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# THE IMPERATIVE OF A REGULATORY FRAMEWORK FOR THE ESTABLISHMENT OF A NATIONAL CRIME DNA DATABASE IN NIGERIA

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## ABSTRACT

The evolution of DNA sequencing and analysis has had an extensive impact on criminal justice in many jurisdictions because it provides an opportunity for crime laboratories to develop distinct personal profiles required to identify crime suspects. This is connected with Locard's principle of exchange that perpetrators of crime usually leave traces at the crime scene and take traces from the crime scene along with them. DNA evidence has led to the arrest of previously unidentifiable perpetrators of the crime and the exoneration of wrongfully convicted persons. The functionality of DNA technology in criminal justice depends on the existence of a comprehensive DNA database. However, obtaining DNA samples from suspects has been challenged as a bio-invasion of the suspect's right to privacy and cause of citizen stigmatization. DNA analysis is also susceptible to unscrupulous manipulations in forensic science laboratories. To avert potential legal challenges, countries with comprehensive DNA databases have evolved extensive regulatory frameworks to oversee the collection and retention of DNA samples of suspects. The collection of DNA samples in Nigeria for crime solving is still at a very elementary stage and a national DNA database does not exist. This paper aims to undertake a comparative legal analysis of relevant case laws as well as legislations in jurisdictions such as the United Kingdom, United States of America and South Africa to advance the argument that it has become imperative to put in place a regulatory framework that will control the collection and storage of DNA samples as well as dictate the conduct of forensic laboratory scientists. A national DNA database is vital to combat crime but it must be subject to a regulatory framework.

**Keywords:** Criminal justice, DNA database, Forensic evidence, Nigeria, Regulatory framework.

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## INTRODUCTION

DNA collection and analysis has become a mainstay of criminal justice administration in most advanced jurisdictions of the world such that DNA evidence has become an important component of criminal trials. The successful integration of DNA sampling in the criminal justice system is largely dependent on the existence of a comprehensive DNA database. Without the database, newly obtained DNA cannot be cross-matched to determine the desired outcome. The establishment of the first forensic DNA database in England in 1995 and its apparent efficacy gave rise to a global movement to establish DNA databases in different jurisdictions. However, Nigeria and indeed a majority of African countries have not leveraged on the essential importance of having a DNA database. Therefore, this article aims to establish that the setting up of DNA databases has become imperative in Nigeria and other African countries. To achieve this aim, this article is divided into six parts. The first part discusses the theoretical framework underpinning the article; the second part provides conceptual clarifications; the third part discusses the legal controversies concerning DNA evidence; and incorporates a comparative analysis of relevant court decisions from the United Kingdom, the European Court of Human Rights and the United States of America; the fourth part explains why DNA databases have become a necessity taking into consideration the legislative framework in the United Kingdom and South Africa and the last part discusses the need for a regulatory framework for DNA collection and storage.

## THEORETICAL FRAMEWORK

The theoretical framework for this research is the law and technology theory as propounded by Arthur Cockfield. This theory is based on the need for a deeper analysis of the interplay between law and technology in modern society including the unexpected ways by which technology can determine courses of action and influence human behaviour.[3] This theory has generated extensive discussion among legal scholars in recent times such that it is

[3] Arthur Cockfield, 'Towards a Law and Technology Theory' (2004) 30 Manitoba Law Journal 383

being considered an autonomous branch of legal theory.[4] Cockfield argued that in as much as constant advancement in technology has become an integral part of human society, how the law responds to these constant technological changes is a matter of much importance. Hence, this theory advocates for a forward-looking analysis to examine the relationship between law and technology such that societal values and interests are protected when they become endangered by advancements in technology.[5]

This theory draws inspiration from the concepts of technological determinism, social construction, and technological momentum as espoused by Thomas Hughes.[6] Technological determinism is defined by Hughes as the belief that technical forces determine social and cultural change while social construction provides a reverse definition by stating that social and cultural forces bring about technical change. Technological momentum however encompasses both concepts and holds that social development shapes technology just as technology shapes social development.[7] As such, due to the extensive effect that technology has on society and vice versa, Bennet Moses, another proponent of the law and technology theory argued that the essence of the theory is to provide legal analysis of problems arising from the introduction of new technologies.[8] This has the ultimate aim of protecting society from such adverse consequences which rapidly evolving technology may present. Furthermore, the theory offers a structure through which lessons learnt from previous technologies can be harnessed to assist in making decisions on regulating and adapting to future technologies.[9]In essence, the law must serve as a bridge between the evolution of new technology and the government's technological

[4]Erica Palmerini 'The Interplay between Law and Technology, or the RoboLaw Project' in Elettra Stradella and Erica Palmerini (eds), *Context in Law and Technology: The Challenge of Regulating Technological Development (*Pisa University Press 2013)

[5]Cockfield (n 1); Kieran Tranter, 'The Laws of Technology and the Technology of Law' (2011) 20 Griffith Law Review 753

[6]Thomas Hughes, "Technological Momentum" in Merritt Roe Smith and Leo Marx (eds), *Does Technology Drive History? The Dilemma of Technological Determinism* (MIT Press 1994)

[7]Lyria Bennett Moses, 'Why Have a Theory of Law and Technological Change?' (2007) 8 Minnesota Journal of Law, Science and Technology 589

[8]James W Curlin, 'Saving us from ourselves: The Interaction of Law and Science Technology' (1970) 47 Denver Law Journal 651-663

[9]Moses (n 5); Gregory N Mandel, 'History Lessons for a General Theory of Law and Technology' (2007) 8 Minnesota Journal of Law, Science, and Technology 551

policies.[10]Simply put, the theory maintains that technology must be regulated to promote optimal social policy.

Palmerini sums up the law and technology theory by noting that the theory seeks to ensure that the rule of law must prevail in the face of technological advancement to prevent the undermining of human rights and democratic values that advancement in technology can cause.[11] This research is anchored on this theory because the use of technology relating to DNA sampling in criminal justice administration is a new development that has not yet gained sufficient traction to become fully operational in Nigeria, though it is just a matter of time. As such, there is a need to have a regulatory framework in place to ensure that optimal results are derived from the use of DNA technology and that the rights of citizens are not violated in the process.

