African Banking and Finance Review Journal (ABFRJ)
International Open Access Journal | www.abfrjournal.com
| Volume - 10 | Issue – 10| MARCH, 2024

# IMPACT OF DATABASE SECURITY MANAGEMENT ON LOTTERY TRANSACTIONS WITH MULTIPLE OPERATIONS

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**ABSTRACT**

*This study was designed to examine the Impact of Database security management System to track lottery transactions in a Multiple operations in National Lottery Regulatory transactions in a multiple operations in customer satisfaction with particular reference to National Lottery regulatory commission on, the instrument elements of database security management system, Lottery security system transactions in multiple operations and cloud computing of lottery operations service faced in Nigeria because in spite of the appreciable growth and expansion recorded in the lottery industry, there are still customer complaints. Primary data was used for the study, obtained through the administration of structured questionnaires. The population of the study was customers of lottery services in Nigeria. Descriptive survey research design was adopted for the study using multiple regression to analyse the data collected from 400 lottery customers. The result of the analysis revealed that lottery survival, lottery security system transactions in multiple operations and cloud computing affects customer satisfaction significantly, while there is no significant effect on database security management services and customer satisfaction in Nigeria. The study therefore recommended that as far as Nigeria is concerned, the lottery service providers can maintain their strategies on service quality and customer loyalty since their effect is insignificant, but they should ensure continuous availability of promotion, service experience and empathy in rendering their services, and also make efforts to continually improve on them since the effect for those elements were found by the study to be significant and positive.*

***Keywords:*** *Lottery Transactions, Database Security Management, Cloud Computing, Multiple Operations.*

## INTRODUCTION

The Nigerian Lottery industry is widely untapped as a result of the inability of the Federal Government regulating agency to effectively monitor and track the activities of the lottery operators.
One of the major challenges faced by the regulator is the refusal of the lottery operators' and or their inability to submit lottery transaction details (ticket sales, winners, cancelled/disqualified tickets and winners) to the regulator for review. This refusal/inability is hinged on the lottery operators' desire/claim for confidentiality and fear of bridge of trust that may lead to its vital information leaking out to its competing market. This has in-turn caused the Federal Government to lose huge revenue.
A distributed database management system (DDBMS) is a networked environment wherein a host-computer or server-computer warehouses collated data or information while it maintains a relationship with a client-computer that accesses the stored information on the server machine by placing requests over a closed network group. (Rouse M 2008)
The National Lottery Regulatory Commission, Nigeria; is the apex government lottery regulating agency saddled with the responsibility to "regulate the operation and business of lottery in Nigeria", among others; in accordance to Section 57 is the National Lottery Act 2005(NLA 2005).

This presents a system of multiple operators, each with its own independent data collation format and computing system, thus presenting the challenge of harmonized monitoring.

Without a Central Database System, the National Lottery Regulatory Commission (NLRC)Nigeria will be unable to effectively monitor the activities of the market. The National Lottery Regulatory Commission must therefore provide a platform on which all operators can via API forward daily transactions to the central server (database) without altering their daily activity model and or data loss.

This central server (database) will act as a mirror to the all the transaction activities of all operators and thus provide the National Lottery Regulatory Commission the avenue to populate reports and prepare accurate fees payable to the Federal Government.

Such a system will also provide for staff of the National Lottery Regulatory Commission to at any location login into the system and retrieve relevant required information that will guide intelligent decision-making process and day-to-day job schedule as it relates to monitoring the lottery industry in Nigeria.

**Statement of the Problem**

Effective security monitoring and regulation of lottery businesses in Nigeria has over the years been a challenge because the Commission has been forced to carry out its regulatory function manually, in the following sequence; Prospective operator applies for and obtains a lottery license/permit, Licensed operator submits print-out operational reports regularly (mode of operation is electronic, with the use of Point of Sales Terminals and backend server databases), Lottery Commission depends on the reports submitted to assess the status of the lottery industry, This sequence of manual monitoring and regulation presents the challenge of human error, bias and interference, thus allowing for report manipulation, inadequate statutory remittances due to government and no verifiable empirical data on the actual performance of the Nigerian Lottery industry and as such losing revenue from the lottery industry owing to lack of an effective monitoring system that promotes transparency and accountability.

