# DATA AUTHENTICITY AND INFORMATION VALUE OF TELECOMMUNICATION FIRMS IN SOUTH-SOUTH, NIGERIA.

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## ABSTRACT

The study examined the influence of Data Authenticity on Information Value of Telecommunication Firms in South-South, Nigeria. This hypothesis testing study adopted a causal research design and a cross-sectional investigation and obtained quantitative data from the respondents in a non-contrived environment. The target population for this study consists of all Telecommunication Firms in South-South, Nigeria while the accessible population for the study comprised four (4) Telecommunication Firms in South-South, Nigeria. These telecommunication service providers are the ones predominantly involved in the delivery of voice call services even though they provide data support services. The researcher adopted a census study because of the small size of the study population henceforth; there was no need for sampling. However, five (5) managers were drawn from each of the Telecommunication Firms in South-South, Nigeria that constituted the study respondents. In all, one hundred and twenty (120) managers constituted the respondents for the study. One hundred and twenty (120) copies of structured questionnaire were administered to the respondent managers while one hundred (100) copies were retrieved, cleaned and qualified for use. Measures of central tendencies and measures of dispersions were used in analyzing the respondent's demographics. More so, the simple Regression Analysis was used in testing the various hypotheses in other to ascertain the influence of the predictor variable (Data Authenticity) on the criterion variable (Information Value). The result of the analysis revealed that Data Authenticity significantly and positively had an influence on Information Value of Telecommunication Firms in South-South, Nigeria. Remarkably, sequel to the obtained findings, the researchers concluded that Data Authenticity significantly and positively influenced Information Value and thus recommended that Telecommunication Firms in South-South, Nigeria should monitor and always improve on the authenticity of their data sets in other to enhance their value of information.

**Keywords:** Data Authenticity, Information Value, Decision Value and Usability Value

## INTRODUCTION

Information value is defined as the increase in expected value or benefit that the manager gets for having obtained the right information. The value of information (VoI) is a decision analytic method for quantifying the potential benefit of additional information in the face of uncertainty. Simply put, your data today holds more value than your data tomorrow. This is the principle behind the time value of information. The user of information gives value to the piece of information when the information is used. The purpose of testing, computer modeling, or any other information generator is to provide information and analysis so that a sound decision can be made. When the information does not match the decision, or the information is not available in a timely fashion, bad decisions are made (Baio & Russo, 2009).

Value of information is a methodology with formal definitions in the field of decision analysis that can be particularly useful in identifying desirable ways to improve the prospective outcomes for the chosen course of action. While basic decision analysis with expected utility approaches allows decision makers to identify the best course of action when faced with a situation of uncertainty, Value of information provides guidance on how decision makers might invest in reducing that uncertainty before selecting a course of action.
Furthermore, Value of information is defined as the increase in expected value that arises from making the best choice with the benefit of a piece of information compared to the best

choice without the benefit of that same information. Value of information is the amount that could be paid to obtain the information, whereby the decision with information would result in the same certain equivalent value as the decision without information and without incurring the cost of obtaining it. It is possible for information to have value even if no specific decision problem has been modeled. For example, information can have entertainment value, or information can help to keep order. The value of information is defined as the expected utility gain by obtained (conditional) or predicted (expected) information including their costs and consequences with the difference of the costs and consequences of the information (Raiffa & Schlaifer, 1961).

In theory, value of information can be used to assess the value of any piece of information that helps to improve the estimate of one or more alternatives' performance on one or more criterion. In some cases, resolving uncertainty prior to making decisions has little or no actual value in a particular context, while in other cases, resolving uncertainty may be the primary enabler of value in a situation and not necessarily in a way that is intuitively obvious. Value of information improves the ability to manage that risk by focusing resources on monitoring those parameters whose value might most affect the relative desirability of alternative strategies to secure the system. Furthermore, by guiding decision makers to obtain information that reduces negative surprises when practical, value of information can improve the robustness of the selected alternative.

