

Effect of Information Quality on the Performance of Selected MDAs in Bauchi State, Nigeria

¹**ZAKARI Salihu, Dogo**
salihuzakaridogo@gmail.com

²**SULEIMAN Wasilu**
wasilusuleiman@yahoo.com

^{1&2} Faculty of Management Sciences, Department of Business Administration, Bauchi State University, Gadau

Abstract: *This study investigated the effect of information quality on the performance of selected MDAs in Bauchi State, Nigeria. Information quality was the independent variable while organizational performance was the dependent variable. The study adopted the cross-sectional survey in its investigation of the variables. Primary source of data was generated through self-administered questionnaire. The population of the study was one thousand, three hundred and sixty-seven (1,367) staff of selected MDAs in Bauchi state. The sample size of three hundred and two, (302) was arrived at using the Krejcie and Morgan Table (1970). The sampling procedure used in this study was the simple random sampling technique. The research instrument was validated through supervisor's vetting and approval while the reliability of the instrument was achieved by the use of the Cronbach Alpha coefficient with all the items scoring above 0.70. Data generated were analyzed and presented using both descriptive and inferential statistical techniques. The hypotheses were tested using the linear regression Statistics. The tests were carried out at a 95% confidence interval and a 0.05 level of significance. The findings revealed a positive and significant effect of information quality on the performance of selected MDAs in Bauchi State, Nigeria. The study recommends that the organization should design well organized and developed a quality information system to help in making appropriate decision that is better than the current decision-making process.*

Keywords: *Information Quality, Organizational Performance.*

INTRODUCTION

As a global trend, all high-performance organizations are interested in developing effective performance measurement systems and the concept appears early as a categorical imperative in almost all the human spheres of activity (Buchanan & McCalman, 2018). In the field of organization, the slogan today is incisive: you get what you measure and you can't really manage a project unless you measure it. Consequently, firms must measure their performance in order to make good business decisions and ultimately, to give life to their mission, vision and strategy, and to increase their competitive advantage in the era of globalization (Côte-Real, Ruivo & Oliveira, 2020). According to Tamunomiebi, Adim and Adubasim (2018) organizational

performance is the measure of standard or prescribed indicators of effectiveness, efficiency and environmental responsibilities such as cycle time, productivity, waste reduction and regulatory compliance

Insofar as a psychic representation makes possible a perception of reality (such as quality, effectiveness, efficiency, productivity, responsiveness, responsibility and accountability), the performance measurement terminology has a subjective dimension. This undoubtedly explains the fruitfulness and richness of the critical view on this concept, and the increasing variety of a certain number of tools and instruments which propose to measure it. Moreover, the debates between supporters of various researchers and stakeholders continue to rage.

According to Anwar and Abdullah (2021), the spectacular growth of management information system has enormous potential for improving the organizational performance. However, the huge investment made in MIS puts increasing pressure on management to justify the outlay by quantifying the performance effects of MIS applications. Also, the issue of security of information and technical know-how constitutes a major stumbling block to the effective usage of MIS. Considering the aforementioned context, it is important to note that lack of awareness of the challenging issues surrounding the implementation process could cause problems for the whole process of MIS development and deployment in the organization. Furthermore, the problem of lack of key success issues seems to be a serious obstacle for the MIS implementation process. It is essential to define the success factors and manage them in order to carry out a successful implementation. Additionally, MIS implementation affects an organization and these effects are related to the consequences of the business processes. Consequently, this issue is crucial for an organization to consider when implementing a new MIS in the organization.

The purpose of this study is to examine the effect of information quality on organizational performance in selected MDAs in Bauchi state, Nigeria.

The study provided answer to the following research question:

- i. What is the effect of information Quality on the performance of selected MDAs in Bauchi State, Nigeria?