This system will be developed to resolve this problem, by presenting a platform for the Commission to real-time access to the sales transactions of the operators.

**Objectives of the Study**

The aim of this research work is to develop a multi transaction monitoring system for lottery operations.

To design Lottery Survival
To integrate security modules for the transaction monitoring system
To implement the developed system through Cloud technologies
To evaluate the functionality of the system with regards to secured transactions.

**Conceptual Review**

APOSTU (2014) believes that the concept and use of Cloud computing plays a very vital role in the process of implementing this lottery central monitoring system. It presents an advantage that applies directly to the overhead long-term cost saving for the organization. The organization will not have to worry about cost of hardware purchase and maintenance.

Cloud computing has already made huge waves in the technology industry. Consumer cloud services such as iCloud, Google Drive and Dropbox have changed the way people think about digital content and how to use it. In the enterprise sector, cloud deployment is increasingly the preferred option, no longer the niche use case.

But this is barely the beginning. The rise of utility computing services, delivered over the Internet (or internally, in the case of private clouds), will continue to disrupt markets, spawn new business models and revolutionize information-sharing and business management for years to come. To provide a glimpse of the true impact of cloud, The Economist Intelligence Unit invited a number of experts from management, academia and the technology industry to explain what they believe will be one impact of the cloud in the medium to long term. The variety of responses presented in this curated report, sponsored by Fujitsu, is in itself proof of the cloud's far-reaching significance. Mark Ridley, technology director at reed.co.uk, predicts that the ready availability of technology services the cloud enables will reshape the way businesses are organized. He believes that the notion of an "information technology department" distinct from the rest of the business will eventually give way to a network organization of small teams with a mix of technical and non-technical skills.

James (2018), cloud broker Strategic Blue, explains the potential for cloud computing services to be traded as a commodity – but also why cloud pricing must change before that potential is realized. Looking to the IT industry itself, Dr Tua Huomo of the European Institute of Innovation and Technology argues that moving to a cloud service model not only challenges suppliers to migrate to a new technology platform, but will also force them to adopt operational and developmental processes that are more keenly focused on customer value.

The activities of multiple lottery operators can be regulated and monitored with a single Central Monitoring System, while protecting the individual operator data. This system is divided in to three independent connecting parts, thus forming "distributed computing". (Q.D.Sun et. al, 2014).

It is composed of a Display component, API component, Data component and Network through which the client and the server system can communicate, by retrieving or transmitting data. Users in the Commission can access the data from the different office locations across the country.

**Database Management System**

Syyeda (2012) noted that database management system (DBMS) is a software package designed to define, manipulate, retrieve and manage data in a database. A DBMS generally manipulates the data itself, the data format, field names, record structure and file structure. It also defines rules to validate and manipulate this data.

The functions of managing data in such a manner as it can be used for intelligent decision-making processes. It requires "sorting, retrieving, adding deleting and modifying data" and this can be achieved with the use of a software known as a database management system(DBMS), while a relational database management system(RDBMS) implements the relational model of tables and relationships.( Syyeda H et. Al 2012)

Glossary (2016) defined the functions a DDBMS to include enabling end users or application programmers to view a collection of physically separated databases as on logical single-system image. The challenge of monitoring and tracking lottery transaction between the players and the approved operators in Nigeria can resolved with the option of a Distributed Database Monitoring System (DDBMS) by combining the functionalities of a DBMS and a RDBMS. Developing a database of such magnitude requires an indepth understanding of the processes, and data type to be captured. Such properties as "primary key", "field properties", "user rights". (Ardeleanu S.D. 2016)

**Theoretical Framework**

Under this model, a firm enters a market without knowing its own growth potential; that is the firm begins to learn about the distribution of its own profitability based on information from realized profits after it had entered the market. By continually updating such learning, the firm may decide to expand, contract, or exit the market altogether. This learning model states that firms learn about their efficiency or growth potentials once they are established in the industry.

Firms expand their activities when managers observe that their estimation of managerial efficiency had understated actual levels of efficiency. As the firm ages, the owner's estimation of efficiency becomes more accurate, decreasing the probability that the output will widely differ from one year to another. The implication of this model is that younger firms (mainly Lottery) should have higher and more viable growth rates (Cunningham and Maloney, 2001).

