

A ROBUST NATIONAL CENTRALIZED DATABASE SYSTEM FOR IDENTITY MANAGEMENT AND SECURITY CONTROL IN NIGERIA

Oyeniran, Oluwashina A. ¹; Oyeniran, Stella T. ²; Oyeniyi, Joshua O. ³

¹ Department of Computer Science, Ajayi Crowther University, Oyo, Oyo State, Nigeria

² Department of Mass Communication, KolaDaisi University, Ibadan, Oyo State, Nigeria

³ Department of Information and Communication Technology, Osun State University, Osogbo, Osun State, Nigeria

Corresponding Author: Oluwashina Oyeniran, oyeniranoluwashina@gmail.com

ABSTRACT: Population increase, complex government service expansion and urgency for effective public service delivery to the citizens have made the application of Information and Communication Technologies for development of public service delivery increasingly indispensable to any nation. This is the epoch of e-governance and administration, where Information and Communication Technology innovations powered by the combination of hardware and software technologies to produce ease, accuracy, precision, efficiency and effectiveness in control of human and material management of the public. Hence, the efficacy of a national central database cannot be ignored, as researches from various authors have proven that this fosters e-government. Thus, this study proposed a model for the design, implementation, usage and maintenance of Nigerian National Central Database, which will serve as the driven force for the implementation of unified national identity cards, so as to curtail, if not completely exterminate, data multiplication, fraud and impersonation among host of others.

KEYWORDS: Data multiplication, Database, Parastatals, National Identity Card, Security.

1. INTRODUCTION

Globally, government parastatals are instituted to provide particular functions and services to the citizens and global communities so as to satisfy their basic needs ([Nna17]). According to ([LSW94]) government parastatals are service providers who aim to meet the demands, needs and aspirations of those whom the service is provided for. As human organizations, government agencies function through the workforce, which is the guardian of rules, regulations and records ([Nna17]). The ability of any parastatals to carry out its mandate effectively depends on the availability of necessary and sufficient resources, although it is always underestimated but information is one of the key resources in enabling the accomplishment of organizational goals. Information management is an essential skill that is required for the growth and development of any establishment; in which

Government parastatals are not left out. The role of record keeping cannot be over looked when it comes to good and appropriate management of citizen and non-citizen information ([Igb13]).

According to ([V+02]), information is a fundamental resource to both government and the private sectors alike. ([Igb13]) established that information can be maintained and enhanced through appropriate records management and effective records management is fundamental for good governance, effective and efficient administration. It forms the basis for formulating policies, managing resources and service delivery. It enables an organization to find information easily and orderly as efficient flow of information enables an organization to perform its functions successfully and efficiently.

Thus, information cannot be effectively and efficiently managed without the implementation of a database, most especially, while dealing with large amount of data. Hence, a database is an organized collection of data, generally stored and accessed electronically from a computer system. A good database design is important in ensuring consistent data, elimination of data redundancy, efficient execution of queries and high performance application. Database is essential because it organizes data in a manner that allows one to query data, sort data, and manipulate data in various ways and database management system is, therefore, important because it manages data efficiently and allows users to perform multiple tasks with ease as it stores, organizes and manages a large amount of information within a single software application.

([Dan18]) expressed that countries have very different identity architecture. Some countries have developed strong centralized systems, either in a Ministry (Home Affairs, Justice) or an autonomous agency dedicated to providing registration and identification services, some have multiple incompatible competing systems - voter ID, tax ID, bank ID, pension ID, some still rely on "local ID" that is administered at the community level. He

added that since Nigeria's independence in 1960, the country has made several attempts to identify her citizens but unfortunately, each attempt had its shortcomings, leaving trails of failures and multiple databases that add no value to national existence. Perhaps, more worrisome is the fact that the country has sunk billions of naira into pockets of data capturing exercises for identification purpose but none could stand as a reliable database for national development.