## CONCEPTUAL CLARIFICATION

### a. DNA

DNA is the acronym for deoxyribonucleic acid. It refers to the molecule which is present in the cell nucleus of living organisms. This molecule contains the genetic information needed for the development and function of living organisms as well the transmission of such genetic information from generation to generation.[12] The DNA is shaped like a spiral double-helix polymer consisting of two strands wound around each other as discovered by scientists, James Watson and Francis Crick in 1953.[13]Due to its presence in every cell of the human organism, DNA is referred to as the building block or genetic blueprint of life.[14] In simple terms, it is the distinct genetic code or genetic signature of living organisms by which each individual can be identified except for identical twins who share the same

[10]Mandel (n 5)
[11]Palmerini (n 2) 4
[12]National Cancer Institute, 'DNA' <https://www.cancer.gov/publications/dictionaries/genetics-dictionary/def/dna> accessed 9 June 2022
[13]Stephen Neidle, 'Beyond the Double Helix, 'DNA structural diversity and the PDB' (2021) 296 Journal of Biological Chemistry 100553
[14]Nirpat Patel, VK Gautaman and ShyamSundar Jangir, 'The Role of DNA in Criminal Investigation – Admissibility in Indian Legal System and Future Perspectives' (2013) 2 International Journal of Humanities and Social Science Invention 15

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genetic code.[15] DNA is the fundamental building block for each person's genetic composition and the fact that it distinguishes one individual from the next makes DNA a powerful tool for identifying perpetrators of crime.

DNA analysis has also proved essential in exonerating wrongly convicted persons, identifying victims of disaster, and also establishing the paternity of children amongst other things. DNA is contained in the cell structure of human beings and the way it is configured in one cell of an individual is replicated in every other cell of such individual. As such, obtaining an individual's DNA information can be done by extracting it from different sources, particularly the cells in the human body which have a nucleus such as hair, saliva, blood, skin cells, semen, bones, and teeth.[16]With the efficiency of DNA analysis in identifying each individual through their genetic composition, the collection and analysis of DNA samples found at the scenes of crime have become an integral part of criminal investigations.[17] In technologically developed jurisdictions, tendering of DNA samples as evidence in court has become an indispensable aspect of criminal trials without which conviction of a suspect will be extremely difficult, if not impossible. This position is founded upon Locard's principle of exchange which states that when two objects come into contact with one another, there will be an exchange of microscopic material between the two.[18] In practical terms, this means that a perpetrator of a crime will bring something to the crime scene and leave with something from the crime scene. These fragments or materials that the perpetrator leaves or takes away from the crime scene are regarded as trace evidence such that when samples of the fragments are collected and subjected to laboratory analysis, they can be used as irrefutable evidence to establish that a particular perpetrator was present at the scene of the crime.

An example of the practical importance of DNA evidence was demonstrated in the American case of The People v George Wesley.[19] Wesley, the accused person in this case was

[15]Juan E Castillo-Fernandez, Tim D Spector and Jordana T Bell, 'Epigenetics of Discordant Monozygotic Twins: Implications for Disease' (2014) 6 Genome Medicine 1
[16]Congressional Research Service, *The Use of DNA by the Criminal Justice System and the Federal Role: Background, Current Law, and Grants* (2022)
[17]Helena Machado and Rafaela Granja, 'DNA Technologies in Criminal Investigation and Courts' in Helena Machado and Rafaela Granja (eds), *Forensic Genetics in the Governance of Crime* (Palgrave Pivot 2020)
[18]Ewelina Mistek and others, "Toward Locard's Exchange Principle: Recent Developments in Forensic Trace Evidence Analysis' (2019) 91 Analytical Chemistry 637
[19]The People v Wesley [1988] 140 Misc 2d 306, [1988] 533 NYS 2d 643

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known to have visited a lady who was subsequently raped and murdered. Wesley's house was searched and some bloodstains were seen on some of his clothes. The bloodstain was tested for DNA and it was discovered that the blood belonged to the murdered victim. Wesley was thereby convicted for the murder based on this discovery with the court observing thus:

> DNA fingerprinting, if accepted, will revolutionize the disposition of criminal cases. In short, if DNA fingerprinting works and receives evidentiary acceptance, it can constitute the single greatest advance in the "search for truth", and the goal of convicting the guilty and acquitting the innocent, since the advent of cross-examination.[20]

This prediction made by the Court many years ago has now become a reality in present times. The process of collecting and analysing DNA samples or trace evidence to utilise the results in criminal proceedings forms part of what constitutes forensic science.[21] Thus DNA fingerprinting is described as being "at the "cutting edge" of forensic science, just as molecular biology and genetic engineering are at the "cutting edge" of revolutionary applications in medicine".[22] As a result, forensic science has become an integral and indispensable part of criminal proceedings in many countries such that the prosecution has a much higher likelihood of securing the conviction of an accused person when DNA evidence is presented, compared to cases where DNA evidence is absent.[23] However, forensic science and the use of DNA evidence in criminal proceedings are still at a rudimentary stage in Nigeria and most other African countries.[24]Based on the report of the Global DNA Profiling Survey results released by the International Criminal Police Organisation (INTERPOL), only eleven countries in Africa utilise DNA profiling in police

[20]The People v Wesley [1988] 140 Misc 2d 306, [1988] 533 NYS 2d 643
[21]Lutz Roewer, 'DNA Fingerprinting in Forensics: Past, Present, Future' (2013) 4 Investigative Genetics 1
[22]The People v Wesley (n 18); Roewer defined DNA fingerprinting as the comparison of the DNA in a person's nucleated cells with that identified in biological matter found at the scene of a crime or with the DNA of another person for identification or exclusion. Roewer (n 19)
[23]Michael Briody, 'The Effects of DNA Evidence on Homicide Cases in Court' (2004) 37 Australian & New Zealand Journal of Criminology 231
[24]INTERPOL Global DNA Profiling Survey Results (2019); SU Nwawuba and CBN Akpata, 'Awareness Level on the Role of Forensic DNA Database in Criminal Investigation in Nigeria: A Case Study of Benin city' (2020) 4 Journal of Forensic Science Research 7

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investigations, compared to forty-six countries in Europe and nineteen countries in Asia.[25] It is important to note that without the existence of a DNA database, the successful and sustainable use of DNA evidence within a criminal justice system cannot be undertaken.