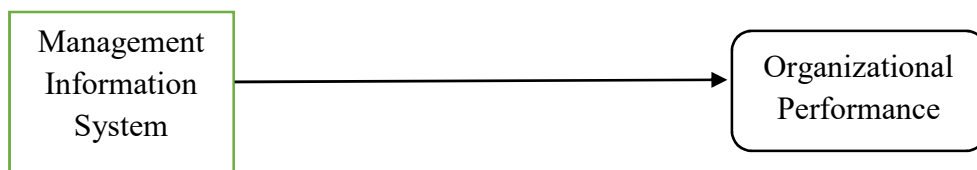


Fig.1 Conceptual framework for information quality and organizational performance

Source: Desk Research, 2023

LITERATURE REVIEW

Theoretical Foundation

The DeLone and McLean model

The DeLone and McLean model are one of the most commonly used frameworks for assessing the effectiveness of information systems (DeLone & McLean, 2003). The approach was developed to provide an avenue through which project teams can measure the performance of information systems and generate evidence that can be used to predict the factors for success. In some instances, the focus is on determining how the systems can influence organizational outcomes that are specific to a given sector (Sedera, Chian & Dey, 2006). Besides, attempts have been made to examine the relationship between different dimensions of the model and the successful implementation of information systems. The outcomes of the projects have been mixed but have still provided information that can help administrators make informed decisions about the use of different technological systems.

The implementation of information system projects can be a costly affair for any organization because of the requirements involved. A significant number of projects can fail because of various factors that include a lack of expertise and selection of the wrong tools. Available research evidence shows that a great number of projects are usually canceled before completion. Possible reasons for cancellation include system failure, cost, time overruns, and the emergence of new technologies. Companies continue to view information systems as an avenue for improving their effectiveness and meeting the needs of customers (Mkoba & Marnewick, 2016). To ensure minimal losses associated with information system projects, there is a need to evaluate them carefully before they are launched. This process entails examining how effective the systems are in improving everyday operation and how they can be successfully implemented in the organization.

Information Quality

There are various definitions for information quality provided by reviewing literature; however, it is the concept of “fitness for use” that is most prevalent. This definition takes the perspective of assuring quality based on user needs within organizations and between organizations asserts (Liu & Atuahene-Gima, 2018). According to Regan (2019) information is data that has been processed into a form that has meaning for the recipient and has real value and is felt for current decisions or future decisions. However, there is an abundance of attributes and dimensions that have been identified in the literature that explain information quality in more measurable terms. According to the attributes of information quality are complete, concise, reliable, timely, valid, accessible, appropriate amount, credible, relevant and understandable. Higher management can make quick decisions, sufficiency is another characteristic of information quality that it should not be insufficient and must contain all information required to the user. Understandability is a very effective characteristic of the IQ construct that it should be easy to understand and should not be complex that difficult to grasp. Conciseness is another vital part of information quality produced by the system in any organization (Ghasemaghahi & Calic, 2019). Additionally, Information quality demonstrates the output characteristics of the information system that it is providing the timely information to all the departments of the organization; the information should be relevant to the particular user or the department. The

required information is available at the right time to the right person; the data' provided by the information system should be understandable to the users (Shahzad, Hassan, Aremu, Hussain & Lodhi, 2021).

Consequently, the quality of data in those data repositories has become a greater concern for firms. Poor information quality impacts a typical firm in many ways on the operational, tactical and strategic level. These impacts include customer dissatisfaction, increased operational costs, less effective or wrong decision-making, and a reduced ability to make and execute strategies adds (Namugenyi, Nimmagadda & Reiners, 2019). Furthermore, poor information quality reduces the employees' trust in the data, the employees' enthusiasm to use the data, and makes it more difficult to align the firm. Poor information quality and its underlying causes are potent contributors to an "information ecology" inappropriate for the Information Age, (Unkelbach, Koch & Alves, 2019).