([OAO13]) are of the opinion that Nigeria is critically facing security challenges because people are not uniquely identified and tagged. They stated that situation has led to insecurity in Nigeria with different trends and dimensions from one geopolitical zone to the other. For instance, this has led to various faceless activities such as religious sect like the Boko Haram in the North, rampant armed robbery incidents in the South-West, notorious robbery and kidnappings in the South-East and South-South. To curb these menaces, a central national residency database must be created to solve the security and identity challenges, loose neighboring borders, sectional terrorist, corruption, crime and criminalities. Hence, the creation of a Central National Database in Nigeria is capable of leading to transformation in governance which this study proposes.

2. STATEMENT OF THE PROBLEM

A database is a civilized way of keeping digitalized records about a place, thing or people. However, a national database is a similar data convergence of a nation or community people who share a common language, culture, ethnicity, descent or history. Data has been regarded as an important tool for development. There can be no development without data. Database is data trust. Therefore, data must have basis and kept in an organized manner ([OAO13]).

([War17]) stated that the absence of a unified database in Nigeria had given room for multiple registrations of voters, use of SIM cards for criminal activities and other related vices. ([Dan18]) opined that the Nigeria Federal Government's decision to harmonize the highly proliferated biometric-based identity systems in the country is long overdue. Virtually all federal agencies and private sector operators have their respective biometric data of citizens, which has led to multiple databases and as a result leads to waste of resources and manpower. Hence this study seeks to propose a model for the design, implementation, usage and maintenance of Nigerian National Central Database, thus, this will enhance the performance of the National Identity Card.

3. LITERATURE REVIEW

If the national aspiration is to build a world class infrastructure, on the path of economic rejuvenation, renewal and growth, equitable distribution of income, educational development, social security, political stability, full employment, price stability or to maintain balance of payment equilibrium, Nigeria must embrace an honest census and credible information system ([Ade16]). A national database is an organized data or numerical environment where every citizen of a nation and the immigrants are uniquely identified and possesses a strong national identity. National database may be population, identity, security, electorate, group or association's classified information or data of national interest ([Ona11]). In Nigeria, there are critical national security challenges combined with how to fight corruption. Central national database like any other project aims at solving problems and it is capable of solving these challenges.

The Committee on Harmonization of National Identity Cards was set up by former President Obasanjo to review existing ID card projects and recommend ways of integrating them into a single multi-application card. The Committee's findings and recommendations are expected to compliment the efforts of the Committee on Consumer Credit, which was set-up to look at ways of establishing consumer credit system and infrastructure in Nigeria. The Consumer Credit Committee had earlier identified the absence of a unified and verifiable identity database as a negating factor to the development of consumer credit system in the country ([Com06]).

The main objective of ([Ona11]) proposal is to create a holistic overhaul mechanism for anti-corruption, national identity and a central coordination of national security that will ensure considerably security measure against corruption and national identification. However, the proposed database provides the following objectives: "to create a holistic overhaul mechanism and procedure to solving insecurity issues; create a central coordination of national security; create a forum for security information sharing, exchange of ideas and collaborative efforts among the allied security operative in Nigeria; fight corruption in government and promote attitudinal change of residents towards public resources and utility; create and assign national security number to all Nigerians at home and abroad including the immigrants; monitor all neighbouring borders and port-of-entry security; provide data knowledge for driven the economy and development; eradicate manipulations of government resources by some unscrupulous civil service officers; generates employment; reduce cost

of running government; set standards for cyber law; cashless banking protection and security policies” ([OAO13]) critically examined numerous database models and how Entity-Relationship model is used to create a large central database. Therefore, they modified and extended Entity Relationship data model to include utility (i.e. Public Service) and used it as a method for achieving the data capturing and transaction in a typical central national database and attention was drawn to data retrieval, storage, modification efficiency and relationships are based on one-to-many and many-to-many as occasion demand in the use of Relational data model methodology in the central national database.

4. METHODOLOGY

Figure one below indicates that in order to create a successful national central database, there is a need for data gathering. All relevant data about each citizen will be recorded in the database, such as bio-data (first name, middle name, last name, date of birth, place of birth, address, phone number, next of kin etc.) and biometric information (finger print, palm print, iris, facial image, DNA etc.).