### b. DNA database

A database is a collection of information or data which is stored in a computer system and specifically organised for rapid search and retrieval, as well as modification and deletion of data through various data-processing operations.[26] It is also defined as an organized collection of structured information, or data, typically stored electronically in a computer system.[27] A DNA database is therefore a database where information about the DNA profiles of citizens in a particular jurisdiction is stored for rapid retrieval when required. DNA databases serve different functions and store information for wide-ranging purposes. A DNA database may be set up for genealogical, medical, or forensic purposes but the focus of this research is the forensic DNA database which stores information on DNA profiles connected with crime and crime scenes. The forensic database may contain genetic profiles of convicted persons, crime suspects, and crime victims such that when the database is accessed and crossmatched with newly obtained genetic information, the result can be used to determine whether an accused person was present at the crime scene or committed the crime.

DNA profiles from the forensic database are also useful for exculpating accused persons who were arrested on suspicion of committing a crime but whose DNA profile does not match the actual criminal's profile contained in the database. By way of analogy, a DNA database can be likened to a motor vehicle registry which contains the full details of cars and car owners. Similar to the alleles on a DNA that identify a particular individual, cars are identified by a registration licence plate. When a car is involved in a crime, the owner of the car can be traced by searching through the vehicle registration database using the licence plate as a reference point. Likewise, when DNA material is retrieved from a crime scene, the identities of persons present at the crime scene can be traced by searching through the

[25]The African countries are Algeria, Botswana, Burkina Faso, Egypt, Ghana, Morocco, Namibia, Seychelles, South Africa Sudan, and Tunisia.
[26]Britannica, 'Database' < https://www.britannica.com/technology/database> accessed 13 June 2022
[27]Oracle, 'What Is a Database' < https://www.oracle.com/database/what-is-database/> accessed 13 June 2022

forensic DNA database. This is why a forensic DNA database is of utmost importance in a criminal justice system. The first forensic DNA database was established in England in 1995 and due to its efficacy in crime solving, many countries in the world have followed suit to set up their DNA databases.[28] DNA analysis is important in crime detection and prosecution but without a comprehensive and functional DNA database, the full potential of DNA analysis cannot be realized. According to the Global DNA Profiling Survey results released by the International Criminal Police Organisation (INTERPOL), seventy member countries of INTERPOL have a DNA database.[29] Of this number, only seven countries in Africa, mostly in North Africa, have a DNA database.[30] Nigeria does not utilise DNA analysis in police investigations and therefore does not have a DNA database.

## LEGAL CONTROVERSIES CONCERNING DNA EVIDENCE

A major controversy on the establishment of a DNA database is the contention that collecting and retaining DNA samples of citizens, especially if done without consent amounts to a violation of the citizen's right to privacy. The right to privacy has been defined as the ethical and legal principles that recognize the importance of limited access to an individual or information about an individual.[31] The basis of the contention that DNA collection and storage violates privacy rights is that while a person's fingerprints can be captured as biometric data which is to identify a such person for purposes such as banking records, voting identification, travelling passport, collecting a person's DNA sample is more intrusive as it involves a buccal swab or collection of bodily samples. The DNA sample also contains genetic information which describes a person's entire genetic make-up, and physical characteristics as well as other intimate information such as the person's family members, ancestry, and predisposition to certain diseases referred to as genetic risk information.[32] In essence, where citizens' DNA information is kept in a database, it creates

[28]Helena Machado and Rafaela Granja, 'DNA Databases and Big Data in Helena Machado and Rafaela Granja (eds), *Forensic Genetics in the Governance of Crime* (Palgrave Pivot 2020)
[29]INTERPOL, 'Global DNA Profiling Survey Results' (n 22)
[30]The countries are Algeria, Egypt, Morocco, Tunisia, South Africa, Botswana, and Sudan.
[31]Ellen Wright Clayton and others, 'The Law of Genetic Privacy: Applications, Implications, and Limitations' (2019) 6 Journal of Law and the Biosciences 1
[32]E Donald Shapiro and Michelle L Weinberg, 'DNA Data Banking: The Dangerous Erosion of Privacy (1990) 38 Cleveland State Law Review 455; Theodore F Claypoole, 'Why we are losing our DNA Privacy Rights and what Legislators can do to save them' [2020] National Law Review

a society of maximum genetic surveillance. In this situation, it is argued that where the government has the innermost information about every citizen, it confers enormous powers on the government over such citizens and such powers may also be subject to abuse.[33]

Furthermore, genetic information which reveals an individual's predisposition to certain diseases will prevent such individuals from getting health insurance coverage if insurance companies are privy to the genetic information of such individuals.[34] The same information will preclude the individual from getting employed if prospective employers have access to such information beforehand, thereby giving rise to genetic discrimination or stigmatisation.[35]This ultimately results in an invasion of the right to genetic privacy.[36] Research has also shown that such data may be subject to loss or misuse of data through the illicit activities of corrupt police officers, commercial providers, or infiltrators.[37]This is particularly pronounced in a country like Nigeria where security agencies, especially the Police Force are extremely corrupt.[38]

<https://www.natlawreview.com/article/why-we-are-losing-our-dna-privacy-rights-and-what-legislators-can-do-to-save-them> 16 June 2022

[33]Helena Machado and Rafaela Granja, *Genetic Surveillance and Crime Control Social, Cultural, and Political Perspectives* (Routledge 2022)