The concept of authenticity informs a number of central topics in management studies. On the surface, it might seem that a consensus exists about its meaning; there is indeed widespread agreement that authenticity refers to that which is "real" or "genuine" or "true". Below the surface, however, there is much less agreement; scholars use the same lexical term but often approach the concept from different perspectives and apply different meanings. Whatever the reason, the concept of authenticity carries great appeal indeed. As Potter (2010) proclaimed, "the demand for authenticity…is one of the most powerful movements in contemporary life. "There are different types of authentication methods that could be used for Web Applications so that security could be provided to the website and to its users. Authentication is used not only on websites but everywhere. It is an "Idea" to keep the hackers away so that if they are not authorized to access, how would they hack the platform? Authentication and authorization work together to ensure the website's security to the core, if one of them is removed, the application's security is sacrificed. There is no point in authenticating the user if we are not authorizing them the task and routes, and the same way if the authorization is implemented without authentication, the user simply cannot identify themselves to the website to access.

Data authenticity refers to the trustworthiness of a data or record i.e., the quality of a record that is what it purports to be and that is free from tampering or corruption. It furthers involves identity and uniqueness of data. More so, a record or data is authentic when it is the document that it claims to be. Proving a record's authenticity does not make it more reliable than it was when created. It only warrants that the record does not result from any manipulation, substitution, or falsification occurring after the completion of its procedure. Thus, the authentication of the reproduction of a record, made by an official authorized to execute this function, provides such copy with the same force of the document it transcribes or reproduces, be it a draft, an original, or another copy, but also with its same degree of reliability. This paper therefore examined data authenticity and information value of telecommunications firms in South-South, Nigeria.

## THEORETICAL FOUNDATION

### Absorptive Capacity Theory

Absorptive capacity theory examines the extent to which a firm can recognize the value of new external information, assimilate it, and apply it toward achieving organizational goals (Liu, Zhang, & Hu, 2005). The theory assumes that absorbing new knowledge can help an organization become more innovative and flexible and achieve higher levels of performance than it would without absorbing new knowledge. The theory also assumes that firms that have higher abilities for absorbing new knowledge will have a competitive advantage over firms with lower abilities. A firm's technical knowledge tends to come from four sources. (1) The firm conducts its own research and development (R&D). (2) The firm derives new knowledge from its own current manufacturing operations. (3) The firm borrows new knowledge from other organizations or other sources. (4) The firm purchases new knowledge, such as through buying new equipment, hiring new knowledgeable people, or paying a consultant to train individuals in the use of a new method.

The theory assumes that organizations require a knowledge base to be able to absorb and use new knowledge. Firms that have no knowledge base may never be able to absorb new knowledge, no matter how they obtain it or how much they spend to obtain it. Firms that have never developed a knowledge base are said to be "locked-out" for subsequent knowledge and technological developments, a situation that can result in the creative destruction of an organization (Schumpeter, 1942). The possession of prior knowledge is helpful for organizations in two ways. First, creating an absorptive capacity for new knowledge in one period will help the absorption of new knowledge in the next period. Second, the successful use of new knowledge can be self-reinforcing and can motivate a firm to continue to absorb new knowledge indefinitely. Firms with higher absorptive capacities tend to proactively search for and absorb new knowledge regardless of current performance, but firms with lower absorptive capacities tend to reactively scrounge for new knowledge in response to some failure or decline in performance.

### Concept of Data Authenticity

Data authenticity refers to the trustworthiness of a data or record i.e., the quality of a record that is what it purports to be and that is free from tampering or corruption. It furthers involves identity and uniqueness of data. More so, a record or data is authentic when it is the document that it claims to be. Proving a record's authenticity does not make it more reliable than it was when created. It only warrants that the record does not result from any manipulation, substitution, or falsification occurring after the completion of its procedure. Thus, the authentication of the reproduction of a record, made by an official authorized to execute this function, provides such copy with the same force of the document it transcribes or reproduces, be it a draft, an original, or another copy, but also with its same degree of reliability.

