

# The Importance of Identity Management Systems in Developing Countries

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## ABSTRACT

Identity management systems have existed for 8 years now in Nigeria, being a useful component of national development in all economic systems. The implementation of identity management system with respect to multilateral security is the change that is obtainable within the last 8 years. Despite several debates on the implementation of Identity Management System in Nigeria. IDMS stands to play an important role on economic growth, social capital and political development in a country. It is argued that IDMS represents a new "General Multi-Purpose Smart Card" with the potential view to link a secure database with biometric verifications for an individual identity. It is also generating a sustained increase in economic growth through processes of technological development and innovation. Government sees the application and use of Identity Management System as generating higher national productivity, job creation, competitiveness and national development.

## Keywords

System, Identity, Management, Smart Card, Nigeria.

## 1. INTRODUCTION

Identity management system refers to an information system or to a set of technologies that can be used for enterprise or across-network identity management. Identity management system also refers to a set of technologies that enable the users to control the nature and the amount of personnel information released (Claub et-al, 2001).

According to National Identity Management Commission, there is no documented history. Implementation is the realization of an application, or execution of a plan, idea, model, design specification, standard algorithm or policy.

The identity of a person comprises a huge amount of personal data with respect to individuals. All subsets of the identity represents the person (or components of the person). Some of these "partial identities" uniquely identify the person, others do not. Depending on the situation and the context, the person may be represented by different partial identities.

The National Identity Management System NIMS comprises of National Identity Data base (also known as a central identity repository or register (CIDR), a chip-based, secured identity

card, and a network of access and means to irrefutable assert the identity of an individual. It also includes the harmonization of existing identity database in public sectors. The most important thing about the National Identity Management System is that it will provide a universal identification infrastructure for the entire country. This will help bring real and recognizable benefits to the government, each of us, individually and collectively and also for legal residents in Nigeria.

Identity management is a term that refers broadly to the administration of individual identities within a system, such as a company, a network or even a country. In enterprise IT, identity management is about establishing and managing the roles and access privileges of individual network users. Identity management systems provide IT managers with tools and technologies for controlling user access to critical information within an organization. The identity management system in the digital world relates to the behaviour of persons in everyday activities (Claub & Kohn et-al., 2001).

Identity management system in the context of privacy enhancing technologies focused on anonymity and authenticity contains the concept of an identity protector that have been built, but in most cases not directly controlled by the user, or at least not in her own sphere of control. Implementation in the context of "security in communication technologies" focused on reachability as it contains a concept for user identification and the way users handle identity functions (David, 1985).

### 1.1 Statement of the Problems

The growing complexity and decreasing transparency of the world is a serious problem that we cannot solve entirely by an identity manager. This growing complexity increases the difficulty of the identity manager to visualize the degree of privacy in supporting the user because a potential risk could easily be under- or over-estimated.

### 1.2 Objectives of the Study

The main objective of this research is to examine the importance of implementing an identity management system in Nigeria. While the specific objectives are as follows:

- i. To determine how a unique National Identity Number is issued to qualified citizens and legal residents.

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- ii. To determine how a National Identity Smart Card is issued to every registered person 16 years and above.
- iii. To ensure the security of National Identity database.

### 1.3 Research Hypothesis

The following hypothesis will be tested:

- i. Ho: NIMC cannot issue a unique national identification number to qualified citizens and legal residents;  
H<sub>1</sub>: NIMC can issue a unique national identification number to qualified citizens and legal residents.
- ii. Ho: NIMC cannot issue a national identity smart card to every registered person 16 years and above;  
H<sub>1</sub>: NIMC can issue a national identity smart card to every registered person 16 years and above.
- iii. Ho: NIMC cannot ensure the security National Identity Database.  
H<sub>1</sub>: NIMC can ensure the security National Identity Database.
- iv. Ho: NIMC cannot ensure the security National Identity Database.  
H<sub>1</sub>: NIMC can ensure the security National Identity Database.

### 1.4 Significance of the Study

Any research undertaken could be beneficial to the researcher, institution and other interested parties. A good knowledge of Identity Management System and how best to implement it, will help Universities' Management to verify people's identity through the issuing of national identity number (NIN) which one can use to go into any institution and be readily accepted:

- i. Provide a convenient and simplified process for enrollment into the national identity database for the issuance and use of the national identification number (NIN) and the national identity (Smart) card.
- ii. Help protect you from identity theft and fraud by providing a simple, reliable, sustainable and universally acceptable means of confirming your identity at all time.
- iii. Make life easier by providing you with an easy and convenient means of providing your identity anywhere in Nigeria and beyond.
- iv. Help reform our political process by facilitating the work of the managers of electoral process.
- v. Make it harder for criminal to use false or multiple/duplicate/ghost identities.