[34]For example, DNA analysis can reveal whether a person is susceptible to elevated cholesterol levels, common complex disorders, and other genetic risk information. Sabine Wöhlke and Julia Perry, 'Responsibility in dealing with Genetic Risk Information' (2021) 19 Social Theory and Health 21; Tobias Haeusermann and others, 'Genes wide open: Data Sharing and the Social Gradient of Genomic Privacy' (2018) 9 AJOB Empirical Bioethics Volume 207

[35] CR Chapman and others, 'Genetic Discrimination: Emerging Ethical Challenges in the context of Advancing Technology' (2020) 7 Journal of Law and the Biosciences <10.1093/jlb/lsz016> 16 June 2022

[36]EW Clayton and others, The Law of Genetic Privacy: Applications, Implications, and Limitations (2019) 6 Journal of Law and the Biosciences 1

[37]HM Wallace and others, 'Forensic DNA Databases–Ethical and Legal Standards: A Global Review' (2014) 4 Egyptian Journal of Forensic Sciences 57

[38]Tosin Osasona, 'The Political Economy of Police Corruption in Nigeria' (2020) 14 International Journal of Law and Political Sciences 591; DU Enweremadu, 'Understanding Police Corruption and its Effect on Internal Security in Nigeria' in O Oshita I Alumona and F Onuoha (eds), *Internal Security Management in Nigeria* (Palgrave Macmillan 2019); United Nations Office on Drugs and Crime, *Corruption in Nigeria: Patterns and Trends* (Second survey on Corruption as experienced by the Population 2019)

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## COURT DECISIONS ON GENETIC PRIVACY RIGHTS

The problems associated with the collection and retention of citizens' genetic information in a DNA database have been the subject of litigation in different jurisdictions. A look at the judicial decisions on the topic will shed light on how the courts perceive genetic privacy.

### *S and Marper v the United Kingdom*[39]

In the landmark mark case of *S and Marper v the United Kingdom*,[40] the major issue raised for the determination of the European Court for Human Rights (ECHR) was whether the collection and continued retention of the DNA samples taken from a suspect even after the charges against them had been discontinued, or after their acquittal, was a violation of their right to privacy under Article 8 of the European Convention on Human Rights.[41] Before the appeal to the European Court of Human Rights, the applicants, in this case, had previously appealed to the Court of Appeal and the House of Lords in England but their arguments were rejected by both courts. The House of Lords had reasoned that the purpose of collection and retention of genetic information such as DNA samples was the prevention of crime and the protection of the right of others to be free from crime. Hence, the modest interference with private life was provided for by law and justifiable in protecting the greater interests of the society. The House of Lords further reasoned that the DNA samples were kept by the state for the limited purpose of crime detection, investigation, and prosecution. Therefore, the House of Lords concluded that the DNA database was justifiable as it conferred immense advantages in the fight against serious crime and did not violate the applicant's right to privacy. It is worthy of note that there was a dissenting judgement in the decision of the House of Lords as rendered by Baroness Hale of Richmond. The Baroness reasoned that the retention of both fingerprint and DNA data by the state amounted to an interference with a citizen's right to respect for his private life and informational privacy.

In deciding this appeal, the European Court of Human Rights considered whether the continued retention of the applicants' genetic information struck a fair balance between competing public and private interests. The court concluded that such retention amounted

[39][2008] (Applications 30562/04 and 30566/04) ECHR 1581.
[40]S and Marper (n 37) 1581.
[41]Article 8 of the Convention states that 'Everyone has the right to respect for his private and family life, his home and his correspondence'.

to a disproportionate interference with the applicant's right to privacy and a violation of Article 8 of the European Convention on Human Rights which cannot be regarded as necessary in a democratic society. This decision by the ECHR in *S and Marper*'s case thereby affirmed the dissenting judgment of Baroness Hale of Richmond in the House of Lords. The decision also upheld one of the key findings of the ECHR in the previously decided case of *Van der Velden v The Netherlands*[42] to the effect that the potential use to which retained genetic information of citizens can conceivably be put in future rendered such actions as sufficiently intrusive enough to amount to an interference with the right to respect for private life.[43]

### *R v RC*[44]

The position that DNA collection and retention is an infringement of a citizen's right to privacy is not restricted to Europe. The Supreme Court of Canada also decided in *R v RC*[45] that collecting a person's DNA sample would inherently constitute a grave intrusion of the person's right to personal and informational privacy because the DNA can reveal the most intimate details of a person's biological makeup, unlike a fingerprint impression. However, the Court stated that samples may be taken where there is a compelling public interest to do so.

### *Maryland v King*[46]

The judicial position in the United States of America is very different from what was obtains in Europe and Canada. In the case of *Maryland v King*, the United States Supreme Court settled any controversies within the American jurisdiction by holding that taking and analysing DNA samples from an arrested person was not different from fingerprinting or photographing such persons. Hence, taking DNA samples formed part of the legitimate procedure of arrest and was not a violation of the right to privacy. The Supreme Court

[42][2006] no 29514/05.
[43]Paweł Kwiatkowski, 'European Court of Human Rights Case Law on Genetic Information in the Scope of International Biomedical Law' (2020) 11 Adam Mickiewicz University Law Review 119
[44][2005] 3 SCR 99; [2005] SCC 61.
[45]R v RC (n 42)
[46][2013]133 S Ct 1958

reasoned that taking DNA samples constituted a safe and accurate way for law enforcement officers to process and identify the persons they took into custody.

The facts of this case show the great importance of maintaining a DNA database. Alonzo King was arrested in 2009 for assault and his DNA sample was duly taken. When his DNA sample was entered into the DNA database, it matched the DNA of the suspect who had robbed and raped a woman in 2003 but who had not been identified until that moment. Based on the discovery, King was subsequently tried for the offence of rape, convicted, and sentenced to life imprisonment. King subsequently appealed against his conviction because the evidence of his DNA showing that he was the one who committed rape in 2003 should have been rendered inadmissible at the trial court. After all, his DNA was taken during the commission of another offence, and the taking of his DNA sample violated his right to privacy. Although the Maryland Court of Appeal upheld King's appeal and overturned his conviction, the United States Supreme Court reversed the decision of the Court of Appeal and held that the DNA evidence was admissible. The Supreme Court thereby affirmed King's conviction and sentence him to life imprisonment.