If the reproduced document could not be treated as a fact when created and in its original status, the authentication of its copy does not confer it this capability. By the same token, an original document declared authentic by a witness, or demonstrated so by the security of its transmission and by controlled record-keeping procedures, remains as reliable as it was when compiled. For example, an electronic message whose formal components are not predetermined, and whose creation is not procedurally controlled does not become reliable when electronically sealed or time stamped: it can be called an authentic record but cannot be treated as the fact it stands for, and therefore cannot be presumed genuine. On the surface, there might seem to be widespread agreement about the meaning of authenticity. Most

scholars agree that it refers to that which is “real” or “genuine” or “true” (Dutton, 2013). In this sense, authenticity refers to some sort of verification process in that it “describes the evaluation of some truth or fact” (Newman, 2016). Even if “it is ultimately not about the facts per se but rather about interpretations regarding those facts” (Kovács, Carroll & Lehman, 2014). As such, authenticity is not a property of entities but, instead, a claim that is made by or for them and either accepted or rejected by relevant others (Peterson, 2005). In short, there indeed exists a general consensus amongst scholars in the social and behavioral sciences that authentic entities – whether they are individuals, collectives, or objects are what they appear to be or are claimed to be (Trilling, 2015). The Society of American Archivists defines authenticity as: “The quality of being genuine, not a counterfeit, and free from tampering, and is typically inferred from internal and external evidence, including its physical characteristics, structure, content, and context”. Authenticity does not automatically imply reliability of the content of the record (Pearce-Moses, 2005; Duranti, 2008).

Authentication and Authorization is the base of security for all the Technologies present in this world today. In this digital world where every Business, Government Body, Companies, Users, etc. needs a website to inform the world about their presence on the internet, provide services online and become a “Brand”, the risk of leaking user’s sensitive information increases. It could be dangerous to the users of the hacked website because their sensitive information like a credit card, bank account details, etc. could be sold in the black market of the “dark web”. The international records management standard identifies authenticity as follows: “An authentic record is one that can be proven; to be what it purports to be; to have been created or sent by the person purported to have created or sent it, and; to have been created or sent at the time purported (ISO 2018). Authenticity is a critical concern in domains of history, jurisprudence, and diplomatic studies.

**Concept of Information Value**

In theory, value of information can be used to assess the value of any piece of information that helps to improve the estimate of one or more alternatives’ performance on one or more criterion. In some cases, resolving uncertainty prior to making decisions has little or no actual value in a particular context, while in other cases, resolving uncertainty may be the primary enabler of value in a situation and not necessarily in a way that is intuitively obvious. Value of information improves the ability to manage that risk by focusing resources on monitoring those parameters whose value might most affect the relative desirability of alternative strategies to secure the system. Furthermore, by guiding decision makers to obtain information that reduces negative surprises when practical, value of information can improve the robustness of the selected alternative. Decision makers are faced with ever-growing information sources, but there is no commensurate growth in human cognitive abilities or in research budgets that would help in leveraging those sources, while decision makers also face growing scrutiny, political pressure alongside calls for transparency. Thus, the need to understand the value of information is greater than ever, and thus so is the need to understand value of information application

Value of information (VOI) is the amount a decision maker would be willing to pay for information prior to making a decision. VoI is sometimes distinguished into value of perfect information, also called value of clairvoyance (VoC), and value of imperfect information. They are closely related to the widely known expected value of perfect information (EVPI) and expected value of sample information (EVSI). Note that VoI is not necessarily equal to "value of decision situation with perfect information" - "value of current decision situation" as commonly understood. It is important to recognize that information is not the same as

knowledge and should not, therefore, be used interchangeably (Glynn et al., 2017). Knowledge is internalized information (tacit or explicit) that aligns with given beliefs (conscious or unconscious) and/or acquired behaviors, and that thereby enables decisions and actions. Given our definitions, information does not have any value unless it can become internalized and transformed into knowledge. But at the same time, human recognition, seeking, and structuring of data and observations into information implies that some potential value was, at a minimum, innately expected given the human agency in the creation and consideration of information.

**Decision Value**

Decision value is defined as the benefit that a manager gets for having taking an appropriate decision to undertake certain tasks and responsibilities himself or deliberately delegating such responsibilities to others who will deliver the expected outcomes. In addition, value-based decisions are decisions that involve subjective preferences for example, (whether an individual want an apple or an orange?). These may be contrasted with perceptual decisions that involve decisions related to an objective state of the world which entail asking the question (whether what is been held is an apple or an orange?) People differ in whether they like to be in control of a decision or whether they would happily delegate a decision. People often make decisions which not only affect their own outcome but also the outcome of others. These decisions are prevalent in many areas, e.g. choosing a vacation destination/ restaurant/ leisure activity for a group of friends, firms deciding whether to move to a new city, athletes taking the decisive shot, or representatives opting in or out of committees. Some people might strive to be in control in these decisions while others see these decisions as a burden and would prefer to give up the decision-making power (Owens et al., 2014).