### 1.6 Scope of the Study

The research is designed to highlight the importance of implementing an Identity Management System to the Nigerian economy, security and development.

## 2.0 LITERATURE REVIEW

### 2.1 National Identity Number (NIN)

NIN is a non-intelligent set of numbers assigned to an individual upon successful enrolment. Enrolment consists of the recording of an individual's demographic data and capture of the ten finger prints. Head-to-shoulder facial picture and digital signatures, which are all used to cross-check existing data in the National Identity Database to confirm that there is no previous entry of the same data. Once this (de-duplication) process is completed, the data is then stored with a unique NIN that was assigned to it. Furthermore, according to NIMC, once a NIN is issued to a person, it cannot be used by any other person, even if the previous person is dead. The NIN helps tie all records about a person in the database.

In addition, it is however understandable that NIMC Act sets a number of government security and crime control agencies, including State Security Service. These Agencies and Commissions include, Economic and Financial Crimes Commission (EFCC), and Nigerian Police Force (NPF) to have access to NIMS database. They would however have to approach the court for permission to do so. Enrolment for the NIN is absolutely free and there are two ways to go about it. These are the self-service Enrolment and the Assisted-service modes. The self-service is for those that have access to the internet and literate enough to fill out the required information online.

You will be able to pre-enroll online by accessing the Enrolment Form via the NIMC's website or any of the registration centers.

Consequently, after properly filling out the form, you will print out a summary sheet with a 2D Barcode and Registration ID number. This summary sheet will be presented to the Enrolment officer at the Registration Centre in your location, who will verify and confirm the enrolment data on the system. Thereafter, your photograph, finger prints and signature will be captured as this cannot be done online.

For verification of the claims of your information, you will be required to present primary source documents to the Enrolment Officer before you are fully enrolled under the NIMS. Such documents include, birth certificate, evidence of address of residence, educational qualification etc. in the case of Assisted-Service, you will pick up an enrolment form from any of the Registration Centers or the mobile Registration Centers, either fill the form yourself or request for assistance from an executive Assistance or a support officer. The form will then be submitted to an Enrolment Officer who will input the data into the system. You will verify and confirm the enrolment data on the system, and there after your photograph, finger prints and signature will be captured. At the end of the registration, your enrolment will be acknowledged and a slip generated and given to you, indicating the completion of the enrollment process at that point in time. This will then enable you to have a tracking ID so that you can monitor the process through a Service Call Centre till you get your NIN and, subsequently, your ID card.

While it will take a matter of seconds, minutes, hours or a week to get one's National Identification Number, it could take about a month for the owner to get his/her Identity Card. The identity card would be useful in everyday life. Areas of particular interest of its use are applicable for and issuance of international passport, opening of individual and/or personal bank accounts as earlier mentioned, purchase of insurance policies, subject to the provisions of the land use Act, the purchase, transfer and registration of land by any individual or any transaction connected there with and such transaction pertaining to the individuals as may be prescribed and regulated by the persons reform Act, 2004.

### 2.3 The General Multi-Purpose Smart Card (GMPC)

Government purpose in this policy is to introduce a General Multi-purpose Card (GMPC), which allows for the use of a (Smart card) technology in which different public and private applications would be installed. The essential key to a GMPC is the linkage to a secure database with biometric verifications for an individual's identity.

The benefits of the GMPC include the fact that it facilitates identification, authentication, non-repudiation and portability in identity management. The GMPC technology has a framework

that allows integration of many applications into one multipurpose card which would enhance governance and payments in Nigeria.

All citizens 16 years and older as well as all legal (alien) residents who have been in the country for two (2) years who have been registered and issued a National Identification Number (NIN) are required to obtain a Nigerian National Identity Card. The card is the property of the Federal Government of Nigeria and may be withdrawn and issuance to an individual withheld in accordance with the stipulated regulations and applicable law.

The National Identity Card is a specially designed card manufactured specially for Nigeria. It has an array of features which mark it out as a truly Nigerian national card. The features and the overall design concept, including the various visible and hidden security features to safeguard against fraud and improper use, conform to the relevant international standards on card design and security. The card has both physical and electronic security features which were specially chosen to meet the extra demand for durability and security based on our local experience as a people.

The card has a machine-readable zone (MRZ). It therefore qualifies as and can be used for travel and other relevant applications. In this context, the Card has already taken into account future plans (including the proposed ECOWAS adoption of national identity cards as travel documents) of using the card for other purposes.