It is submitted that if the United States Supreme Court had decided to exculpate Alonzo King on the basis that the DNA evidence which established his guilt was obtained by an invasion of his privacy, such a decision would have been absurd. It would also have foisted manifest injustice on the victim and the society at large. In essence, King's right to privacy would have been given precedence over the best interests of the society in seeing that justice is achieved. It will not serve the common good of society if an individual's right to privacy will constitute an impediment to justice being done and being seen to be done. Another notable case that occurred subsequently to Alonso's case was the case of Joseph DeAngelo who committed thirteen murders and fifty rapes but managed to escape arrest for thirty years until he was identified by his DNA profile in the DNA database and arrested in 2018.[47] The manner through which the police obtained his DNA profile by searching through privately-owned DNA databases has been the subject of criticism bothering on the

[47]MI Selvin, 'A Too Permeating Police Surveillance: Consumer Genetic Genealogy and the Fourth Amendment After Carpenter' (2020) 53 Loyola of Los Angeles Law Review 1015

infringement of the right to privacy.[48] However, it is submitted that apprehending the perpetrator of such heinous crimes will serve society better than allowing him to escape justice based on privacy concerns.

## THE JUDICIAL POSITION ON THE RIGHT TO PRIVACY IN NIGERIA

The taking and storage of DNA samples for purposes of criminal investigations and trials has not yet taken root in Nigeria. As such, the concerns about the violation of the right to privacy and the legality or otherwise of taking DNA samples of citizens have not been given judicial interpretation. However, the Nigerian Constitution provides for the right to privacy of citizens and the courts have enforced this right whenever the need arose. In *Ojoma v State* [49]the Court of Appeal stated that privacy at its most fundamental level is the right to be left alone. The court further described the right to privacy as the most valuable of all rights which suggests that a zone surrounds every individual within which they should be protected from intrusion by others.

In *Emerging Markets Telecommunication Services Ltd v Eneye*,[50] the appellant, a telecommunication company granted access to third parties to send unsolicited text messages to the telephone line of the respondent who was a subscriber of the appellant. The respondent, therefore, sued the appellant for violating his constitutionally guaranteed right to privacy. In deciding the case, the court stated that the right to privacy included the right to the privacy of a person's telephone line and therefore held that the appellant had violated the respondent's right to privacy. In *Nwali v EBSIEC & Ors*[51] the court stated that the right of a citizen to privacy included the privacy of all the constituents of such person as a human being. This implies the right to protect one's thoughts, conscience, or religious belief and practice from coercive and unjustified intrusion. It is also inclusive of the right to protect one's body from unwarranted intrusion as provided for under Section 37 of the

[48]Solana Lund, 'Ethical Implications of Forensic Genealogy in Criminal Cases' (2020) 13 The Journal of Business, Entrepreneurship and the Law 186; RA Wickenheiser, 'Forensic Genealogy, Bioethics, and the Golden State Killer Case' (2019) 1 Forensic Science International: Synergy 114
[49][2014] LPELR-22942(CA)
[50][2018] LPELR-46193(CA)
[51][2014] LPELR-23682(CA)

Constitution.[52] In view of these judicial pronouncements, a pertinent question at this juncture is whether the collection of the DNA sample from a crime suspect will constitute an unwarranted intrusion of a person's right to privacy. Section 37 of the Constitution of Nigeria provides that "the privacy of citizens, their homes, correspondence, telephone conversations, and telegraphic communications is hereby guaranteed and protected". As such, even if the argument is made that the guaranteed and protected privacy of citizens referred to in this section serves as a bar against the collection of DNA samples from citizens, the protection offered by this section is not absolute.

Section 45 of the Constitution provides for exceptions to the right and states that nothing in section 37 of the Constitution shall invalidate any law that is reasonably justifiable in a democratic society where such law is made in the interest of defence, public safety, public order, public morality or public health; or to protect the rights and freedom or other persons. In essence, where a law is enacted which requires the taking of DNA samples of crime suspects in the interest of public safety, such law will be justified under section 45 of the 1999 Constitution. The exception offered by section 45 of the Nigerian Constitution is of universal application. For example, the wordings of Section 45 are similar to that of Article 8(2) of the European Convention on Human Rights which states that public authority shall not interfere with the exercise of the right to privacy except if it is necessary and in accordance with the law in the interests of national security, public safety, for the prevention of disorder or crime or the protection of the rights or freedom of others. Furthermore, the intendments of Section 45 can also be inferred from Article 12 of the Universal Declaration of Human Rights.[53] The said Article provides that 'no one shall be subjected to arbitrary interference with his privacy, family, home or correspondence, nor to attacks upon his honour and reputation. Impliedly, interference with privacy is tenable as long as such interference is not arbitrary. The International Declaration on Human Genetic Data[54] also permits the collection, processing, usage, and storage of human genetic data and human proteomic data for forensic medicine and civil, criminal, and other legal proceedings.[55] The Declaration particularly states that its protection does not apply to the collection or storage of data pertaining to the

[52]Medical and Dental Practitioners Disciplinary Tribunal v. Okonkwo [2001] 3 SCNJ 1
[53]1948 (United Nations General Assembly resolution 217 A)
[54]This declaration was adopted during the 32nd session of the General Conference of UNESCO on 16 October 2003
[55]Article 5(iii)

investigation, detection, and prosecution of criminal offences and in parentage testing that are subject to domestic law that is consistent with the international law of human rights.[56]

As such, it can be strongly argued that setting up a DNA database in Nigeria will not be a violation of citizens' right to privacy. In addition, the Nigeria Data Protection Regulation[57] is now in place to protect the data privacy of Nigerians. The regulation was made to protect the personal data of Nigerians and even though the use of DNA for criminal justice purposes is not yet widespread, the definition of personal data under the regulation includes one or more factors specific to the physical, physiological, genetic, mental, economic, cultural or social identity of that natural person.[58] The taking and collection of genetic information in Nigeria presently are mainly to undertake paternity tests and this further underscores the need for government regulation of data privacy.[59]