Figure two shows the proposed Nigerian National Central Database System Architecture, the architecture of the system implies that the national database management system after proper record of

individual will generate a unique national identification number which will distinguish individual from each other. The architecture is designed in such a way that each parastatal and other government agencies can have access to any information about individual based on level of authorization. Updating of record by any government agency, ministry or parastatal will also be based on level of authorization.

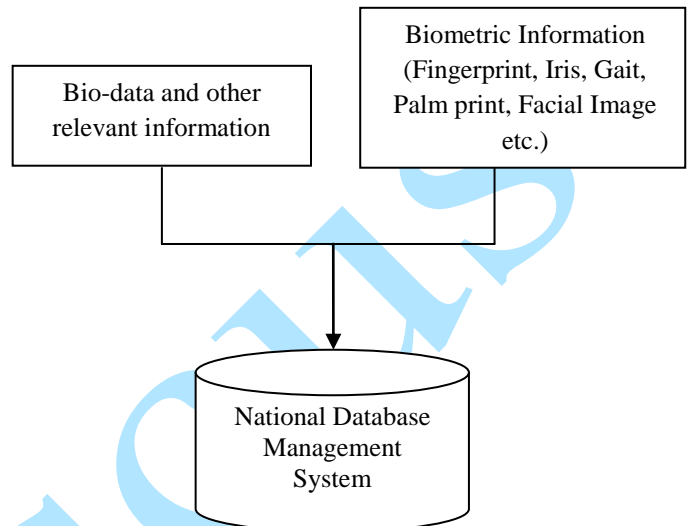


Figure 1: The proposed Framework

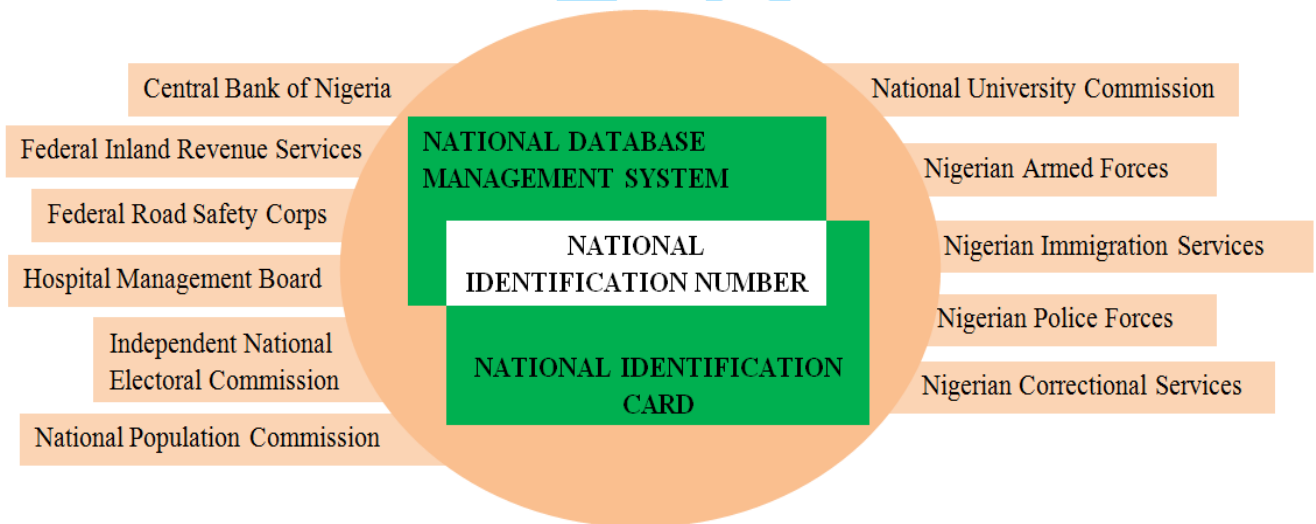


Figure 2: The proposed Nigerian National Central Database System Architecture

Individual/Citizen Account: This is an administration portal where each able citizen can automatically register their relevant information and at the same time retrieve or verify their information. This will enable each citizen to be able to know the status of his/her citizenship and also know the period of expiration of each added services (such as: driving license, international passport, Health insurance etc.).