### **2.3.1 A Unique Identification Scheme (Signifier) for Every Individual**

Government proposes in this policy, the establishment of a unique national identification scheme which would result in the institutionalization of a unique signifier for every individual. This unique means of relating an entry in the national identity database (a digital personal) to a physical human being is required to ensure the quality and reliability of the data base. Its major features would include: An identifier, a biometric identifier, a token of the identifier, and mechanism for Identification and Identity authentication, wide spread use, and obligation of stakeholders

Government proposes in this policy that every individual who is sixteen (16) years and above would have:

- a. An entry in the national identification scheme with his own unique identifier,
- b. A token which evidences the identifier (that is, the GMP card).
- c. To produce the GMP card when undertaking certain transactions or dealings with other organizations, both in the public and private sector.
- d. To submit to biometric measurement whenever an organization with power demands it. The power may drive from legal sources or based on market conditions (transaction precondition).

In view of the harmonization process, the death and the birth registration would become integrated into the national identity database. This would thus ensure that registration is captured at birth while enrolment of biometrics is subsequently captured and deaths are recorded accordingly to provide an “end” to the use of an identification signifier in the database.

## **2.4 National Identity Database (NID)**

There is currently no centralized national identity database and no system of National Identity Management which efficiently links public and private sector. Identity Schemes in Nigeria while the financial services sector has been most proactive in the deployment of identification schemes for the delivery of its services. The schemes have differed from institution to institution within the sector. The result has been the creation of several different identification schemes and databases leading to the duplication of an individual’s identity data by the various institution offering services to that person. Government agencies also hold a number of databases with nonviable integration of access or inter-operability to enhance the delivery of services within these government institutions. This is despite the fact that some of these institutions have introduced smart card technology unto their schemes. A reliable national system for verification and secure authentication of an individual’s identity has thus not been established.

National identity Management (NIMC) Act, 2007 Act no. 23, An Act to provide for the establishment of a National Identity Database, has been set up by the government of Nigeria with a mandate to issue a unique national identification number (NIN) to all Nigerians and long term residents in the country. NIMC proposes to create a platform to first collect the identity details and then perform authentication that can be used by several government and commercial service providers. A key requirement of NIMC system is to eliminate duplicate identity. NIMC has selected biometrics features set as the primary method to check for duplicate identity. For government and commercial providers to authenticate the identity at the time of service delivery, it is necessary that biometric information capture and transmission are standardized across all the partners and users of the NIMC’s system taking cognizance of the appropriate biometrics parameters to achieve the NIMC’S mandate.

### **2.4.1 Challenges Militating Against the Systems**

According to the National Identity Management Commission (NIMC) there are many challenges which need to be considered. The following typical challenges exist:

1. Corruption.
2. Lack of the political will to drive implementation.
3. Concerns about data security, integrity and confidentiality.
4. High cost of implementation and maintenance.

## **3.0 RESEARCH METHODOLOGY**

This section discusses the research design, population of the study, sample and sampling techniques, sources of data, method of data collection and method of data analysis.

### **3.1 Research Design**

The research design for this study is a survey research design. This is a research design by which a group of population is studied by collecting and analyzing data from only a few people considered to the representative of the entire population.

### **3.2 Population of the Study**

Population is defined as the whole size of individuals which form the subject of the study in a particular survey. It is the totality of cases that conform to some designated specification. This may

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refer to a special section of the general population used in the study. The population of the study is 250.

### 3.3 Sample and Sampling Techniques

Sample in statistical procedure is a subset of population selected by certain procedures for a particular purpose with the size of the entire population. The whole population will not be used for the study, because using the whole population may be too large or indefinite and costly.

The simple random sampling techniques was used to select the sample. This process in itself will ensure some level of validity in the data to be collected and analyzed. For this research, the sample is 60.

### 3.4 Sources of Data

The study is designed to make use of both primary and secondary data. While questionnaire will be used for the primary data collection, text books, journals, literature study and the Internet were used in obtaining secondary data.

### 3.5 Method of Data Collection

For this study questionnaire was constructed and administered among the staff of the National Identity Management Commission.

The questionnaire method was used because of time and money, its flexibility and capability of eliciting information on a wide range of issues of interest.

### 3.6 Method of Data Analysis

Data gathered during the course of this study and the research hypothesis was statistically tested statically. In analyzing the data collected in this study, completed questionnaire was analyzed using the percentage distributed table for the responses and the Chi-square test for the hypothesis. Where null hypothesis permit, the chi-square was applied directly to the statistics using the relevant questions. Relevant options in the percentage table were tested on the 5% level of significance.

## 4.0 DATA PRESENTATION, ANALYSIS AND INTERPRETATION

This section shows the analysis and presentation of data collected from the respondents in the course of the research. A total number of 60 questionnaires were distributed to the staff of National Identity Management Commission Abuja, and only 53 were filled and returned.

Below are tables consisting the data collected in the questionnaire and was subsequently analyzed to show the opinion of the respondents which was used as basis for testing and accepting or rejecting the research hypothesis.