**Economic theory**

Economic theory offers a rich set of predictions concerning the effects of income shocks on household behaviour. For example, the permanent income hypothesis argues that households should save the lion's share of any income shocks they receive. The classical theory of in-kind transfers predicts that households who receive such shocks in kind (for example as vouchers for food, school, or housing) should in most cases treat them as cash. According to the Easterlin hypothesis, positive shocks to one's neighbours' incomes should reduce one's happiness, while Veblen effects suggest that shocks to neighbours' incomes could also affect one's own consumption. To date, empirical testing of all the above predictions has been hampered by the lack of credibly exogenous variation in either a household's own income, or in the income of its neighbours. Recently, however, progress regarding own income effects has been made by using a sample of lottery winners (Imbens, Rubin and Sacerdote 2001) and by exploiting the random timing of income tax rebates (Agarwal, Liu and Souleles 2007). Social effects of income shocks have recently been studied by Luttmer (2005), and Angelucci and De Giorgi (2009), though only the latter paper has access to randomized variation in neighbours' incomes. We are aware of no natural-experimental evidence concerning the effects of in-kind transfers on consumption decisions. In this paper we study all the above hypotheses using data from the Dutch Postcode Lottery (PCL). Each week, this lottery allocates a prize to participants in a randomly chosen postcode (containing 19 households on average). More than one quarter of the Dutch population participates in the lottery. A participant wins €12,500 per ticket. In addition, one participating household in the winning postcode receives a new BMW. From an experimental design perspective, the lottery provides PCL participants in the winning code with an unexpected temporary income shock equal on average to about eight months of income, while leaving all other households' incomes unchanged.1 Our survey data includes information on consumption and happiness for four groups of households: lottery participants and nonparticipants in winning and in nearby non-winning postcodes. Given the inherent randomness in the prize draws and absent externalities between winning and non-winning postcodes, participants in non-winning postcodes constitute a valid counterfactual for participants in winning postcodes.

This allows us to test for the effects of unexpected, temporary income shocks (both cash and in kind) on winning households' consumption and happiness under quite general conditions. Similarly, under the above conditions nonparticipants in non-winning postcodes constitute a valid counterfactual for nonparticipants in winning postcodes. This allows for a clean test for social effects of income shocks on non-participating households' consumption and happiness. A noteworthy feature of our analysis of social effects is its partial-population design, in which a subset of the members of a fixed peer group receives an exogenous shock. Unlike what Moffitt (2001) calls group-changing interventions (where subjects are moved to a new peer group), partial population designs are not contaminated by the causal effects of mobility itself. Partial population designs have recently been used to estimate the extent of information dissemination and learning among neighbors and friends (Duflo and Saez 2003; Duflo, Kremer and Robinson 2004; Miguel and Kremer 2004) and peer effects in school participation (Bobonis and Finan 2009; Lalive and Cattaneo 2009). One notion of an ideal partial population design starts with a sample of social groups (say villages) assumed to be isolated from one another (so there are no cross village externalities). Next, a number of villages are randomly assigned to be 'treatment villages'. Finally, a random subset of the households in these treatment villages is treated. No households in the non-treatment villages are treated. In this design, between village comparisons identify (a) the effect of village-level treatment on the mean outcome of the entire village, inclusive of all social interaction effects; (b) the effect of village level treatment on treated households; and (c) the effect of village treatment on non-treated households. The latter provides a clean test for the existence of social effects since it should be zero if there are no externalities within villages. Most, if not all, actual studies of social effects differ from the above ideal in some way. For example, in a well-known study of health-related interventions, Miguel and Kremer (2004).

**Methodology**

Research design is the base which proceeds towards the study of the problem after formulating our research problem. A research design can therefore be said to be an arrangement of conditions for collection and analysis of data in a manner that aims to combine relevance to the research purpose with economy in procedure. The study was conducted using descriptive survey research design. A descriptive survey research design is used to explore causation in order to find underlying principles. It involves analyses of persons, events, decisions, periods, projects, policies, institutions, or other systems that are studied holistically by one or more methods. The procedure aims at identifying the variables of the study and their relationships with one another.