Organizations today are repeatedly recognizing that making quality decisions depends upon the quality of information available to support these decisions (Steiss, 2019), thus making the provision of quality information the key to gaining a competitive advantage (Rejeb, Keogh & Treiblmaier, 2019). Nevertheless, simply acquiring or possessing information is not directly related to company's performance, but it is rather the utilization of information that is the key link between information acquisition and the company's performance (Weller, 2018). If companies want the available quality information to contribute to their performance, such information must be used to improve their decision-making (Rejeb, Keogh & Treiblmaier, 2019).

Organizational Performance

Research on organizational performance by academics and practitioners is particularly topical. The organizational performance construct is probably the most widely used dependent variable, in fact, it is the ultimate dependent variable of interest for any researchers concerned with just about any area of management yet it remains vague and loosely defined (Tamunomiebi, Adim & Adubasim, 2018). The construct has acquired a central role as the deemed goal of the modern industrial activity. As a result of this, a considerable amount of literature has been published, a key focus being on the improvement in performance dealing with an increasingly uncertain world economic environment (Epstein, Elkington & Herman, 2018).

Akram, Goraya, Malik and Aljarallah (2018) posits that performance is central to success in today's fast moving competitive markets, and measuring organizational performance is critical to managing it effectively. Performance is a measure of how efficiently and effectively administrators use, available resources to satisfy customer and achieve organizational goals. Performance increases in direct proportion to increase in efficiency and effectiveness. Performance focuses on the measurement of the aggregate effectiveness and efficiency of the organization. Organizational performance relates to factor like increasing profitability, improved service delivery, obtaining the best results in important areas of organizational activities (Shafiq, Lasrado & Hafeez, 2019).

However, there is no universal measure of organizational performance that would suit any organization in all circumstances (Iqbal, 2018), as well as a way of defining it. Organizational performance is a fundamental problem for every organization, both profit and non-profit

organizations. It is one factor that determines the success or failure of an organization (Masood & Egger, 2019). Organizational performance is often associated with organizational strategy (Al Khajeh, 2018). Organizational performance is always planned and controlled to improve organizational strategy (George, Walker & Monster, 2019). Achieving high organizational performance can be done by establishing and focusing on results, empowering its workforce, motivating and inspiring people to succeed, being more flexible and able to adapt to new conditions, being able to compete in terms of performance, maintaining communication with stakeholders, and must be in line with the mission of the organization.

Relationship between Information Quality and Organizational Performance

Luthans, Luthans and Luthans (2021) investigated information systems and their effect on organizational performance in higher education institutions. Partial least square was employed in analyzing the data. The analysis of results indicates that there are capacities associated with information systems that influence the success of these systems, and that this success affects job satisfaction and job commitment and through the latter to organizational performance. Young-Harry, Oparanma and Ejo-Orusa (2018) investigated management information system and organizational performance of Seven-Up Bottling Company in Aba and Port Harcourt. One hundred and seventeen respondents were sampled for the study. Descriptive statistics and Spearman's rank correlation were used for data analysis and hypothesis testing. The study findings reveal that there is a positive significant relationship between management information system and organizational performance of Seven Up bottling company in Aba and Port Harcourt.

Trabulsi (2018) investigated the impact of accounting information systems on organizational performance using Saudi's SMEs as the focus of the study. Smart partial least squares was used to analyze the data and to test the study hypotheses. Findings proof that using an AIS has a significant impact on organizational performance generally and on all its dimensions including cost reduction, improving quality and effective decision making. Grover, Chiang, Liang and Zhang (2018) examined the influence of information systems on organizational results. A total of 133 companies of Tamaulipas state, Mexico were sampled for the study. Partial Least Squares (PLS) statistical technique was employed in analyzing the data. The results of the empirical analysis indicate that information quality is the most important precedent for user satisfaction and for the utility of the IS, given that the users consider the availability and accuracy of the information to be a key element for the successful implementation of a system, followed by the quality of the system, and the service.

