collaboration between public and private sectors of the economy on forensics and fraud investigation measures;
f. integrating cultural and ethical standards in the specialist areas of forensic and fraud investigation practice;
g. being a regulatory body for forensics and fraud investigation in Nigeria for its members only;
h. imbibing professionalism in both the private and public sectors of the economy for efficiency and effectiveness in line with global best practices;
i. doing such other things that are necessary to promote the advancement of forensic and fraud investigation in both public and private sectors of the economy (CIFCFIN 2022, s. 2).

Thus, the Institute primarily establishes a professional body to regulate the training, certification and practice of forensic and fraud investigators, ensuring professionalism and standardization in forensic practice. Notably, speaking on the significance of the Institute, the CIFCFIN President, Dr. Iliyasu Gashinbaki, informed the populace that the institute would partner more robustly with other enforcement agencies such as the Economic and Financial Crime Commission (EFCC), Independent Corrupt Practices and Other Related Offences Commission (ICPC), and other agencies in the war against corruption, illicit financial flows and other forms of criminality in Nigeria (Aliogo & Ejisu, 2022). Thus, he further added that this is why the Institute is poised to usher Nigeria into the era of scientific investigation, hence the necessity for more forensic

laboratories across the country Interestingly, he explained that the forensic laboratories would be established everywhere in Nigeria to aid in the analysis of things like finger prints. He was also noted to have further said that the Institute will play a major role in the 2027 elections in its work with the Independent National Electoral Commission (INEC), so as to ensure that no forged certificate will see the light of the day (Aliogo, U, and Ejisu).

Thus, the CIFCFIN Act is a valuable development in the advancement of forensic science in Nigeria. Although it does not constitute a comprehensive law on forensic evidence, it contributes to the standardization of forensic process by establishing certification and ethical standards for forensic professionals, and advocating for the establishment of forensic laboratories nationwide.

The National Agency for Food and Drug Administration and Control (NAFDAC) Act 2004

The Act establishes the NAFDAC with the functions to regulate and control the importation, exportation, manufacture, advertisement, distribution, sale and use of food, drugs, cosmetics, medical devices, bottled water and chemicals, among others. The Act does not explicitly accommodate forensic science as a core function of the Agency. However, certain provisions may have indirect implications for forensic science in the context of regulating substances or ensuring compliance with safety standards.

The above notwithstanding, there are several indirect connections that the functions of the NAFDAC has with forensic science. It is pertinent to study some of these connections. The Agency is empowered by the Act to:

1. conduct appropriate tests and ensure compliance with standard specifications designated and approved by the Council for the effective control of the quality of food, drugs etc., as well as their production processes in factories and other establishments (NAFDAC Act, s 5(b));
2. undertake appropriate investigations into the production premises and raw materials for food, drugs, cosmetics etc., and establish relevant quality assurance systems, including certificates of the production sites and of the regulated products (NAFDAC Act, s 5(c));
3. undertake inspection of imported food, drugs, cosmetics etc., and establish relevant quality assurance systems, including certification of the production sites and of the regulated products (NAFDAC Act, s 5(d);
4. establish and maintain relevant laboratories or other institutions in strategic areas of Nigeria as may be necessary for the performance of its functions under the Act (NAFDAC Act, s 5(h));
5. pronounce on the quality and safety of food, drugs, cosmetics, medical devices etc., after appropriate analysis (NAFDAC Act, s 5(i));
6. collaborate with the National Drug Law Enforcement Agency in measures to eradicate drug abuse in Nigeria (NAFDAC Act, s 5(l));
7. undertake and co-ordinate research programmes on the storage, adulteration, distribution and rational use of food, drugs, cosmetics, medical devices etc. (NAFDAC Act, s 5(n));

8. compile and publish relevant data resulting from the performance of the functions of the Agency under the Act or from other sources (NAFDAC Act, s 5(p)).