## WHY THE DNA DATABASE IS A NECESSITY

The prime importance of having a functional forensic DNA database in the criminal justice system is underscored in two major ways. The first is that the DNA database facilitates the identification and eventual arrest of previously unidentified perpetrators of crime. Examples of these include the identification and arrest of Alonzo King and Joseph DeAngelo through DNA analysis, as discussed in the preceding section of the work. The second key and equally important reason for establishing a DNA database is the ability of the database to provide critical information which is necessary for the exoneration of wrongfully convicted persons. In essence, the DNA database serves the purpose of redressing the grave wrongs of the criminal justice system. There is an avalanche of information on individuals in different jurisdictions who had been wrongfully convicted and sentenced to death or prison terms but were subsequently exonerated when DNA evidence was introduced to reveal that the persons convicted had no connection with the crime. For example, in the United States of America, activities of the Innocence Project, a nonprofit organisation committed to the exoneration of wrongfully convicted persons through DNA testing revealed that three

[56]Article 1(c)
[57]2019
[58]Paragraph 1.3(xix)
[59]UNESCO, 'International Declaration on Human Genetic Data' < https://en.unesco.org/themes/ethics-science-and-technology/human-genetic-data> accessed 16 June 2022

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hundred and seventy-five convicted persons were exonerated from 1989 when the project commenced till the present.[60] Of the three hundred and seventy-five convicted persons, twenty-one were sentenced to death before DNA evidence was used to establish their innocence. Strong evidence also indicates that the individuals who were initially found guilty but subsequently exonerated through DNA analysis are predominantly African American men. As such, DNA testing serves to uncover the deep-rooted racial bias and miscarriage of justice within the American legal system.[61]

The fact that such a high number of individuals would have been executed wrongfully is a pointer to grave flaws in the criminal justice system which DNA evidence can serve to rectify. A poignant example is the case of Frank Lee Smith who was convicted based on eyewitness misidentification and sentenced to death for the rape and murder of an eight-year-old victim. Frank Lee Smith spent fourteen years on death row before dying of cancer in prison. However, eleven months after his death, DNA testing revealed that the semen sample recovered from the victim belonged to one Eddie Lee Mosley, a known serial rapist, and murderer. This showed that Eddie Lee Mosley was the perpetrator of the crime for which Frank Lee Smith died in prison. Remarkably, a search in the DNA database also revealed that another person named Jerry Townsend was convicted for two murders that were committed by Eddie Lee Mosley. Jerry Townsend was convicted based on his false confessions stemming from his weak mental capacity but he was exonerated after spending twenty-two years in prison.[62] Also, George Allen Jr. was wrongfully convicted of murder,

[60]Innocence Project, 'DNA Exonerations in the United States'< https://innocenceproject.org/dna-exonerations-in-the-united-states/ > accessed 15 July 2022

[61]Amanda Robert, 'Black defendants make up more than 50% of exonerations since 1989, new report says' American Bar Association Journal (26 September 2022) < https://www.abajournal.com/web/article/black-defendants-make-up-more-than-50-of-exonerations-since-1989-new-report-says> accessed 28 September 2023.

[62]The National Registry of Exonerations, 'Jerry Townsend' < https://www.law.umich.edu/special/exoneration/Pages/casedetail.aspx?caseid=3697> accessed 15 July 2022

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rape, and sodomy and was sentenced to 95 years imprisonment. After spending thirty years in prison, he was exonerated when DNA evidence revealed that he was innocent.[63]

The longest-serving inmate exonerated by the Innocence Project was Malcolm Alexander who was wrongfully convicted for aggravated rape and sentenced to life imprisonment based on erroneous eyewitness identification and incompetent representation by his counsel. Malcolm Alexander, therefore, spent thirty-eight years in prison for a crime he did not commit until DNA evidence showed that he was not the perpetrator of the crime he was imprisoned for.[64]

Miscarriages of justice occasioned by wrongful convictions are not limited to the United States of America. Cases also abound of individuals who were wrongfully convicted and imprisoned in the United Kingdom and other jurisdictions before they were eventually exonerated by DNA evidence. For example, in England, Victor Nealon was convicted for attempted rape in 1996 and he spent seventeen years in prison before DNA evidence revealed that he was not the perpetrator of the crime.[65] In the same manner, Michael Shirley was convicted and sentenced to life imprisonment for the rape and murder of Linda Cook. He was incarcerated for sixteen years before DNA testing revealed that the semen samples recovered on swabs taken from the victim's body did not match his DNA. Therefore, he could not have possibly committed the crime and his conviction was quashed.[66] One of the acclaimed biggest miscarriages of justice in the legal history of the United Kingdom involved the killing of Lynette White in Cardiff in 1988. Lynette White was found murdered by being stabbed fifty times. Although the prime suspect was a white man, false confessions were obtained from three black and coloured men who were wrongfully convicted and sentenced to life in prison for the heinous crime. Although the conviction was overturned in 1992 due

[63]The National Registry of Exonerations, 'George Allen, Jr' < https://www.law.umich.edu/special/exoneration/Pages/casedetail.aspx?caseid=4091> accessed 15 July 2022

[64]National Registry of Exonerations, 'Malcolm Alexander' < https://www.law.umich.edu/special/exoneration/Pages/casedetail.aspx?caseid=5274> accessed 11 July 2022

[65]Evidence-Based Justice Lab, 'Victor Nealon' < https://evidencebasedjustice.exeter.ac.uk/case/victor-nealon/ > accessed 11 July 2022; David Hamer, 'Wrongful Convictions, Appeals, and the Finality Principle: The Need for a Criminal Cases Review Commission' (2014) 37 UNSW Law Journal 270

[66]Paul Johnson and Robin Williams, 'Post-conviction DNA testing: The UK's first 'exoneration' case?' (2004) 44 Science and Justice 77

to a discovery of police misconduct during the investigations, the real perpetrator of the crime was apprehended through DNA testing in 2003, fifteen years after the crime was committed.[67] It is submitted that if DNA testing had been deployed appropriately, the injustice and the surrounding scandal would have been avoided.