Some studies investigated the value of keeping control of tasks such as choosing a project or answering knowledge question. The usual finding is that the person in charge often keeps the decision-making power beyond a cost-benefit optimum (Bartling et al., 2014; Bobadilla-Suarez et al., 2017; Fehr et al., 2013; Owens et al., 2014). However, when people have to choose between a fair and an unfair allocation, the valuation of decision-making power can be affected by a multitude of factors such as the own distributive preferences, the own outcome or the belief about the potential delegate's preference. There is also evidence that some people become responsibility averse even when the payoffs within a group are aligned (Edelson et al., 2018). It could be that this responsibility aversion is even stronger when the allocation choice could result in unequal outcomes across people.

**Usability Value**

Usability value is defined as the ability of a software product or information to enable a specified user to achieve his or her desired objective with good level of effectiveness, safety and security with the period in use. Evaluation of information systems (IS) represents an important topic among practitioners and researchers of information systems development (ISD) field. The evaluation of an IS may regard different aspects of the system, for example, performance, cost-benefit analysis, user acceptability, usability, reliability, functionality, efficiency job satisfaction, etc. In this paper, we will focus on usability evaluation (UE) of information systems. According to Kirwan (2012), a product can be said to be efficient if the user can use the product by specific time to meet their objectives accurately and completely when using the system. According to ISO (2018) usability is the level of adoption of a product from the user's perspective to achieve an objective effectively, efficiently, and satisfactorily. Usability evaluation needs to be done to ensure that a product can be run without giving confusion to the user.

## METHODS

The study population consisted of all registered and functional telecommunication firms in South-South, Nigeria, while the accessible population for the study comprised four (4) Telecommunication Firms in South-South, Nigeria. These telecommunication service providers are the ones predominantly involved in the delivery of voice call services even though they provide data support services. The researcher adopted the entire population (census) as the sample size considering the fact that the study population is not large. However, five (5) managers were drawn from each of the four telecommunication firms in each state that constituted the study population. Preliminary investigation revealed that there are five most important managerial positions in these telecommunication firms. Specifically, the study respondents include: The ICT and Security Operations Manager, Marketing Manager, Research, Innovation and Development Manager, and Service Manager. In all, one hundred and twenty (120) managers constituted the respondents for the study. The study used structured-close ended questionnaire as a means of generating primary data from the respondents of the study. The validity of the instrument was determined by the team of supervisors and other experts in measurement and evaluation studies. Reliability in this study was determined using pilot-testing or pre-testing the instrument on 16 other managers of these firms who were not originally included in the study. The researcher also used the Cronbach's Alpha technique to ensure the reliability and internal consistency of the measurement instrument. One hundred and twenty (120) copies of structured questionnaire were administered to the respondent managers while one hundred (100) copies were retrieved, cleaned and qualified for use. Measures of central tendencies and measures of dispersions were used in analyzing the respondent's demographics. More so, the simple Regression Analysis was used in testing the various hypotheses in other to ascertain the influence of the predictor variable (Data Integrity) on the criterion variable (Information Value). The result of the analysis revealed that Data Integrity significantly and positively had an influence on Information Value of Telecommunication Firms in South-South, Nigeria.

**Table: 1 Reliability Coefficients of Variable Measures**

| S/No | Dimensions/Measures of the study variable | Number of items | Number of cases | Cronbach's Alpha |
|---|---|---|---|---|
| 1 | Data Authenticity | 5 | 100 | 0.798 |
| 2 | Decision Value | 5 | 100 | 0.859 |
| 3 | Usability Value | 5 | 100 | 0.891 |

Source**:** SPSS Output, 2026

## RESULTS

### Data Authenticity and Information Value Measures

This section shows the result of Pearson Product Moment correlation matrix obtained for data authenticity and information value measures. The correlation coefficient (rho) result in table 2, and 3 were used to answer research question 1.

**RQ1:** To what extent does data authenticity influence information value of telecommunication firms in South - South Nigeria?