### 4.1 Data presentation and Analysis

**Table 1: IDMS resource include individual computers related hardware and application use to manipulate, store and retrieve information.**

Response	No of Respondents (F)	Percentages (%)
SD	35	66.03
A	17	32.08
N	1	1.89
D	0	-

SD	0	-
<b>Total</b>	<b>53</b>	<b>100</b>

Source: field survey, 2015.

### Analysis

From the table above, it shows that 35 respondents representing 66.03% of the sample strongly agree. 17 representing 32.08% agree, while 1 representing 1.89% is neutral. It indicates that IDMS resources includes individual computers related hardware and application used to manipulate, store and retrieve information.

**Table 2: Individuals data can be accessed using the directory service**

Response	No of Respondents (F)	Percentages (%)
SA	32	60.38
A	21	39.62
N	-	-
D	-	-
SD	-	-
<b>Total</b>	<b>53</b>	<b>100</b>

Source: field survey, 2015.

### Analysis

From the above table it shows 32 respondents representing 60.38% strongly agree, 21 representing 39.62% agree. This indicates that individual data can be accessed using directory service.

**Table 3: Identity Provider responsible for providing identity for users.**

Response	No of Respondents (F)	Percentages (%)
SA	28	52.83
A	20	37.73
N	4	7.55
D	1	1.89
SD	-	-
<b>Total</b>	<b>53</b>	<b>100</b>

Source: field survey, 2015.

### Analysis

From the above table the percentage above shows that 28 respondents representing 52.83% strongly agree, 20 representing

37.73% agree while 4 representing 7.55% are neutral, and 1 representing 1.89% disagree. It therefore indicates that Identity provider is responsible for providing identity for users.

**Table 4: Web service may support communication between two electronic devices over a network.**

Response	No of Respondents (F)	Percentages (%)
SA	32	60.38
A	9	16.98
N	7	13.21
D	3	5.66
SD	2	3.77
<b>Total</b>	<b>53</b>	<b>100</b>

Source: field survey, 2015.

**Analysis**

The percentage above shows that 32 respondents representing 60.38% strongly agree, 9 representing 16.98% agree, 7 representing 13.21% are neutral, 3 representing 5.66% disagree and 2 representing 3.77% strongly disagree. This indicates that web service may support communication between two electronic devices over a network.

**Table 5: Access control is a security feature that controls how users and the system communicate and interact with other systems**

Variable	No of Respondents (F)	Percentages (%)
SA	35	66.04
A	15	28.30
N	2	3.77
D	-	-
SD	1	1.89
<b>Total</b>	<b>53</b>	<b>100</b>

Source: field survey, 2015.

**Analysis**

The table above shows that 35 respondents representing 66.04% strongly agree, 15 representing 28.30% agree, 2 representing 3.77% are neutral, while 1 representing 1.89% strongly disagree. This indicates that Access control is a security feature that controls how users and the system communicate and interact with other systems.

**Table 6: Digital identity is a data that describes a person's identity**

Variable	No of Respondents (F)	Percentages (%)
SA	24	45.28
A	17	32.08
N	9	16.98
D	2	3.77
SD	1	1.89
<b>Total</b>	<b>53</b>	<b>100</b>

Source: field survey, 2015.

The table above indicates that 24 respondents representing 45.28% strongly agree, 17 representing 32.08% agree, 9 representing 16.98% are neutral, 2 representing 3.77% disagree and 1 representing 1.89% strongly disagree. This indicates that digital identity is a data that describe a person's identity.

**Table 7: IDMS assists in faster processing of request**

Variable	No of Respondents (F)	Percentages (%)
SA	25	47.17
A	18	33.96
N	7	13.21
D	2	3.77
SD	1	1.89
<b>Total</b>	<b>53</b>	<b>100</b>

Source: field survey, 2015.

The table above shows that 25 respondents representing 47.17% strongly agree, 18 representing 33.96% agree, 7 representing 13.21% are neutral, 2 representing 3.77% disagree and 1 representing 1.89% strongly disagree. This indicates that IDMS assists in faster processing of request.

**Table 8: IDMS assist in streamlined operations**

Response	No of Respondents (F)	Percentages (%)
SA	14	26.42
A	26	49.05
N	11	20.75

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D	1	1.89
SD	1	1.89
<b>Total</b>	<b>53</b>	<b>100</b>

Source: field survey, 2015.

The table above shows that 14 representing 26.42% strongly agree, 26 representing 49.05%, 11 representing 20.75% are neutral and 1 representing 1.89% disagree and strongly disagree respectively. This indicates that IDMS assist in streamlined operations.

**Table 9: IDMS improves ability to automatically detect and react to potential risks.**

Variable	No of Respondents (F)	Percentages (%)
SA	15	28.30
A	25	47.17
N	9	16.98
D	3	5.66
SD	1	1.89
<b>Total</b>	<b>53</b>	<b>100</b>

Source: field survey, 2015.