While it is true that the functions specified above and the other functions in the Act are primarily regulatory and focus on public health and safety rather than forensic science's investigative and evidentiary role; and that there is no direct mention of forensic evidence or use of scientific methods to solve legal disputes, the provisions involving testing and inspections, establishment of relevant laboratories and collaboration with other agencies such as the NDLEA, may overlap with forensic techniques when investigating the safety or authenticity of regulated substances. There may be need for the use of science to test the quality of drugs, foods, cosmetics, medical devices etc., or to test that psychotropic substances are limited to medical and scientific purposes. Establishing laboratories where these required tests are to be conducted opens up the possibility for the practice of forensic toxicology, for the purpose of detecting illicit substances.

Lagos State Deoxyribo-Nucleic Acid (DNA) and Forensic Centre (LSD&FC) Bill 2022

In September, 2022, the Lagos State House of Assembly passed a Bill for the establishment of the State Deoxyribo-Nucleic Acid (DNA) and Forensic centre to support criminal investigations, law enforcement, preservation of evidence for the judicial system and for other connected purposes. The bill was passed by the House after it scaled the third reading at plenary with all lawmakers in attendance giving their approvals (Okoh, 2022). The bill gives legal powers to the centre to take specific bodily samples from certain categories of persons for the purposes of DNA analysis; collect, examine, document and preserve evidence which can later be used in the identification of offenders, among others (Oluwafemi, 2022). The bill grants the centre the legal authority to collect specific bodily samples from designated individuals for DNA analysis. It also empowers the centre to collect, examine, document, and preserve evidence for the identification of offenders and other investigative purposes. Additionally, the bill authorizes the centre to establish familial relationships and identities, resolve disputes concerning abandoned or contested children, and address other related matters (Oluwafemi, 2022).

Notably, the Lagos State Government established the LSD&FC, which is a not-for-profit crime laboratory, in 2017 so as to enhance public safety by adopting scientific techniques to resolve legal issues and support investigation. Interestingly, the centre is the first of its kind in the whole of West Africa (Wikipedia, 2024). This is indeed, a step in the right direction and commendable too.

Case Studies: Forensic Science in Nigerian Crime Investigations

In a lecture delivered by SP Ibrahim A. Yusuf at the State CID of the Nigerian Police Force, Yaba, Lagos, he noted that forensic science has evolved from an investigative option to a core aspect of criminal investigations, aiding in identifying suspects, testing hypotheses, and reconstructing events and that its growth is driven not solely by technological advances but also by social, political, legal, economic, and professional influences (Yusuf, 2022). Life cases on how forensic science has been utilized in resolving legal puzzles were showcased in his work.

DOI: HTTPS://DOI/10.5281/ZENODO.16282229
PUBLISHED 21-07-2025
WWW.EMSAJPUBLISHERS.ORG/IJNSBH

For instance, on 31 March 2019, at the Onipetese Estate in the Mangoro area of Lagos, the deceased, one Kolade Johnson (male), was fatally shot by one Inspector Ogunyemi Olalekan (male), who was attached to the Anti-Cultism Squad of the Nigeria Police Force, Lagos Command. During the investigation, the suspect denied the allegation. However, ballistic analysis linked the calibre of ammunition recovered from the scene to the type of rifles issued to personnel for the operation. All rifles utilized during the operation were subjected to ballistic examination. An AK-47 rifle with breech number 55623, issued to Inspector Ogunyemi Olalekan, was found to match the ammunition that fatally struck the deceased, Kolade Johnson. Justice Coker of the Lagos High Court subsequently found the defendant guilty and sentenced him to life imprisonment (Yusuf, 2022).

Another instance in the work also portrayed the concept of geolocation (which is the identification of a device or user's physical location using various data points) and tracking. There are several reasons that can prompt the police to track a person or device, for example where the person is a suspect or if the safety of the person is a concern. On 26 November 2021, at approximately 8 o'clock PM, on Ogunlewe Street, Igbogbo, Ikorodu, the deceased, Michael Akerele (male), was fatally shot by three fleeing hoodlums, who also stole his iPhone 11. He was immediately rushed to Ikorodu General Hospital, where the doctor on duty confirmed him dead. The tracking method was resorted to and applied. Akeem Akinwale (male) was arrested at coordinates (6.619, 3.5105) as the receiver of the stolen iPhone 11. He had purchased the device from one Francis Olamide (male). Olamide Francis in turn had obtained the phone from Azeez Anjorin (male), the last suspect currently in custody. Azeez Anjorin claimed that he acquired the iPhone 11 from an individual known as "Bay," who was at large at the time the investigation was being carried out (Yusuf, 2022).