Okeke (2021) investigated the relationship between the use of information systems and employee job performance in Kenindia Assurance Company Limited. . Ordinal scale was employed in analyzing the data. The study findings revealed that the use of MIS had enhanced access to resources and employee satisfaction. The results of the study indicate that the new IS tends to cause fear and anxiety among employees who think that the system is out to take their jobs. It is obvious that the relationship between management information system and organizational performance have been empirically reviewed in management literature. The empirical evidence revealed conflicting findings. Emmanuel, Mary and Peace (2019), Chepkwony (2018) found significant relationship between MIS and organizational performance while, while Müller, Fay & Vom Brocke (2018) found no statistical significant relationship between management

information system and organizational performance. Also, none of the studies have considered the effect of the types of management information system on organizational performance. Also, most the studies were foreign and also none have been done in the selected case study organizations, hence the need for this research work.

Based on the analysis so far the following hypothesis is hereby put forward to be validated or refuted.

Ho₁: Information quality does not significantly impact Organizational Performance of selected MDAs in Bauchi State, Nigeria.

METHODOLOGY

The study adopted the cross-sectional survey in its investigation of the variables. Primary source of data was generated through self- administered questionnaire. The population of the study was one thousand, three hundred and sixty-seven (1,367) staff of selected MDAs in Bauchi state. The sample size of three hundred and two, (302) was arrived at using the Krejcie and Morgan Table (1970). The sampling procedure used in this study was the simple random sampling technique. The research instrument was validated through supervisor's vetting and approval while the reliability of the instrument was achieved by the use of the Cronbach Alpha coefficient with all the items scoring above 0.70. Data generated were analyzed and presented using both descriptive and inferential statistical techniques. The hypotheses were tested using the linear regression Statistics. The tests were carried out at a 95% confidence interval and a 0.05 level of significance.

DATA ANALYSIS AND RESULTS

The level of significance 0.05 was adopted as a criterion for the probability of accepting the null hypothesis in ($p > 0.05$) or rejecting the null hypothesis in ($p < 0.05$). The level of relationship between the information quality with organizational performance is to examine the extent information quality can affect the outcome organizational performance.

Scatter Diagram between the Study Variables

Asawo (2009) posits that scatter graph is one of the techniques used in deciding whether a bivariate relationship does exist between interval-scaled variables. In this present study, information quality was plotted on the X-axis while organizational performance was plotted on the Y-axis in the scatter plot diagram of the study.