The table above shows that 15 respondents representing 28.30% strongly agree, 25 representing 47.17% agree, 9 representing 16.98% are neutral, 3 representing 5.66% disagree, and 1 representing 1.89% strongly disagree. This indicates that IDMS improves ability to automatically detect and react to potential risk.

**Table 10: IDMS reduce security cost through task estimation.**

Variable	No of Respondents (F)	Percentages (%)
SA	19	35.85
A	23	43.40
N	8	15.09
D	1	1.89
SD	2	3.77
<b>Total</b>	<b>53</b>	<b>100</b>

Source: field survey, 2015.

### Analysis

The table shows that 19 respondents representing 35.85% strongly agree, 23 representing 43.40% agree, 8 representing 15.09% are neutral, 1 representing 1.89% disagree and 2 representing 3.77% strongly disagree. It therefore indicates that IDMS reduces security cost through task estimation.

**Table 11: IDMS audit and reporting capabilities**

Variable	No of Respondents (F)	Percentages (%)
SA	28	52.83
A	22	41.51
N	2	3.77
D	1	1.89
SD	-	-
<b>Total</b>	<b>53</b>	<b>100</b>

Source: field survey, 2015.

### Analysis

The above table shows that 28 respondents representing 52.83% strongly agree, 22 representing 41.51% agree, 2 representing 3.77% are neutral, while 1 representing 1.89% disagree. It then indicates IDMS audit and reporting capabilities.

**Table 12: IDMS tighter security control**

Variable	No of Respondents (F)	Percentages (%)
SA	27	50.95
A	24	45.28
N	2	3.77
D	-	-
SD	-	-
<b>Total</b>	<b>53</b>	<b>100</b>

Source: field survey, 2015.

### Analysis

The table above shows that 27 respondents representing 50.95% strongly agree, 24 representing 45.28% agree, 2 representing 3.77% are neutral. This indicates IDMS tighter security control.

**Table 13: IDMS eliminates or reduces duplicate users IDs.**

Variable	No of Respondents (F)	Percentages (%)
SA	14	26.42
A	13	24.53
N	17	32.08
D	2	3.77
SD	7	13.20
<b>Total</b>	<b>53</b>	<b>100</b>

Source: field survey, 2015.

The above table shows that 14 respondents representing 26.42% strongly agree, 13 representing 24.53% agree, 17 respondents 32.08% are neutral, 2 representing 3.77% disagree and 7 representing 13.20% strongly disagree. It therefore indicates that IDMS eliminates or reduces duplicate users IDs.

**Table 14: Corruption**

Variable	No of Respondents (F)	Percentages (%)
SA	16	30.19
A	26	49.06
N	5	9.43
D	4	7.55
SD	2	3.77
<b>Total</b>	<b>53</b>	<b>100</b>

Source: field survey, 2015.

The table above indicates that 16 respondents representing 30.19% strongly agree, 26 representing 49.06% agree, 5 representing 9.43% are neutral, 4 representing 7.55% disagree and 2 representing 3.77% strongly disagree. This informs our decision that corruption, is a challenge facing IDMS for national development.

**Table 15: lack of political will to drive implementation**

Variable	No of Respondents (F)	Percentages (%)
SA	29	54.72
A	17	32.08
N	2	3.77
D	3	5.66
SD	2	3.77
<b>Total</b>	<b>53</b>	<b>100</b>

Source: field survey, 2015.

The table above shows that 29 respondents representing 54.72% strongly agree, 17 representing 32.08% agree, 2 representing 3.77% are neutral, 3 representing 5.66% disagree, 2 representing 3.77% strongly disagree. It therefore indicates that lack of political will to drive implementation is a challenge facing IDMS today.

**Table 16: NIMS is concerned with data security integrity and confidentiality.**

Variable	No of Respondents (F)	Percentages (%)
SA	24	45.28
A	20	37.74
N	6	11.32
D	3	5.66
SD	-	-
<b>Total</b>	<b>53</b>	<b>100</b>

Source: field survey, 2015.

The table shows that 24 respondents representing 45.28% strongly agree, 20 representing 37.74% agree, 6 representing 11.32% are neutrals, 3 representing 5.66% disagree. It so indicates that NIMS is concerned with data security integrity and confidentiality as a challenge facing IDMS for national development.

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**Table 17: NIMS has a high cost of implementation and maintenance**

Variable	No of Respondents (F)	Percentages (%)
SA	10	18.87
A	10	18.87
N	10	18.87
D	7	13.21
SD	16	30.18
<b>Total</b>	<b>53</b>	<b>100</b>

Source: field survey, 2015.