In another case where forensic toxicology was applied, on 4 June 2022, at an undisclosed facility in Lagos, a female individual, identified as Gabriel Christabel (real name withheld), now deceased, sought a Brazilian Butt Lift procedure (Yusuf, 2022). The surgery was successfully performed on 27 June 2022, and she remained under close observation at the facility. On 30 June 2022, a friend travelled from Abuja to visit her. Shortly after the friend's departure, the patient's health deteriorated. Despite all efforts to resuscitate her, she was pronounced dead by the doctor on duty. While the family members of the deceased complained of medical negligence, the hospital suspected food poisoning. The Police on the other hand, suspected a suspicious movement from the friend of the deceased who visited the hospital. At the scene where the body of the deceased was found, the police recovered unauthorized drugs administered by her friend. Blood samples, bile samples, gastric contents and urine samples were taken and subjected to toxicology, and the report showed that excess caffeine in the deceased's blood triggered the complications. Thus, the suspect was arrested and arraigned in court (Yusuf, 2022). Finally, during the DANA flight crash in 2012, the authorities sought for the assistance of the Forensic pathology and the dental teams so as to establish the identities of over 152 persons who died from the plane crash. The team adopted the use of forensic odontology and over 148 victims of the accident were identified successfully (Umukoro *et al.*, 2024).

Challenges in the Use of Forensic Evidence in Nigeria

1. **Lack of Comprehensive Legislation:** A comprehensive legislation serves the purpose of addressing and regulating a particular area of concern or social need in a detailed, coherent and structured manner. This is what forensic evidence, and forensic science generally lack in Nigeria. There is no comprehensive legislation regulating the application of forensic science and use of forensic evidence. Sonja Bitzer *et al.* argue in their work that it is a lucid challenge that a legal framework concerning the practice of forensic science vis-a-vis forensic evidence under the Nigerian legal system is lacking (Bitzer *et al.*, 2022), and this is a serious issue because several important details on the utilization of forensic evidence in court, is left out.

   Additionally, this setback suggests that the legislature has failed to recognize the evolving nature of legal practice and the necessity for the legal system to adapt to the contemporary trend of applying scientific methods in crime investigation.

2. **Lack of Forensic Laboratories:** The concept of forensic evidence cannot be adequately discussed without making mention of forensic laboratories. These are specialized facilities where scientific analysis are conducted on evidence related to criminal investigations and legal proceedings. These labs employ experts and utilize advanced techniques to examine physical, biological, chemical and digital evidence, thereby aiding law enforcement, legal professionals and courts in adequately determining facts relevant to cases.

   Despite efforts made by extant laws, which directly or indirectly makes provisions for the use of forensic evidence in reaching the justice of a case, it is unfortunate that there is a limited number of forensic laboratories in the whole of Nigeria. Although efforts are also being made to establish new forensic laboratories, such as that established in Lagos State, as earlier mentioned in this work, and that recently established by the NDLEA in Abuja and Enugu, along with the upgrade of the old NDLEA forensic laboratory in Lagos (Odeniyi, 2025), there is still need for the establishment of more laboratories in the country. In our opinion, the scarcity of forensic laboratories is akin to having limited hospital and inadequate medical equipment. This is adverse to the quest to promote the use of forensic evidence in crime investigation in Nigeria. What is more? The few forensic laboratories currently in existence will be bombarded with the herculean task of analyzing a big amount of samples. This can be very tedious for the employees in such laboratories.

3. **Lack of skilled forensic professional:** It is commendable that the government and the Ministry of Education have recently introduced forensic evidence as a course of study in some Nigerian universities. However, this development has inevitably brought with it a set of challenges that must be addressed to ensure its effective implementation (Antai *et al.,* 2024). One key challenge is that there is need for a state-of-the art equipment, as the course requires a practical aspect to augment the theoretical aspect. However, it is unfortunate that the universities do not have that equipment to be able to train their students in forensic

science, and thus, without the required equipment a perfect training cannot be done (Wakili, *et al.,* 2025).