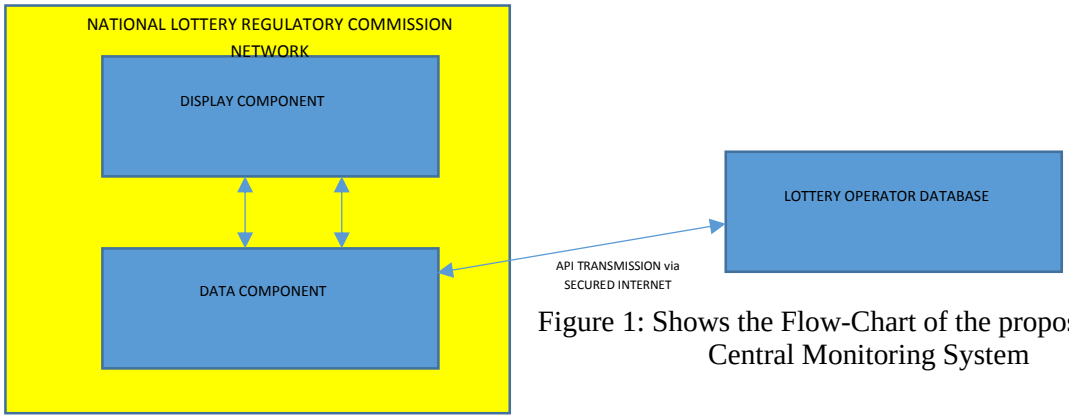


Figure 1: Shows the Flow-Chart of the proposed Lottery Central Monitoring System

The population of this study covers all registered lottery firms operating within Nigeria and six (6) selected states in of Nigeria and the FCT. These states are Lagos State, Kano State, Oyo State, Nasarawa State, Rivers State, Enugu State and the FCT, Abuja. The total population is six hundred and eight (608). This is the total number of lottery operators in the selected areas. This figure is obtained from the Ministry of Special duties, FCT, Abuja.

The study however uses simple random sampling technique to draw samples from each of the states identified above. This technique is a probability sampling method which draws a portion of a population so that each member of the population has an equal chance of being selected. In other words, in a random sampling all possible samples of fixed size have the same probability of being selected as a result the simple random sample provides us with a sample that is highly representative of the population being studied. A sample drawn at random is unbiased in the sense that no member of the population has any more chance of being selected than any other member. Since the units selected for inclusion in the sample are chosen using probabilistic methods, simple random sampling allows us to make generalizations (i.e., statistical inferences) from the sample to the population. It is used simply because the study targets selected lottery operators in Nigeria. It ensures that only people with relevant information are sampled.

**Selected Locations of Operators in Nigeria**

| S/N | Areas | Population |
|---|---|---|
| 1 | Lagos State | 158 |
| 2 | Kano State | 124 |
| 3 | Oyo State | 22 |
| 4 | Nasarawa State | 18 |
| 5 | FCT, Abuja | 113 |
| 6 | Rivers State | 131 |
| 7 | Enugu State | 42 |
| | **Total** | **608** |

**Source: Ministry of Special Duties, FCT, Abuja, 2022**

The researcher adopted the Taro Yamane's formula to obtain the sample size. This is demonstrated as follows:

$$n = \frac{N}{3 + N(e)^2}$$

Where;

n = sample size;

N = population size;

e= Level of precision required;

3 = constant

In determining the sample size, the following variables will be use as:

Confidence interval = 95 %

e = Margin of error = 0.05

Substituting into the formula,

$$n = \frac{608}{3 + 608(0.05)^2}$$

$$n = \frac{608}{3 + 608(0.0025)}$$

$$n = \frac{608}{3 + 1.52}$$

$n$ = 134

To give a fair and equal allocation according to the respective population size, proportional allocation formula was adopted and as such we have:

$$ni = \frac{nNi}{N}$$

Where:

ni = number allocated each location

n = total sample size

Ni = total population of each location

N = overall population

**Selected Locations of Operators in Nigeria**

| S/N | Areas | Population | Sample |
|---|---|---|---|
| 1 | Lagos State | 158 | 158/608 x 346 = 89 |
| 2 | Kano State | 124 | 124/608 x 346 = 70 |
| 3 | Nasarawa State | 18 | 18/608 x 346 = 10 |
| 4 | Oyo State | 22 | 22/608 x 346 = 12 |
| 5 | FCT, Abuja | 113 | 113/608x 346 = 64 |
| 6 | Rivers State | 131 | 131/608 x 346 = 74 |
| 7 | Enugu State | 42 | 42/608 x 346 = 23 |
| | **Total** | **608** | **346** |