The table above shows that 10 respondents representing 18.87% each strongly agree, and are neutral respectively, 7 representing 13.21% disagree while 16 representing 30.18% strongly disagree. It indicates that NIMS has a high cost of implementation and maintenance.

**Table 18: centralized operations present tempting targets to hackers and crackers.**

Variable	No of Respondents (F)	Percentages (%)
SA	17	32.08
A	17	32.08
N	10	18.86
D	2	3.77
SD	7	13.21
<b>Total</b>	<b>53</b>	<b>100</b>

Source: field survey, 2015.

The table shows that 17 respondents representing 32.08% each strongly agree, and agree respectively, 10 representing 18.86% are neutral, 2 representing 3.77% agree while 7 representing 13.21% strongly disagree. It indicates that centralized operation presents tempting targets to hackers and crackers is a challenge facing IDMS for national development.

**Table 19: Intruders create IDs with extensive privileges and access to many resources.**

Variable	No of Respondents (F)	Percentages (%)
SA	25	47.17
A	18	33.96

N	14	7.55
D	1	1.89
SD	5	9.43
<b>Total</b>	<b>63</b>	<b>100</b>

Source: field survey, 2015.

The table above indicates that 25 respondents representing 47.17% strongly agree, 18 representing 33.96% agree, 4 representing 7.55% are neutral, 1 representing 1.89% disagree, 5 representing 9.43% strongly disagree. It therefore indicates that intruders create IDs with extensive privileges and access to many resources is a challenge facing IDMS for national development.

### 4.4 Hypothesis Testing

The chi-square method was used to test the hypothesis. The formula is given by.

$$X^2 = \frac{(F_o - F_e)^2}{F_e}$$

Where  $X^2$  - chi-square

$F_o$  - Observed frequency

$F_e$  - Expected frequency

$Df$  -  $(r - 1)(c - 1)$

The probability of using variable = 1/5 the expected frequency ( $f_e$ ) is the same for each of the five (5) responses of each hypothesis.

i.e.  $1/5 \times 53 = 10.6$

#### Hypothesis One

$H_i$ : IDMS resources and usage can enhance national development

$H_o$ : IDMS resources and usage cannot enhance national development

**Table 20: is related to this hypothesis**

Variable	No. of Respondents (F)	Percentage (%)
SA	35	66.03
A	17	32.08
N	1	1.89
D	-	-



SD	-	-
<b>Total</b>	<b>53</b>	<b>100</b>

Source: field survey, 2015.

**Chi-Square Test**

Responses	Fo	Fe	Fo-Fe	(Fo-Fe) <sup>2</sup>	$\frac{(Fo-Fe)^2}{Fe}$
A	35	10.6	24.4	595.36	56.17
A	17	10.6	6.4	40.96	3.86
N	1	10.6	-9	81	7.64
D	-	10.6	-10.6	112.36	10.6
SD	-	10.6	-10.6	112.36	10.6
<b>Total</b>	<b>53</b>				<b>88.87</b>

Source: field survey, 2015.

$$Df = (r - 1)(c - 1)$$

$$= (5 - 1)(2 - 1)$$

$$= (4)(1)$$

$$Df = 4$$

4df at 0.05 level of significance = 9.488

The calculated value of the X<sup>2</sup> = (88.89) is greater than the value = (9.488). Therefore, H<sub>i</sub> is accepted and H<sub>o</sub> is rejected. It is concluded that IDMS resources and usage can enhance national development.

**Hypothesis Two**

H<sub>o</sub>: IDMS implementation in the country faces no challenges

H<sub>i</sub>: IDMS implementation in the country faces some challenges

**Table 21: is related to this hypothesis**

Variable	No. of Respondents (F)	Percentage (%)
SA	29	54.72
A	17	32.08
N	2	3.77
D	3	5.66

SD	2	3.77
<b>Total</b>	<b>53</b>	<b>100</b>

Source: field survey, 2015.

**Chi-Square Test**

Responses	Fo	Fe	Fo-Fe	(Fo-Fe) <sup>2</sup>	$\frac{(Fo-Fe)^2}{Fe}$
SA	29	10.6	18.4	338.36	31.94
A	17	10.6	6.4	40.96	3.86
N	2	10.6	-8.6	74.96	6.98
D	3	10.6	-7.6	57.76	5.45
SD	2	10.6	-8.6	73.96	6.98
<b>Total</b>	<b>53</b>				<b>55.21</b>

Source: field survey, 2015.

$$Df = (r - 1)(c - 1)$$

$$= (5 - 1)(2 - 1)$$

$$= (4)(1)$$

$$= 4$$

4df at 0.05 level of significance = 9.488

The calculated value of the X<sup>2</sup> (55.21) is greater than the table value = (9.488), therefore, H<sub>i</sub> is accepted and H<sub>o</sub> is rejected. It is concluded that IDMS implementation country faces some challenges.