4. **Chain of Custody Problems and Evidence Tampering:** Preserving the chain of custody is essential to guaranteeing the authenticity and legal acceptability of forensic evidence (Olude, 2025). The chain of custody refers to the documented and unbroken process of collecting, handling, storing, and transferring evidence to ensure its integrity. In Nigeria, challenges related to chain of custody and evidence tampering pose significant hurdles for the effective use of forensic evidence in criminal investigations and trials. These issues can undermine the reliability and admissibility of evidence, potentially leading to miscarriages of justice.
5. **Unavailability of Adequate Technology:** The primary aim of scientific investigation is to transform suspicion into a reasonable level of certainty regarding either guilt or innocence. Until recently, Nigerian courts were largely dependent on non-scientific evidence due to the lack of sufficient technological resources. The field of forensic science in Nigeria has not yet been fully integrated and often times, neither the judge, the lawyer, nor even the police fully grasp the advancements and extensive, promising potential of this science and the integration of new technologies, methodologies, modalities, and research (Hassan, *et al.,* 2024). Thus, this becomes an issue in the application of forensic science in crime investigation in Nigeria.

Analysis of Forensic Evidence in Other Jurisdictions

England and Wales

In 2007, the Forensic Science Regulator (FSR) was established and tasked with ensuring the reliability of forensic science in the criminal justice system in England and Wales. Prior to October 2023, the Regulator released non-statutory versions of the FSR Code (the Code), outlining the principles and validation standards of forensic science (CPS, 2023). In certain forensic disciplines, the non-statutory Code facilitated the accreditation of quality management standards in collaboration with the United Kingdom Accreditation Service (UKAS). To give the Regulator a legal backing, the Forensic Science Regulator (FSR) Act 2021 was enacted. The Act sets out the Regulator's statutory powers along with the Regulator's duty to prepare and publish a code of practice about the carrying on of forensic science activities in England and Wales (FRS Act 2021, s 2(1)). The Act also mandates the Code to specify the forensic activities to which it applies (FRS Act 2021, s 2(2)). This ensures clarity about which practices are subject to the Code's quality and compliance requirements.

The Act empowers the Regulator to investigate any person whom he reasonably believes to carry on activities that has substantial risk of adversely affecting any investigation or impeding or prejudicing the course of justice in any proceedings (FRS Act 2021, s 5(2)). The Regulator may require such person to provide him with copies of documents in the person's possession, or other information in the person's possession or control (FRS Act 2021, s 5(3)). This measure ensures transparency and accountability among forensic practitioners, and it acts as a deterrent to

malpractice and negligence, ensuring compliance with established standards. The Code as introduced under the Act, enhances and formalizes the regulatory framework that was already in place before the Act became law in England and Wales. It requires each forensic unit to operate an effective Quality Management System (QMS) and, where stated, achieve and maintain accreditation to a suitable international standard, and include compliance with this Code in the schedule of accreditation (FRS Code, s 2.3.1). The Code applies to all those undertaking Forensic Science Activities (FSAs), which can be small teams in larger organizations, sole practitioners or large providers, and can be commissioned by the prosecution or the defence (FRS Code, s 2.3.3)). Importantly, the current version of the Code applies to FSAs undertaken for matters related to the Criminal Justice System (CJS) in England and Wales, as future versions of the Code may be applied to other purposes by order of the Secretary of State (FRS Code, s 2.3.4). Under the Code, activities that are FSAs are divided into two: FSAs to which the Code applies (Part F1) and those to which the Code does not apply (Part F2) (FRS Code, s 2.3.5). The FSAs to which the Code applies is seen from sections 51 – 86. This ensures focused regulation, clarity for practitioners, tailored compliance standards, and adaptability to advancements, ultimately enhancing the reliability and integrity of forensic evidence in England and Wales. It is imperative to point out that despite the efforts put in place by the Parliament in England and Wales, the FSR Act 2021 and the 2023 Code are not comprehensive law regulating the use of forensic evidence in court. Instead, they form part of a broader ecosystem of laws, regulations and judicial precedents that collectively govern forensic evidence. They complement other statutes like the Police and Criminal Evidence Act of 1984, and the Criminal Procedure Rules. Thus, in England and Wales, while the Code does not cover all forensic science activities, it makes provision for a significant number, and it is also subject to review over time.