**Source: Ministry of Commerce, Trade and Industry, FCT, Abuja, 2018**

The regression model is comprehensively specified as thus:

$LRC_i = \beta 1LSi + \beta 2DMSi + \beta 3LTi + \beta 4CCi + \varepsilon i$

Where;

LRC = Lottery Survival

DBSMS = Database Security Management System

LST = Lottery Security Transaction

CC = Cloud Computing

β1-β5 = Parameters of the independent variables

$\varepsilon$ = Random variable (Residual error term)

i = Each item that determine lottery firm survival in direct relationship to the independent variable; it takes the values of 1 to 4.

## Data Presentation

Four hundred copies of the questionnaire were administered, but three hundred and eighty-eight copies were returned, valid and analyzed as follows:

***Table 4.1*: Descriptive Statistics for the Variables**

| Stats | LRC | DBMS | LST | CC | BL |
|---|---|---|---|---|---|
| Mean | 3.23 | 3.76 | 4.28 | 4.11 | 3.23 |
| p50 | 2 | 4 | 4 | 4 | 3 |
| Min | 1 | 1 | 2 | 2 | 1 |
| Max | 5 | 5 | 5 | 5 | 5 |
| Sd | 0.56 | 0.81 | 0.78 | 0.65 | 0.84 |
| N | 388 | 388 | 388 | 388 | 388 |

*Source: Researcher's Computation, 2022*

Table 4.1 above shows the descriptive statistics for all the variables used in this study. The total number of observations for each of the variables is 388.

The descriptive statistics for Database security management system with Lottery Transactions (DBMS) in Nigeria shows the mean value is 2.23 and median of the responses is 2 implying that average of the responses on multiple operations were disagreed. The minimum and maximum 1 and 5 respectively indicating that minimum response was strongly disagreed while the maximum response was strongly agreed. The standard deviation is 0.56.

There is no indication of outliers in the data on DBMS meaning there is no response in the data that would have dragged the mean value to an unrealistic figure deviant from the median.

The table shows that the mean value for Lottery Security Transaction (LST) 3.76 and the median (p50) value was 4 indicating that the average responses for Lottery Security Transaction was agreed. The minimum and maximum value were 1 and 5 respectively indicating that minimum response was strongly disagreed while the maximum response was strongly agreed. The standard deviation was found to be 0.81 from the mean value. These values do not indicate presence of outliers.

For Lottery Security Transaction (LST), the mean value is 4.28 and the median is 4 indicating that the average responses for call service was agreed. The minimum and maximum are 2 and 5 respectively indicating that minimum response was disagreed while the maximum response was strongly agreed, and the standard deviation is 0.78. There is no presence of outliers.

For Cloud Computing (CC), the mean value is 4.11 and the median was 4, indicating that the average responses for Multiple operations was agreed. The minimum and maximum are 2 and 5 respectively and standard deviation 0.65. There is no indication of outliers.

For Lottery Survival (LS), the mean value is 3.23, median 3, minimum and maximum are 1 and 5 indicating that minimum response was undecided while the maximum response was strongly agreed respectively and standard deviation 0.84. There is no indication of outliers.

Correlation Matrix for Independent Variables

The following describes the correlations exhibited between the independent variables of the study as analyzed and expressed in the table below with a view to assess the likelihood of the presence of multicollinearity problems with the data analysed.