**Hypothesis Three**

H<sub>o</sub>: IDMS does not have the potentials to address some pertinent needs of the country in key development areas.

H<sub>i</sub>: IDMS has the potentials to address some pertinent needs of the country in key development areas.

**Table 22: is relate to this hypothesis**

Response	No. of Respondents (F)	Percentage (%)
SA	35	66.04
A	15	28.30
N	2	3.77
D	-	-

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SD	1	1.89
Total	53	100

Source: field survey, 2015.

### Chi-Square Test

Responses	Fo	Fe	Fo-Fe	(Fo-Fe) <sup>2</sup>	$\frac{(Fo - Fe)^2}{Fe}$
SA	35	10.6	24.4	595.36	56.17
A	15	10.6	4.4	19.36	1.83
N	2	10.6	-8.6	74.96	6.98
D	-	10.6	-10.6	112.36	10.6
SD	1	10.6	-9.6	92.16	8.69
<b>Total</b>	<b>53</b>				<b>84.27</b>

Source: field survey, 2015.

$$\begin{aligned}
 Df &= (r-1)(c-1) \\
 &= (5-1)(2-1) \\
 &= (4)(1) \\
 &= 4
 \end{aligned}$$

4df at 0.05 level of significance = 9.488

The calculated value of the  $X^2 = (84.27)$  is greater than the table value = (9.488). Therefore,  $H_1$  is accepted and  $H_0$  is rejected. It is concluded that IDMS has the potential to address some pertinent needs of the country in key development areas.

## 5.0 CONCLUSION AND RECOMMENDATIONS

This research on the importance of implementing an identity management system in Nigeria suggest that there are innumerable IDMS resources, with accompanying benefits and challenges that sustains the economic growth of a nation. The research is concerned with the best usage of the IDMS resources and adequate implementation of IDMS in a context where the barriers are well addressed for national development.

### 5.1 Conclusion

Government is desirous of implementing the new system of identity management to its firm belief in the benefits that accrue from it. Government believes that a strong identity management plays a critical role in the implementation of e-governance and further enhancement of the national payments system.

It is government's belief that the introduction of smartcard is realistic; it has been proven to be a reliable technology for verifying the identity of individuals and biometrics technology have been adopted to enhance the security level of identity management. Therefore, biometric smartcard would enable government fast track its implementation of e-government not

just in improving service delivery but also in enhancing security and protecting individuals' privacy.

The new system would address various lapses in the current system and provide a secure system that would facilitate the development of the consumer credit system in Nigeria. It would fast track the introduction of modern ICT governance, while focusing attention on identity management rather than identification schemes and card issuance.

The harmonization of all existing identity database would greatly enhance identity management which would create new economic opportunities in Nigeria, improve government's revenue collection and generation while improving socio-economic life of Nigerians.

### 5.2 Recommendations

Based on the findings of the importance of implementing an Identity Management System in Nigeria, the following recommendations were made:

- i. There should be intensive enlightenment campaigns in all communities, especially in the rural communities;
- ii. There should be full mobilization and involvement of traditional leaders, community leaders, religious leaders and opinion leaders in the enlightenment programs;
- iii. There should be general enlightenment about the need for people to remove their eye glasses or veils as may be necessary for proper identification purposes;
- iv. There should be general enlightenment for the public about the eligibility for registration. Appeals should be made to the patriotic spirit of Nigerians to report fraudulent effort to register by non-Nigerians;
- v. End-user organizations should be mobilized for support and mandated to accept the national identity card for individual identification purposes;
- vi. Personal information provided by individuals should only be used for legitimate and specified/approved purposes;
- vii. Given the concerns about possible abuse or misuse of information by security agencies, access to information in the database by security agencies should be limited to what they may need for specific purposes at a particular time. The security agencies should also be enjoined to use the information for specific purposes only;
- viii. There should be enlightenment for security personnel about the need to respect privacy of individuals and not to misuse or abuse the information about individuals made available to them;
- ix. There should be a limitation of institutions/agencies that may have access to personally identifiable information in the database;
- x. Only specified responsible officers should have access to the information database;
- xi. There should be provision for the right of an individual to request a verification or updating or correction of his or her personal information on the NIMC database. The commission should respond to such requests in a timely manner, and provide data in a format that is easy to understand.
- xii. There should be adequate protection of database by encrypting the information in the database and protecting the database with password;