Pointedly, the FSR Act 2021 gave the Forensic Science Regulator statutory powers to set and enforce quality standards in forensic science. Nigeria lacks a formal regulatory authority with legal powers to mandate forensic science standards. Thus, creating a statutory regulatory body, backed by enforceable legislation (similar to the FSR Act), would establish minimum competent levels, protect against abuse of forensic evidence in court and ensure quality assurance in laboratories. Additionally, the FSR Code highlights a detailed operational and ethical standards that should be upheld by forensic service providers in England and Wales. In Nigeria, forensic service providers operate without a universally accepted code. Thus, adopting such a code in Nigeria would improve transparency and reliability in forensic report and would standardize documentation, chain of custody and reporting procedure.

The United States of America (USA)

There is no single uniform law on the use of forensic evidence in court, in USA. However, the Federal Rules of Evidence (FRE) 1975 provides a standardized framework governing the admissibility of evidence in US federal courts. It covers areas such as relevance, hearsay, privileges, and expert testimony.

On the testimony of an expert witness, the Rule provides thus:

A witness who is qualified as an expert by knowledge, skill, experience, training, or education may testify in the form of an opinion or otherwise if the proponent demonstrates to the court that it is more likely than not that:

a. the expert's scientific, technical, or other specialized knowledge will help the trier of fact to understand the evidence or to determine a fact in issue;
b. the testimony is based on sufficient facts or data;
c. the testimony is the product of reliable principles and methods; and
d. the expert's opinion reflects a reliable application of the principles and methods to the facts of the case (FRE 1975, Rule 702).

The above provision of law is in place because the congress understands that an intelligent evaluation of facts is often difficult or impossible without the application of some scientific, technical, or other specialized knowledge and the most common source of this knowledge is the expert witness. In the USA, there are over 400 forensic laboratories and one of the most famous is the Federal Bureau of Investigation (FBI), which processes evidence from FBI investigations and from violent crimes submitted by U.S. law-enforcement agencies, free of cost (Siegel, 2025). In a census conducted by the Bureau of Justice Statistics (BJS) in 2020, it was found that 326 publicly funded forensic crime laboratories and multilab systems received more than 3.3 million requests for service and requests for controlled substances analysis accounted for a third (33%) of all requests that crime labs received in 2020 (Brooks, 2023). Thus, although the forensic laboratories in the US is faced with its own issues such as the increasing complexity of evidence and the greater demands put on labs and the increased use of scientific evidence in courts, which leads to more scrutiny being placed upon labs and more demand for analyses, these laboratories put in their best to be effective in resolving certain legal puzzles faced by parties to a proceedings, including aiding the adjudicator of a case to reach a conclusion on certain issues before it.

Thus, the US have invested in independent forensic laboratories in the federal, state and municipal levels. Some of these laboratories are separated from law enforcement agencies, and this reduces the risk of bias. Thus, Nigeria can establish more government controlled laboratories including decentralized forensic laboratories, so as to ensure transparency in the investigation crime

Ghana

In Ghana, the main provider of forensic services to law enforcement agencies is the Forensic Science laboratory, which is a division under the Criminal Investigation Department (CID) of the Ghana Police Service (GPS) (Amankwaa *et al.*, 2019). In 2011, the FSL was refurbished under the European Union Ghana Police Project flagship programme with a £3 million funding. The scope of services provided by the laboratory are covered under the sections of Chemistry and Drug Analysis, Ballistic and Firearms, Document Examination, Photography, and DNA analysis. Although Ghana does not have a unified legislation governing forensic evidence, the Constitution of the Republic of Ghana (CRG) 1992 provides the scope of law agencies to conduct their investigation and also provides for the basic rights of individuals under investigation and/or prosecution. The constitution provides for individuals' right to privacy (CRG 1992, art. 18) and fair hearing (CRG 1992, art. 19). Additionally, the CRG 1992 upholds the principle of

proportionality and necessity in any interference with the right to privacy (CRG 1992, art. 18(2)). Thus, the powers of law enforcement agencies and other relevant authorities are restricted in the collection, retention and use of investigative material and/or information from individuals. It also emphasizes the fair management and disclosure of evidence in criminal cases, influencing the court's proceedings. It mandates that the handling and use of evidence, including forensic evidence, adhere to principles of legality, legitimacy, proportionality, necessity, and transparency (CRG 1992, art. 19).