***Table 4.2: Correlation Analysis of Independent Variables***

| | LRC | DBSMS | LST | CC |
|---|---|---|---|---|
| **LRC** | 1 | | | |
| **DBSMS** | 0.3772 | 1 | | |
| **LST** | 0.4101 | 0.3513 | 1 | |
| **CC** | -0.3161 | -0.2556 | -0.4251 | 1 |

***Source: Researcher's Computation, 2022***

Correlation table 4.2 shows a positive relationship between Lottery Services (LS) and Database security management system (DBSMS) with a coefficient of 0.38; Lottery Services (LS) and Lottery Security Transactions (LST) with a coefficient of 0.41; and also between Lottery Services (LS) and Lottery Security Transactions (LST) with a coefficient of 0.35. In contrast, the table shows negative relationships between Lottery Services (LS) and Cloud Computing (CC) with a coefficient of -0.32; Lottery Services (LS) and Cloud Computing (CC) with a coefficient of -0.26 and a negative relationship also between Lottery Services (LS) and Cloud Computing (CC) with a coefficient of -0.43.

However, the correlation results indicate that there is no likelihood of multicolleanearity problem associated with the data of the study as none of the correlation coefficients between the variables displayed any high relationships close to 1, meaning that all the variables are not repetitive in nature.

**Testing of Hypothesis and Interpretation of Results**
**Decision rule**
Reject **Ho** if the P value is less than α (0.05) if otherwise accept Ho.

**Database Security Management System and Multiple Operations**
**$Ho_1$:** Database Security management System with regard to Lottery Transactions with Multiple Operations has no significant effect on customer satisfaction on lottery transactions with multiple operations in Nigeria.

**Table 4.3 Database Security Management System**

| Independent Variable | Dependent Variable | Regression Coefficient | Regression P-value | F-Statistics | F-Stats P-Value | R-Square |
|---|---|---|---|---|---|---|
| **Database Security Management System** | Multiple Operations | 0.734 | 0.000 | 165.2 | 0.004 | 0.662 |

***Source: Researcher's Computation, 2022***

The statistical decision rule of p- value states that the Null hypothesis should be accepted if P- value is greater than alpha value (i.e. level of significant which is 0.05) otherwise it should be rejected while the Alternative hypothesis is adopted.

From Table 4.3 above, it can be observed that the regression coefficient is 0.734 with a P-value is 0.000 which is less than alpha value (0.05). Therefore, the null hypothesis which states that Quality of calls service does not affect customer satisfaction is rejected while the alternative hypothesis which posits that database security management system affects customer satisfaction is hereby adopted. This also establishes that a positive relationship exists between the quality on databased security management system and customer satisfaction on lottery transactions with multiple operations in Nigeria. This indicates that for the service providers to increase its customer satisfaction there is need to focus on quality on database security management.

Table 4.3 above also shows that the regression model is fit to be used for the study as the F-stats is 165.2 with a p-value of 0.004. The table further reveals the summary of the fitted model of R–square which is used to determine the percentage of variability in the dependent (customer satisfaction) variable that can be accounted for by a change in the independent variable (call services). The R–square value is 0.662 (66.2%). This implies that the variability changes in customer satisfaction of the organizations can be accounted for by the independent variables tested at approximately 66.2%.

**Lottery Security Transaction**

**$Ho_2$:** Lottery Security transactions with regard to Multiple Operations has no significant effect on customer satisfaction lottery transactions with multiple operations in Nigeria.

**Table 4.4 Lottery Security Transaction**

| Independent Variable | Dependent Variable | Regression Coefficient | Regression P-value | F-Statistics | F-Stats P-Value | R-Square |
|---|---|---|---|---|---|---|
| Lottery Security Transaction | Multiple Operations | 0.811 | 0.000 | 165.2 | 0.004 | 0.662 |

***Source: Researcher's Computation, 2022***

The statistical decision rule of p- value states that the Null hypothesis should be accepted if P- value is greater than alpha value (i.e. level of significant which is 0.05) otherwise it should be rejected while the Alternative hypothesis is adopted.

From Table 4.4 above, it can be observed that the regression coefficient for internet service is 0.811 with a P-value is 0.000 which is less than alpha value (0.05). Therefore, the null hypothesis which states that Quality of internet service does not affect customer satisfaction is rejected while the alternative hypothesis which posits that Quality of internet service affects customer satisfaction is hereby adopted. This also establishes that a positive and significant relationship exists between the quality of in internet and customer satisfaction of the service providers. This indicates that for the service providers to increase its customer satisfaction there is need to focus on quality of internet service.