Local Government Offices (LGO): This arm of the administrative structure is the lowest in hierarchy and will be responsible for registration of individual. This also implies that the local offices in various states of the federation will be in charge of registration of citizens within the local government area, they will also be responsible for reception of payment receipts and issuing of identity cards.

State/Zonal Offices: This arm of administration is senior in hierarchy to the LGO, and will be

responsible for monitoring and evaluation of Local Government offices within their jurisdiction. Also, they will be in charge of distribution of ID Cards to various local government offices within their jurisdiction.

Federal Government Office (FGO): This arm of administration is senior in hierarchy to the State/Zonal offices, and will be responsible for manufacturing and printing of ID Cards, distribution of ID Cards to various State/Zonal offices, service commissions and staff recruitments, database management, generating national reports, monitoring and evaluation of state/zonal and local government offices.

Prime Office: This arm of administration is senior in hierarchy to the FGO, and will be responsible for data backup and security, data and financial auditing.

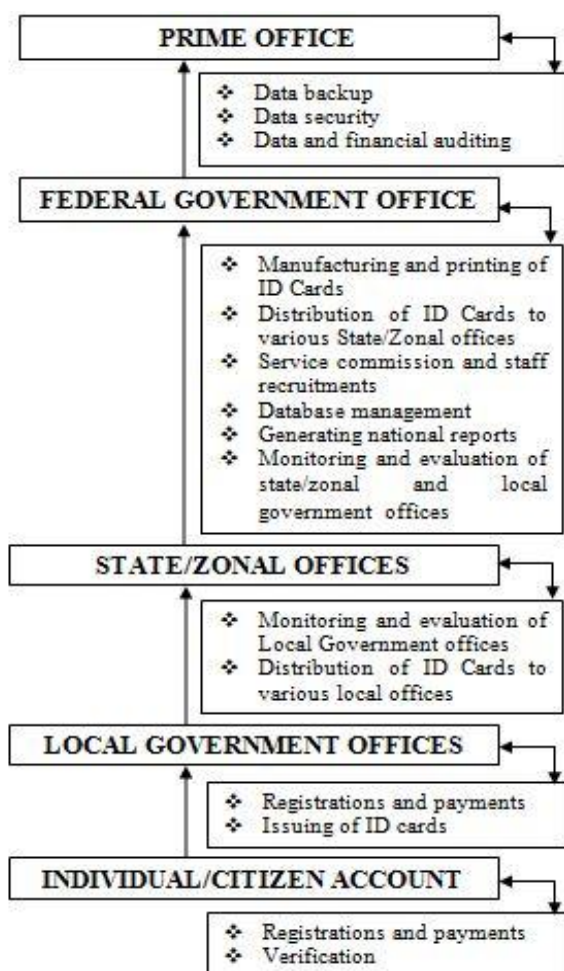


Figure 3: Administrative Structure

5. ADVANTAGES OF THE PROPOSED SYSTEM

- **It will eradicate loss of documents:** Implementation of this system will completely wipe out loss of document. Informally, several cases of loss of documents have been reported and this is as a result of lack of organization by

those handling the documents. With this automation, documents can be attached with an electronic mail and can be printed to hard copy. Moreover, tracing of documents will be easier with this automation system.

- **It will encourage social interaction:** This system will bridge communication gap between staff members and the management and also ensure effective and efficient feedback mechanism.
- **It will ensure privacy:** With this proposed system, privacy of citizen is sure since they will have access to their personal accounts without third party interference.
- **Processing will be faster:** This system will ensure effective processing, this is because each staff member can communicate with any office at any point in time and it will reduce passing memo through offices; all the sender needs to do is to send copies of the same memo to the required offices.
- **Citizens will be more computer literate:** This system will allow staff members and general citizens to be more computer literate as the system will ensure more familiarity with computer and other ICT gadgets.
- **Complete eradication of data multiplication:** Implementation of the proposed system will allow every government parastatals to have access to required information within a single database, which will disallow any parastatal to have database of their own.
- **Curbing fraud and impersonation:** The proposed system will drastically reduce internet and banking fraud, impersonation and examination malpractices.
- **Loss of IDs:** This system will reduce loss of identity cards as there will be no need for carrying multiple identification cards. And in case of loss of the unified identity card, citizens will not have to worry as new ones can easily be issued without stress.