Additionally, the Criminal and Other Offences (Procedure) Act 1960, which specifies the regulation of information or evidence that may be used at trial including scientific reports (COOP Act, 1960, s 121), and the Evidence Act of 1975, which provides that the primary test for admissibility of evidence in court is relevance (Evidence Act, 1975, s 51 and 52). In a provision in the Act, which is similar to the provision in the Nigerian Evidence Act on expert witness, an expert may be called upon to provide an expert opinion within their subject of expertise or qualification (Evidence Act 1975, s. 67 and 112 – 115). Such expert testimony is expected to assist the court in understanding the evidence or facts relevant to a legal issue, aligning with common law principles of admissibility. A review of forensic evidence used in Ghana's criminal justice system reveals commendable efforts to enhance its application but highlights challenges similar to Nigeria, including insufficient trained personnel and inadequate facilities.

Conclusion and Recommendations

The use of forensic evidence in the criminal justice system continues to increase around the world. Key concepts in forensic evidence were defined in this work, and the legal framework for forensic evidence in Nigeria was equally discussed. This study found that Nigeria lacks a unified legal framework specifically governing forensic evidence, although various laws address it either directly or indirectly. Additionally, the research highlighted the insufficiency of crime laboratories in the country, which hampers the effective analysis of the numerous samples needed for presenting forensic evidence in court.

Thus, the following are hereby recommended:

1. A specific law governing the admissibility of forensic evidence in court is essential. The use of forensic evidence, whether to convict or exonerate an individual, encompasses its collection at the crime scene, subsequent analysis, and eventual presentation in court. Therefore, enacting legislation to regulate the use of forensic evidence is crucial to ensuring integrity in its handling and safeguarding its reliability throughout the process. From what was discussed earlier in this work, it revealed that although England and Wales does not have a comprehensive legislation guiding the admissibility of forensic evidence in court, the FSR Act 2021 and FSR Code make compliance with forensic quality standards mandatory. Nigeria can enact a similar with this so as to ensure that forensic science used in investigations and trial meet rigorous and scientifically validated standards.

2. The Nigerian government should work towards building and equipping more forensic laboratories so as to augment the activities of existing laboratories in Nigeria. In the US, for example, it was noted earlier that there are about 400 forensic laboratories where forensic activities are carried out.
3. There should be a focus on training forensic scientists, law enforcement officers, and legal practitioners in the effective use and handling of forensic evidence, as forensic laboratories without trained officials will be useless to agencies or authorities who would want to employ the services of these labs.
4. Nigeria should establish a national DNA database to facilitate the matching of DNA profiles from crime scenes with those of known offenders. Both England and Wales, and the US have this database, and it enhance speed and fairness in crime investigations.
5. Legal practitioners must recognize that forensic evidence is not solely for the prosecution to present; it can also be challenged. In cases where there is a possibility that the defendant did not commit the alleged crime and where the evidence is not linking the defendant to the crime, defence lawyers should actively counter such forensic evidence sought to be tendered. For instance, in the American case of *Harrington v. Richter* (2011), the Supreme Court emphasized the importance of the defence attorney engaging an expert to support their case and refute the prosecution's expert testimony. This is very key because as much as forensic evidence is used to reach the conclusion that a crime was committed by a person, it can also be used to raise a doubt as to the commission of a crime by a defendant.
6. Finally, just like in England and Wales, an independent regulator can be empowered to make regulations regarding forensic activities in Nigeria. This is important because an independent regulator ensures standardized forensic practices, quality control, impartial oversight, and public trust in forensic evidence handling.

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