## WRONGFUL CONVICTIONS IN NIGERIA

Wrongful convictions are not uncommon in Nigeria because the normal means of establishing the guilt of accused persons such as eyewitness identification and confessional statements are susceptible to human flaws and manipulations. However, while DNA testing has offered an avenue to exonerate wrongfully convicted persons in advanced jurisdictions like the United States of America and the United Kingdom, the only hope of reprieve to which a wrongfully convicted person can resort in Nigeria lies within the court system. This entails an appeal against the conviction from the High Court to the Court of Appeal up to the Supreme Court. There are yet no provisions for post-conviction DNA testing in Nigeria and there are also no provisions for adducing exculpatory evidence at the appeal stage because the courts do not entertain the introduction of fresh evidence on appeal. As such, without the presence of new exculpatory evidence, it is particularly difficult for a convicted person to convince the Supreme Court to overturn concurrent decisions of the trial court as well as the Court of Appeal.

The difficulty of overturning wrongful convictions is further compounded by the considerable financial cost of pursuing appeals which is beyond the reach of many convicted persons.[68] Nevertheless, there are instances where persons who were wrongfully convicted at the lower courts were exonerated by the Supreme Court of Nigeria. An example is the case of Osuagwu v The State,[69] where the victim of an armed robbery attack was unable to recognise her assailants when initially questioned by the police. However, during an identification parade at the police station, the victim was asked by the police to point to the

[67]Paul Heaney, 'Lynette White murder: Cardiff Five are victims, chief says' *BBC News* ( 9 September 2021) < https://www.bbc.com/news/uk-wales-58490038 > accessed 11 July 2022
[68]Ameh Ejekwonyilo, 'Many Nigerians in prison for being poor – NHRC boss' Premium Times (Lagos 30 August 2021) < https://www.premiumtimesng.com/news/more-news/481970-many-nigerians-in-prison-for-being-poor-nhrc-boss.html > accessed 12 July 2022
[69][2016] 16 NWLR. (Pt 1537) 31.

accused person as the armed robber. Based on the false identification, the accused person was convicted and sentenced to death until the conviction was quashed by the Supreme Court.[70] In this case, if the accused person had lacked the financial wherewithal to appeal against the erroneous decision of the trial court, the conviction would have stood. Another notable case was that of Clinton Kanu who was convicted of armed robbery in 1992 and sentenced to death even though there was no evidence connecting him with the crime. His conviction was subsequently overturned by the Supreme Court which exonerated him after he had already spent twenty-seven years on death row.[71] A situation such as this could have been avoided if DNA evidence or other forms of forensic evidence was a prerequisite for establishing the guilt of an accused person as opposed to identification parades or false confessions. This reinforces the position that there is a great need for DNA testing in criminal cases to aid in averting wrongful convictions.

Apart from the fact that wrongful convictions based on false eyewitness testimonies and false confessions or admissions subject the wrongful convicts to grave injustice, it also endangers society because for every individual wrongfully imprisoned, the actual criminal is roaming freely in the society, wreaking more havoc. Wrongfully convicted persons are therefore victims of the actual perpetrator of the crime as well as a flawed justice system that inflicts heavy punishment on innocent persons while the guilty walks free. Such injustice erodes public confidence in the criminal justice system in no small measure. Every system has its flaws but all efforts must be made to ensure that the effects of such flaws are reduced to the barest possible minimum. The instances of wrongful conviction stated above underscore the critical importance of conducting DNA testing to verify or disprove eyewitness testimony or confessional statements before convicting accused persons and inflicting severe punishment. The process of convicting accused persons without resorting to DNA testing is a negation of the legal doctrine that it is better for ten guilty persons to escape than for one innocent person to be punished.[72] It also constitutes an indictment of the criminal justice process that a lot of time, energy, and resources were expended to

[70]Ndidi v The State [2007]13 NWLR (Pt 1052) 633
[71]Chika Oduah, 'Life after Death Row: The Pastor praying for Nigeria's Prisoners' *Aljazeera* ( 1 April 2020) <https://www.aljazeera.com/features/2020/4/1/life-after-death-row-the-pastor-praying-for-nigerias-prisoners>accessed 13 July 2022
[72]Daniel Epps, 'The Consequences of Error in Criminal Justice' (2015)128 Harvard Law Review 1067

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arrive at the wrong result of convicting an innocent person in place of a criminal who escapes justice.

## NEED FOR REGULATORY FRAMEWORK FOR DNA COLLECTION AND STORAGE.

The legal issues arising from the establishment of a DNA database such as privacy concerns, quality control, and the admissibility of DNA evidence in court proceedings are such that make it imperative to have legislations that will provide a regulatory framework for the use of DNA in the criminal justice system. Hence, in jurisdictions where the establishment of DNA databases has been effectively implemented along with the incorporation of DNA evidence as an integral aspect of criminal trials, legislation has been enacted to provide a supportive regulatory structure.

In the United Kingdom, the relevant legislations are the Criminal Justice and Police Act of 2001 and the Criminal Justice Act of 2003. These laws empower the government to collect DNA samples from specified citizens for storage in the National DNA Database (NDNAD) of the United Kingdom which was established in 1995. To ensure that these legislations are not subjected to abuse, the Protection of Freedoms Act[73] was enacted with the provision that DNA samples taken from individuals shall be destroyed if it appears that the arrest was unlawful or carried out due to mistaken identity.[74]

There are also legislations in the United States of America regulating the collection and storage of DNA samples from the populace. The Violent Crime Control and Law Enforcement Act of 1994 established the Combined DNA Index System (CODIS) which is administered by the Federal Bureau of Investigation (FBI). The CODIS is the national repository for DNA samples and is a combination of DNA databases from local, state, and national levels. The DNA Analysis Backlog Elimination Act of 2000 was also enacted to provide grants for states and enhance the collection and analysis of DNA samples from certain violent and sexual criminals. The scope of this Act was expanded by the United States Congress in 2012 when the Katie Sepich Enhanced DNA Collection Act was passed into law. These legislations have received judicial backing from the United States Supreme

[73]Protection of Freedoms Act United Kingdom (2012)
[74]Section 1 Protection of Freedoms Act (2012) the United Kingdom.