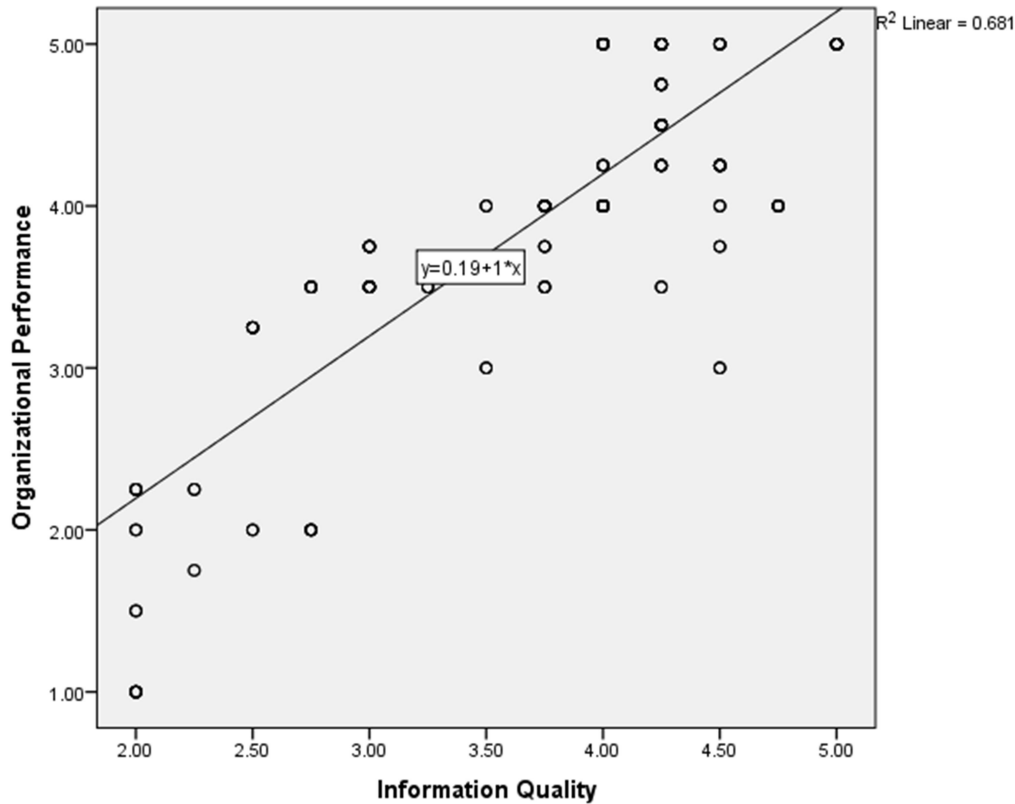


Figure 1 indicates the extent of the regression line between information quality and organizational performance

The result from the scatter diagram analysis reveals that an $R^2 = 0.681$ of information quality account for 68.1% change on organizational performance in selected MDAs in Bauchi state under study. However, the positive relationship has shown by the pattern and the movement of the points upwards from left to right indicates that a higher value of the criterion variable (organizational performance) is associated with higher values of the predictor variable (information quality) in the study. Therefore, the results affirm that the position of information quality is a high factor in the study of organizational performance in the selected MDAs in Bauchi state.

Result of regression analysis for hypothesis one Information Quality and Organizational Performance

Table 1 Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.825 ^a	.681	.680	.54682

a. Predictors: (Constant), Information Quality

Table 2 ANOVA^a

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	196.322	1	196.322	656.574	.000 ^b
Residual	91.796	307	.299		
Total	288.118	308			

a. Dependent Variable: Organizational Performance

b. Predictors: (Constant), Information Quality

Table 3 Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
1 (Constant)	.192	.151		1.275	.203
Information Quality	1.002	.039	.825	25.624	.000

a. Dependent Variable: Organizational Performance

Source: Authors Computation using SPSS (23)

Interpretations:

Test of Hypothesis One:

H₀₁: Information Quality does not significantly effect on the performance of selected MDAs in Bauchi state, Nigeria.

Model Summary Table for hypothesis one shows R value of .825; R square .681 which is approximated to $R^2 = .68$. Anova table (Test using Alpha 0.5) shows F 656.574, P = 0.000, that is, < 0.05, mean square of 196.322 and Coefficient Table (Predictor Test at Alpha 0.05); t value of 25.624 with std. error of .039.

The result of the model showed R value of .825 which is the coefficient of determination and this simply depict that about 83% of the changes that occur in the organizational performance is been accounted for by the explanatory variable, information quality.

Model Summary Table,

R square .825 which is approximated to $R^2 = .68$. This means the predictor has 68% variance with the dependent variable.

Anova table (Test using Alpha 0.5)

F 656.574, P = 0.000 which is < 0.05 hence shows a strong significant relationship.

Coefficient Table (Predictor Test at Alpha 0.05)

The coefficient table shows significant value on information quality and organizational performance which has significant value of 0.000.

Therefore, from decision rule we reject the stated null hypothesis and accept the alternate hypothesis which states that “there is a significant effect of information quality on organizational performance of selected MDAs in Bauchi, Nigeria”.