**Table 2: Correlations for Data Authenticity Influence on Decision Value**

| | | Data Authenticity | Decision Value |
|---|---|---|---|
| Data Authenticity | Pearson Correlation | 1 | .708** |
| | Sig. (2-tailed) | | .000 |
| | N | 100 | 100 |
| Decision Value | Pearson Correlation | .708** | 1 |
| | Sig. (2-tailed) | .000 | |
| | N | 100 | 100 |

**. Correlation is significant at the 0.01 level (2-tailed).

Source: SPSS Output, 2026

Table 2 shows a Pearson Product Moment Correlation (rho) of 0.708 on the influence of data authenticity on decision value. This value implies that a strong relationship exists between the variables. The direction of the relationship indicates that the influence is positive; implying that an increase in decision value was as a result of the adoption of data authenticity. Therefore, data authenticity has a strong influence on decision value of telecommunication firms in South - South Nigeria.

**Table 3: Correlations for Data Authenticity Influence on Usability Value**

| | | Data Authenticity | Usability Value |
|---|---|---|---|
| Data Authenticity | Pearson Correlation | 1 | .743** |
| | Sig. (2-tailed) | | .000 |
| | N | 100 | 100 |
| Usability Value | Pearson Correlation | .743** | 1 |
| | Sig. (2-tailed) | .000 | |
| | N | 100 | 100 |

**. Correlation is significant at the 0.01 level (2-tailed).

Source: SPSS Output, 2026

Table 3 shows a Pearson Product Moment Correlation (rho) of 0.743 on the influence of data authenticity on usability value. This value implies that a strong relationship exists between the variables. The direction of the relationship indicates that the influence is positive; implying that an increase in usability value was as a result of the adoption of data authenticity. Therefore, data authenticity has a strong influence on usability value of telecommunication firms in South - South Nigeria.

## DISCUSSION OF FINDINGS

The findings showed that there is a significant positive relationship between data authenticity and information value of telecommunication companies in South-South, Nigeria. This finding supports the finding of Macharia *et al* (2015) who examined the effects of data authentication on logistics firm's performance in Nairobi Kenya. The study further revealed that information value significantly moderated the relationship between the study variables. Bansal, Bhargavan and Maffeis (2012) examined the effects of data authenticity on Ghana banking sector performance. The target population was the bank in Accra city. The results of the analysis showed a high significant relationship between data authenticity and banking sector performance in Ghana. The finding also agreed with Gauravaram (2012) who carried out a

study assessing the relationship between data authentication (DA) and organizational performance of retail super stores in Nairobi Kenya. The study found a positive relationship between data authentication and organizational performance in Nairobi Kenya retail Super stores. Similarly, Meshach, Emelia and Samuel (2019) carried out a study assessing the effects of data authenticity (DI) on information value using Unilever Ghana Limited as case study and found that there was a positive relationship between data authenticity and value of information generated in unilever Ghana Limited.

The positive relationship identified in the study aligns with previous research indicating that high data authenticity enhances the perceived value of information. According to Kahn, Strong, and Wang (2002), when data is authentic, it instills confidence among users, leading to better utilization and higher perceived value of the information. This is particularly relevant in telecommunication companies where accurate data is vital for network management, billing, and customer service. The study by Bruhn, Schoenmuller, and Schäfer (2019) further supports this notion, demonstrating that perceived data authenticity significantly influences the perceived value of telecommunication services. This highlights the importance of ensuring data authenticity in telecommunication companies to enhance customer satisfaction and loyalty.

## CONCLUSION

This study examined the influence of data authenticity on information value of telecommunication companies in South-South, Nigeria. Data authenticity (predictor variable) was tested against the proxies of information value (criterion variable) decision value and usability value. The hypotheses were tested using the Simple Regression Analysis. The tests were carried out at a 95% confidence interval and a 0.05 level of significance.

The major findings revealed that data authenticity has a strong positive influence on information value of telecommunication firms in South-South, Nigeria. Based on discussion and conclusion drawn; it was recommended that;

i. The leadership of telecommunication firms in South-South, Nigeria should work assiduously in ensuring that their data sets are authentic, in order to have the much needed usability value and decision value.

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