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Court in the case of Maryland v King.[75]The scope of the legislation and judicial authorities regulating the collection and storage of DNA samples in the United States of America is an indication of the robust legal regime on the handling of DNA samples.

The Republic of South Africa is one of the very few African countries that have established a national forensic database. In line with the practice in Europe and America, there is also a legal framework that regulates the administration and maintenance of the South African National Forensic DNA Database. The legislation is the Criminal Law (Forensic Procedures) Amendment Act of 2013. This act stipulates guidelines for taking specified bodily samples from specified categories of persons for DNA analysis. The Act also specifies the particular offences in respect of which DNA samples must be taken.[76] In addition, the Act states the conditions under which DNA profiles of citizens may be retained in the database as well as the time limit within such profiles must be destroyed.[77]

The lessons that Nigeria and other African countries can adopt from the jurisdictions which have set up national DNA databases is that while setting up the databases is imperative, it is equally important to ensure that the process is reinforced by a solid legislative framework to ensure that the collection and retention of DNA samples are not done arbitrarily and the citizens' right to privacy is not subject to abuse.

The importance of incorporating quality control provisions in the legislative framework must be emphasised. Previous incidents particularly in the United States relating to human errors and deliberate manipulation of DNA analysis underscore the need for strict regulations bothering on factors such as the qualification requirements of DNA analysts as well as strict certification of DNA analysis results before being tendered as evidence in court. These measures are necessary to avoid the grave injustice which can occur when accused persons are wrongfully convicted based on manipulated or erroneous DNA analysis. There are numerous examples of cases in the United States of America where innocent persons were convicted and punished for offences they did not commit. An example was the case of Annie Dhookhan, a forensic chemist at the Boston, Massachusetts crime laboratory who was discovered to have tampered with evidence and forged thousands of test results before her actions were discovered. This discovery led to the reversal of twenty-one thousand

[75]Supra (n 44)
[76]Section 15H
[77]Section 15Q (5)

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convictions.[78] Annie Dhookhan was convicted and sentenced to three years imprisonment for her actions but this case brings into perspective the extent of damage that unregulated or improperly monitored forensic operations can cause.

The most notable case was the discovery that forensic examiners at the Federal Bureau of Investigation (FBI) laboratory gave false testimony and provided false results of forensic hair analysis in court causing a high rate of wrongful convictions.[79]This was despite the reputation of the FBI as the leading law enforcement agency with the largest and most efficient crime laboratory in the world.[80] Remarkably, the grievous actions of the FBI analysts continued undetected for a period lasting more than a decade and involved more than three hundred cases because appropriate checks and balances were not put in place.[81] A number of persons convicted based on the false testimony of the FBI analysts were sentenced to death and executed before the discovery that their convictions were wrongful.[82] These notably grievous systemic failures by the FBI show that it is not enough to have functional DNA databases or forensic laboratories. There is a need for strict guidelines regulating the laboratory process and the tendering of the results in court to guarantee the integrity of the entire process. The absence of established standards and protocols for the storage and analysis of DNA samples will lead to errors in conclusion which will gravely undermine the criminal justice system.

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[78]Jon Schuppe, 'Epic Drug Lab Scandal Results in more than 20,000 Convictions dropped' *NBC News* (19 April 2017) https://www.nbcnews.com/news/us-news/epic-drug-lab-scandal-results-more-20-000-convictions-dropped-n747891 > accessed 20 August 2021

[79]FBI, 'FBI Testimony on Microscopic Hair Analysis Contained Errors in at Least 90 Percent of Cases in Ongoing Review' < https://www.fbi.gov/news/press-releases/press-releases/fbi-testimony-on-microscopic-hair-analysis-contained-errors-in-at-least-90-percent-of-cases-in-ongoing-review> accessed 20 August 2022

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[81]Spencer S Hsu, 'FBI admits flaws in hair analysis over decades' *The Washington Post* (18 April 2015) < https://www.washingtonpost.com/local/crime/fbi-overstated-forensic-hair-matches-in-nearly-all-criminal-trials-for-decades/2015/04/18/39c8d8c6-e515-11e4-b510-962fcfabc310_story.html?itid=lk_inline_manual_7 > accessed 20 August 2022

[82]Ed Pilkington, 'Thirty years in Jail for a single hair: The FBI's mass disaster of False Conviction' The Guardian (21 April 2015) < https://www.theguardian.com/us-news/2015/apr/21/fbi-jail-hair-mass-disaster-false-conviction> accessed 20 August 2022.

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## CONCLUSION

The prime importance of establishing DNA databases in Nigeria and other African countries has been established in this paper. The fact that developed countries of the world possess functional DNA databases and utilise DNA evidence in criminal trials is a pointer to the need for the integration of forensic science into the criminal justice system. This paper also revealed that out of seventy members of INTERPOL with DNA databases, only seven African countries have DNA databases.[83] In essence, the criminal justice system of countries without DNA databases still relies on eyewitness testimonies and confessional statements despite the inherent errors. The incidence of post-conviction exonerations in the United States of America and the United Kingdom after the introduction of DNA evidence lends credence to the argument that DNA evidence and DNA databases are a necessity in any criminal justice system. This is to ensure that cases of wrongful convictions or acquittals are avoided or reduced to the barest minimum. The concerns about privacy rights which may be infringed upon by the process of collecting DNA samples from citizens are genuine. However, it is submitted that the safety of members of society and the right to be free from crime through an efficient criminal justice system is an overriding objective. In addition, establishing DNA databases is not the only objective. It is recommended there must be an adequate regulatory framework to ensure that the very highest standards are maintained in the operation of the databases. This will help to avert grave errors which can occur if the DNA results are wrongly analysed.

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[83]The seven African countries are Algeria, Botswana, Egypt, Morocco, South Africa, Sudan, and Tunisia.

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