Table 4.4 above also shows that the regression model is fit to be used for the study as the F-stats is 165.2 with a p-value of 0.004. The table further reveals the summary of the fitted model of R–square which is used to determine the percentage of variability in the dependent (customer satisfaction) variable that can be accounted for by a change in the independent variable (internet services). The R–square value is 0.662 (66.2%). This implies that the variability changes in customer satisfaction of the organizations can be accounted for by the independent variables tested at approximately 66.2%.

**Cloud Computing**

**$Ho_3$:** Cloud Computing with regard to lottery transactions has no significant effect on customer satisfaction on lottery transactions with multiple operations in Nigeria.

**Table 4.5 Cloud Computing and Customer Satisfaction**

| Independent Variable | Dependent Variable | Regression Coefficient | Regression P-value | F-Statistics | F-Stats P-Value | R-Square |
|---|---|---|---|---|---|---|
| Cloud Computing | Multiple Operations | 0.531 | 0.000 | 165.2 | 0.004 | 0.662 |

***Source: Researcher's Computation, 2022***

The statistical decision rule of p- value states that the Null hypothesis should be accepted if P- value is greater than alpha value (i.e. level of significant which is 0.05) otherwise it should be rejected while the Alternative hypothesis is adopted.

From Table 4.5 above, it can be observed that the regression coefficient for Cloud Computing is 0.531 with a P-value is 0.000 which is less than alpha value (0.05). Therefore, the null hypothesis which states that Cloud Computing does not affect customer satisfaction is rejected while the alternative hypothesis which posits that Quality of Cloud computing affects customer satisfaction is hereby adopted. This also establishes that a positive significant relationship exists between the quality of Cloud Computing and on lottery transactions with multiple operations in Nigeria. This indicates that for the service providers to increase its customer satisfaction there is need to focus on Cloud Computing.

Table 4.5 above also shows that the regression model is fit to be used for the study as the F-stats is 165.2 with a p-value of 0.004. The table further reveals the summary of the fitted model of R–square which is used to determine the percentage of variability in the dependent (customer satisfaction) variable that can be accounted for by a change in the independent variable. The R–square value is 0.662 (66.2%). This implies that the variability changes in customer satisfaction of the organizations can be accounted for by the independent variables tested at approximately 66.2%.

**Table 4.6 Lottery Survival and Customer Satisfaction**

| Independent Variable | Dependent Variable | Regression Coefficient | Regression P-value | F-Statistics | F-Stats P-Value | R-Square |
|---|---|---|---|---|---|---|
| Lottery Survival | Customer Satisfaction | -0.773 | 0.851 | 165.2 | 0.004 | 0.662 |

***Source: Researcher's Computation, 2022***

The statistical decision rule of p- value states that the Null hypothesis should be accepted if P- value is greater than alpha value (i.e. level of significant which is 0.05) otherwise it should be rejected while the Alternative hypothesis is adopted.

From Table 4.6 above, it can be observed that the regression coefficient for Lottery Survival is -0.773 with a P-value is 0.851 which is greater than alpha value (0.05). Therefore, the null hypothesis which states that Lottery Survival does not affect customer satisfaction is accepted while the alternative hypothesis which posits that Lottery Survival affects customer satisfaction is rejected. This also establishes that a negative in significant relationship exists between lottery survival and customer satisfaction on lottery transactions with multiple operations in Nigeria.

Table 4.6 above also shows that the regression model is fit to be used for the study as the F-stats is 165.2 with a p-value of 0.004. The table further reveals the summary of the fitted model of R–square which is used to determine the percentage of variability in the dependent (customer satisfaction) variable that can be accounted for by a change in the independent variable. The R–square value is 0.662 (66.2%). This implies that the variability changes in customer satisfaction of the organizations can be accounted for by the independent variables tested at approximately 66.2%.

**Findings**

The study found that quality database security management system has a significant positive effect on customer satisfaction on lottery transactions with multiple operations in Nigeria. This means that an increase in quality database security management system results to an increase in customer satisfaction of lottery transactions with multiple operations in Nigeria and significantly. It also means that a reduction in quality of quality database security management system to a corresponding and significant reduction in customer satisfaction of lottery transactions with multiple operations in Nigeria. The findings imply that lower quality database security management system is less effective in attaining higher customer satisfaction of lottery transactions with multiple operations in Nigeria. This finding is consistent with that of Rahman, Haque, and Ahmad (2011) who conducted a study of 400 mobile telecom customers from major cities in Malaysia and concluded that network quality is one of the important factors in overall database security management system.