- xiii. Information in the database should be secured against virus infection through the installation of reliable and up-to-date anti-virus software;
- xiv. Personal information in the database should be encrypted and protected with password to limit access;
- xv. The database should be locked and made a “read only” database;
- xvi. NIMC should, in collaboration with other stakeholders, establish standards of privacy, with appropriate sanctions for breaches, to guide the operations and activities of all organizations/institutions and practitioners on privacy matters;
- xvii. There is need for Government/NIMC to regulate both public and private databases to which the multipurpose identity card is connected or to which it serves as a gateway;
- xviii. NIMC should develop its own codes of practice for use by the Commission and its employees;
- xix. There should be adequate training and re-training for responsible officers about privacy issues to enable them keep abreast of developments on privacy matters;
- xx. Adequate training for responsible officers and staff about the use of technological equipment and associated privacy issues;
- xxi. There should be provision for holder’s signature on the identity card;
- xxii. Government should create a new National Identity Database, which will serves as a central source of identity verification. It will be connected to the existing databases that are relevant to the identification of citizens and residents;
- xxiii. This new national database should use fingerprint biometrics to uniquely and unambiguously identify each individuals across the existing databases and thereafter issue a unique identification number to each verified individual, which would be common across the other databases, and should be housed in a super structure;
- xxiv. Government should name this new Super Structure. Some include: National Digital infrastructure, National Identity Management Commission, etc;
- xxv. Government approves that the creation of a super structure network, consisting of three levels: the Super Structure, all the existing and future specialized databases, and Card Accepting Devices some of which would be housed in the proposed service center;
- xxvi. Government should authorize the super structure to specify the types of connectivity between it and the two other levels in the network, whether closed WAN, VPN Dial Up, Fibre Optics, RF, GSM, the major characteristics being reliability and security; and
- xxvii. The structure would have its own network of servers that will have the following features: High hardware redundancy and System availability, RAID Array technology, UNIX Operating System, Oracle Relational Data Base Management System, its own independent Automated Fingerprints Identification System (AFIS), Key Management System, and Security Management System.

## REFERENCE

- [1] Brands, S. (2000). Rethinking Public key Infrastructure and Digital Certificates-building in Privacy, Thesis, Second Edition, MIT Press, Cambridge, MA.
- [2] Chaum, D. (1985). Security without Identification, Transaction System to make big brother obsolete, Communication of the ACM 27 (10) Pp 1030 – 1044.
- [3] Claub, S. (2001). Collection of Information on Identity Management.
- [4] Claud, S. (2002). “Technologies for Anonymity and Identity Management.
- [5] Pfitzmann, A. (2001). Multilateral Security: Enabling Technologies and Their Evaluation, in:R. Wilhelm. Pp 50-62.
- [6] Camenish, J. and A. Lysyanskaya (2000), Efficient Non-Transferrable Anonymous Multi- Shoe Credential System with Optional Anonymity Revocation, IBM Research.
- [7] Chaum, D. (1986). Showing Credentials without Identification, Signatures Transferred between Unconditionally Unlinkable pseudonyms, in F pichler (Ed). Pp. 241 – 244.
- [8] Chaum, D. (1985). Security without Identification, Transaction System to make big brother obsolete, Communication of the ACM 27 (10) Pp 1030 – 1044.
- [9] Cooper, E. (1995). Simplest approach to determining the population of the study. London: UC and Q printing press. Pp. 23.
- [10] Damker, H and U. prodesch (1999) Personal Reachability and Security Management Pp. 95-111.
- [12] Directive of the European Parliament and of the Council (1995): On the protection of Individuals with regard to the processing of Personal Data and on the free movement of such data. Official Journal 281, Pp. 0031-0050.
- [13] Grimm, R. and N. Honhorf (2000) E-Commercial Meets privacy, in: H Baumher. Pp. 133 – 140.
- [14] Harris, L. and Associates, Inc., (1991) IBB Multi-national Consumer privacy Survey, New York, <http://www.ibm.com/services/files/privacy.SurveyOct+991.pdf>.
- [15] Jenrdicke, U. and D Gerd tom Markotten (2000) usability Meets Security-the Identity manager as your Personal Security Assistant for the Internet, in Proceeding of the 16<sup>th</sup> Annual Computer Security Applications Conference, New Orleans, U.S.A.
- [16] Kohntopp, M. (2001). Collection of Information on Identity Management and link list (Partly in German and partly in English, <http://www.Koehntopp.de/marit/pub/idmanage/>.
- [17] Kohntopp, M. (2001). Collection of Information on Identity Management and link list (Partly in German and partly in English, <http://www.Koehntopp.de/marit/pub/idmanage/>.
- [18] Pew Internet and America life Project, (2008). Trust and privacy online: Why Americansjust Want to rewrite the rules, <http://pewinternet.org/report/toc.asp? Report =19>.

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[19] Pfitzmann, A. (2001). Multilateral Security: Enabling Technologies and Their Evaluation, in:R.Wilhelm (Ed.). Pp 50-62.

[20] Pfitzmann, A. (2001). Multilateral Security: Enabling Technologies and Their Evaluation, in:R.Wilhelm. Pp 50-62.