DISCUSSION OF FINDINGS

The findings as presented in tables revealed that there is a strong positive significant relationship between information quality and organizational performance of selected MDAs in Bauchi, Nigeria. This finding agrees with the study of Luthans, Luthans and Luthans (2021) who investigated information systems and their effect on organizational performance in higher education institutions. Partial least square was employed in analyzing the data. The analysis of results indicates that there are capacities associated with information systems that influence the success of these systems, and that this success affects job satisfaction and job commitment and through the latter to organizational performance. To further support this, Young-Harry, Oparanma and Ejo-Orusa (2018) investigated management information system and organizational performance of Seven-Up Bottling Company in Aba and Port Harcourt. One hundred and seventeen respondents were sampled for the study. The study findings reveal that there is a positive significant relationship between management information system and organizational performance of Seven Up bottling company in Aba and Port Harcourt. Also, Trabulsi (2018) investigated the impact of accounting information systems on organizational performance using Saudi's SMEs as the focus of the study. The results of the empirical analysis indicate that information quality is the most important precedent for user satisfaction and for the utility of the IS, given that the users consider the availability and accuracy of the information to be a key element for the successful implementation of a system, followed by the quality of the system, and the service.

CONCLUSION AND RECOMMENDATION

This study concludes that there is a significant relationship between information quality and organizational performance of selected MDAs in Bauchi, Nigeria. Implying that a positive information promotes organizational performance.

The study recommends that an organization can only grow and expand by developing quality information for developing new system not only on request basis but assessing and acquiring new technology, for assessing corporate information need and the like.

References

- Akram, M. S., Goraya, M. A. S., Malik, A., & Aljarallah, A. M. (2018). Organizational performance and sustainability: exploring the roles of IT capabilities and knowledge management capabilities. *Sustainability*, 10(10), 3816.

- Al Khajeh, E. H. (2018). Impact of leadership styles on organizational performance. *Journal of Human Resources Management Research*, 2018, 1-10.
- Anwar, G., & Abdullah, N. N. (2021). The impact of Human resource management practice on Organizational performance. *International journal of Engineering, Business and Management (IJEEM)*, 5.
- Buchanan, D. A., & McCalman, J. (2018). *High performance work systems: The digital experience*. Routledge.
- Côrte-Real, N., Ruivo, P., & Oliveira, T. (2020). Leveraging internet of things and big data analytics initiatives in European and American firms: Is data quality a way to extract business value?. *Information & Management*, 57(1), 103141.
- DeLone, W. H., & McLean, E. R. (2003). The DeLone and McLean model of information systems success: a ten-year update. *Journal of management information systems*, 19(4), 9-30.
- Emmanuel, M. U., Mary, O. E., & Peace, N. N. (2019). Management Information System and Organizational Performance In Selected Deposit Money Banks In South East Nigeria. *international journal of management and entrepreneurship*, 1(1), 23-34.
- Epstein, M. J., Elkington, J., & Herman, B. (2018). *Making sustainability work: Best practices in managing and measuring corporate social, environmental and economic impacts*. Routledge.
- George, B., Walker, R. M., & Monster, J. (2019). Does strategic planning improve organizational performance? A meta-analysis. *Public Administration Review*, 79(6), 810-819.
- Ghasemaghaei, M., & Calic, G. (2019). Can big data improve firm decision quality? The role of data quality and data diagnosticity. *Decision Support Systems*, 120, 38-49.
- Grover, V., Chiang, R. H., Liang, T. P., & Zhang, D. (2018). Creating strategic business value from big data analytics: A research framework. *Journal of management information systems*, 35(2), 388-423.
- Iqbal, A. (2018). The strategic human resource management approaches and organisational performance: The mediating role of creative climate. *Journal of Advances in Management Research*.
- Krejcie, R. V., & Morgan, D. W. (1970). Determining sample size for research activities. *Educational and psychological measurement*, 30(3), 607-610.
- Liu, W., & Atuahene-Gima, K. (2018). Enhancing product innovation performance in a dysfunctional competitive environment: The roles of competitive strategies and market-based assets. *Industrial Marketing Management*, 73, 7-20.