The study also found that quality lottery security transaction has a significant positive effect on customer satisfaction lottery transactions with multiple operations in Nigeria, Nigeria. This means that an increase in quality of lottery security transaction results to an increase in customer satisfaction of lottery transactions with multiple operations in Nigeria and significantly. It also means that a reduction in quality of lottery transactions results to a corresponding and significant reduction in customer satisfaction of lottery transactions with multiple operations in Nigeria. The findings imply that lower quality of lottery transactions is less effective in attaining higher customer satisfaction lottery transactions with multiple operations in Nigeria. This finding is also consistent with that of Rahman, Haque, and Ahmad (2011) who conducted a study of 400 mobile telecom customers from major cities in Malaysia and concluded that network quality is one of the important factors in overall lottery transactions.

The study further found that quality of lottery survival has a significant positive effect on lottery transactions with multiple operations in Nigeria. This means that an increase in lottery survival results to an increase in customer satisfaction of lottery transactions with multiple operations in Nigeria and significantly. It also means that a reduction in lottery survival will results to a corresponding and significant reduction in customer satisfaction of lottery transactions with multiple operations in Nigeria. The findings imply that lower lottery survival is less effective in attaining higher customer satisfaction on lottery transactions with multiple operations in Nigeria. This finding is however consistent with that of Serenko and Turel (2006).

Finally, the study found that cloud computing has an insignificant negative effect on customer satisfaction on lottery transactions with multiple operations in Nigeria. This means that an increase in cloud computing results to an insignificant decrease in customer satisfaction on lottery transactions with multiple operations in Nigeria significantly. It also means that a reduction in cloud computing results to an insignificant increase in customer satisfaction on lottery transactions with multiple operations in Nigeria. The findings imply that cloud computing does not significantly affect customer satisfaction on lottery transactions with multiple operations in Nigeria. This finding is inconsistent with that of Haque, and Ahmad (2011) who opined that price plays an important role in the choice criteria for database security management on lottery transactions with multiple operations.

**Conclusion**

The implication of this study for operators is that operators should not just rely on profit margins as a good indicator of business performance. Rather, they should develop strategies that better capture customers' perceptions of their service offerings and these strategies can complement the internal perceptions of service offering. Customer satisfaction strategy helps companies to compare their performance against customer standards, compare customer standards against internal process and identify opportunities for improvement.

The study concluded that quality offerings should take the most important place satisfying customers. Quality which includes efficient and effective communication, attractive and appealing products, offering of products that are relatively the best in the industry, ability of getting connected to the internet at the lowest rate, impressive response during transactions, efficient and effective security management, and good hints on the maintenance of database among others, should represent areas of strength around which strategies can be built in order to develop sustainable competitive advantage through customer satisfaction.

**Recommendations**

In the light of the above findings, the following recommendations are made:

The study recommends regarding the lottery transactions with multiple operations in Nigeria, that everything possible should be done to ensure that database remain uninterrupted and customers have access to clean and clear transactions service as this accounts for what satisfies customers of lottery services in Nigeria significantly.

The lottery service providers should also ensure quality internet service where there is fast and easy access for customers. The service should be void of seizures and interruptions as internet service is one of the factors that significantly account for customer satisfaction in Nigeria. The lottery service providers should make all possible strides to meet up with developed nations in terms of internet speed and access.

Thirdly, service providers should avail themselves of best practices worldwide in the area of lottery security transaction and establish contact with a view to knowing how their companies are performing relative to their promises and customers expectation. They would also know from customers how they could do better.

Finally, activities of the National Lottery Regulatory Commission (NLRC) should be further strengthened by ensuring adequate funding that will create awareness of Nigeria's investment opportunities and their benefits therein. in terms of cloud computing, the lottery transaction service providers may remain indifferent about their cloud computing policies as customers in Nigeria are not significantly moved by the prices. However, since the effect is negative, the lottery transaction providers may improve on their prices by having reductions, if possible, that would improve their customers' satisfaction significantly.

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