6. DISADVANTAGES OF THE PROPOSED SYSTEM

- The cost of implementation and maintenance is high.
- It will require trainings or workshops for the staff members on the principles of operation.

7. CONCLUSION

Public service delivery is one of the major qualities of government administration, which cannot be achieved without efficient and accurate devices. The wide range of tasks and complex nature of

government official engagements demands proper application of Information and Computer Technology (ICT) to eradicate the limitations of human error. Public Service delivery on the other hand is the way and manner the public sector (government's ministries, departments and agencies) deliver goods and services to the public. Government has the legal responsibility to convey stated services to the public, and in such a way that should not mar the benefit of both the government and the citizens alike.

Thus, this study proposed a model for the design, implementation, usage and maintenance of a Nigerian National Central Database, so as to enhance the initialization and performance of a National Identity Card. This study establishes that the proposed Nigerian National Central Database will drastically eradicate loss of document at different government parastatals, it will ensure privacy and as well curb fraud and impersonation, likewise, make the processing of various ID faster than the orthodox techniques.

REFERENCES

- [Ade16] **B. Adémólá-Olátéjú** – *Nigeria's Need for a Credible Database for National Development*, 2016. <https://opinion.premiumtimesng.com/2016/03/22/nigeria-needs-credible-database-national-development/>, Accessed on 25th March, 2019.
- [CHN06] **Committee on Harmonization of National ID Cards** – *Final Report of the Committee on Harmonisation of National Identity Cards*, 2006, https://www.google.com/url?sa=t&source=web&rct=j&url=https://www.nimc.gov.ng/docs/final_report.pdf&ved=2ahUKewji546XiZXIAhXQasA, Accessed on 11th October, 2019.
- [Dan18] **A. Daniel** – *The Place of Centralised Identification Database in Economic Development*, 2018. <https://punchng.com/the-place-of-centralised-identification-database-in-economic-development/>, Published June 21, 2018 Accessed on 25th March, 2019.
- [Igb13] **C. J. Igbokwe-Ibeto** – *Record management in Nigerian public sector and freedom of information act: the horn of dilemma*. International journal of development and management review (INJODEMAR) Vol. 8, No 1. 2013, <https://www.ajol.info/index.php/ijdmr/article/view/91315/80815>, Accessed on 11th October, 2019.
- [LSW94] **S. Leach, J. Stewart, K. Walsh** – *Decentralized organization and management in Local Government*. In: *The Changing Organization and management of Local Government. Government Beyond the Centre*. Palgrave, London ISBN: 978-1-349-23589-6, 1994, https://doi.org/10.1007/978-1-349-23589-6_6.
- [Nna17] **J. O. Nnaeto** – *Application of Emerging Technologies to Enhance Public Service Delivery: The Place of Nigerian Public Service*. Covenant University Conference on e-Government in Nigeria, 2017, https://www.google.com/url?sa=t&source=web&rct=j&url=https://eprints.conventuniversity.edu.ng/10243/1/Paper005_FINAL%2520Num3.pdf&ved=2ahUKWwiCt.
- [Ona11] **J. O. Onakoya** – *E-commerce and the Practice*, First edition. ISBN 978-978-919-338-7, J2 Man-Hour Ltd, Gwagwalada, Abuja, Nigeria, 2011.
- [OAO13] **J. R. Onakoya, F. O. Adebayo, O. O. Owolabi** – *Creation of Central National Database in Nigeria: Challenges and Prospects*. Information and Knowledge Management, <https://www.iiste.org>, ISSN 2224-5758 (Paper) ISSN 2224-896X (Online) Vol.3, No.12, 2018.
- [V+02] **G. van der Walddt, D. van Niekerk, M. Doyle, A. Knipe, D. du Toit** – *Managing for results in government*. Politeia, Volume 21, Issue 3, Pg 94-96, 2002.
- [War17] **U. Warami** – *Unifying Multiple Biometric Identity System*. <https://www.vanguardngr.com/2017/10/unifying-multiple-biometric-identity-system/>, Accessed on 25th March, 2019.