- Luthans, F., Luthans, B. C., & Luthans, K. W. (2021). *Organizational Behavior: An Evidence-Based Approach Fourteenth Edition*. IAP.
- Masood, T., & Egger, J. (2019). Augmented reality in support of Industry 4.0—Implementation challenges and success factors. *Robotics and Computer-Integrated Manufacturing*, 58, 181-195.
- Mkoba, E., & Marnewick, C. (2016, September). IT project success: A conceptual framework for IT project auditing assurance. In *Proceedings of the Annual Conference of the South African Institute of Computer Scientists and Information Technologists* (pp. 1-8).
- Müller, O., Fay, M., & Vom Brocke, J. (2018). The effect of big data and analytics on firm performance: An econometric analysis considering industry characteristics. *Journal of Management Information Systems*, 35(2), 488-509.
- Namugenyi, C., Nimmagadda, S. L., & Reiners, T. (2019). Design of a SWOT analysis model and its evaluation in diverse digital business ecosystem contexts. *Procedia Computer Science*, 159, 1145-1154.
- Okeke, C. O. (2021). Effect of management information system on organizational performance in manufacturing firms. *Research Journal of Management Practice* | ISSN, 2782, 7674.
- Regan, Á. (2019). ‘Smart farming’ in Ireland: A risk perception study with key governance actors. *NJAS-Wageningen Journal of Life Sciences*, 90, 100292.
- Rejeb, A., Keogh, J. G., & Treiblmaier, H. (2019). Leveraging the internet of things and blockchain technology in supply chain management. *Future Internet*, 11(7), 161.
- Sedera, D., Chian, F. T. T., & Dey, S. (2006). Identifying and evaluating the importance of multiple stakeholder perspective in measuring ES-success.
- Shafiq, M., Lasrado, F., & Hafeez, K. (2019). The effect of TQM on organisational performance: empirical evidence from the textile sector of a developing country using SEM. *Total Quality Management & Business Excellence*, 30(1-2), 31-52.
- Shahzad, A., Hassan, R., Aremu, A. Y., Hussain, A., & Lodhi, R. N. (2021). Effects of COVID-19 in E-learning on higher education institution students: the group comparison between male and female. *Quality & quantity*, 55(3), 805-826.
- Shahzad, A., Hassan, R., Aremu, A. Y., Hussain, A., & Lodhi, R. N. (2021). Effects of COVID-19 in E-learning on higher education institution students: the group comparison between male and female. *Quality & quantity*, 55(3), 805-826.
- Steiss, A. W. (2019). *Strategic management for public and nonprofit organizations*. Routledge.
- Tamunomiebi, M. D., Adim, C. V., & Adubasim, I. E. (2018). Telecommuting and Organisational Performance of Mobile (GSM) Telecommunication companies in port

- Harcourt, Nigeria. *British Journal of Economics, Finance and Management Sciences*, 16(1).
- Trabulsi, R. U. (2018). The Impact of Accounting Information Systems on Organizational Performance: The Context of Saudiâ€™s SMEs. *International Review of Management and Marketing*, 8(2), 69-73.
- Trabulsi, R. U. (2018). The Impact of Accounting Information Systems on Organizational Performance: The Context of Saudiâ€™s SMEs. *International Review of Management and Marketing*, 8(2), 69-73.
- Unkelbach, C., Koch, A., & Alves, H. (2019). The evaluative information ecology: On the frequency and diversity of “good” and “bad”. *European Review of Social Psychology*, 30(1), 216-270.
- Weller, B. M. (2018). Does algorithmic trading reduce information acquisition?. *The Review of Financial Studies*, 31(6), 2184-2226.
- Young-Harry, D. L., Oparanma, A. O., & Ejo-Orusa, H. A. (2018). Management information system and organizational performance of Seven-Up Bottling Company in Aba and Port Harcourt. *International Journal of Economics and Business Management*, 4(4), 53-61.