International Journal of Accounting and Management Information Systems (IJAMIS)
ISSN: 2656-2448, Vol 1, No 1, 2023, 1-15 https://doi.org/10.35912/ijamis.v1i1.1366

Management information system and performance of cement firms in Southeast Nigeria

Gilbert Ogechukwu Nworie[1*], Benita Chikwadom Oguejiofor[2]
Nnamdi Azikiwe University, Nigeria[1&2]
gn.nworie@stu.unizik.edu.ng[1]*, dulcisgil2@gmail.com[2]

Article History
Received on 27 December 2022
1st Revision on 27 December 2022
2nd Revision on 12 January 2023
3rd Revision on 13 January 2023
Accepted on 18 January 2023

Abstract

Purpose: The study examined how management information system influences the performance of cement-producing firms in Southeast Nigeria. Specifically, the influence of the transaction processing system, decision support system, and executive support system on firm performance was assessed.

Research methodology: The research design deployed in the study was a descriptive survey while the population comprised 143 staff in the accounting and management information system departments of four selected cement companies in Southeast Nigeria. Using the Yamane formula, a sample size of 141 was determined. Primary data were collected through a structured questionnaire. Pearson Product Moment Correlational analysis was applied to establish the relationship between variables at a 5% level of significance.

Results: Transaction processing system, decision support system, and executive support system have a significant and positive effect on the firm performance of cement-producing companies in Southeast Nigeria.

Conclusion: The findings highlight the critical role of management information systems—particularly transaction processing, decision support, and executive support systems—in enhancing the performance of cement firms in the region.

Limitations: The results are more fittingly applicable to only cement manufacturing companies and cannot be generalized to other sub-sectors of the Nigerian manufacturing industry. The findings are also valid to the extent that questionnaire responses are free from bias.

Contribution: The study contributes to knowledge by filling the gap created by the lack of empirical research that uncovers the influence of management information systems on the performance of cement manufacturing firms in the context of Southeast Nigeria.

Keywords: *Liquidity Ratio as Current (CR), (DER) Rasio Leverage, Assets Structure, Return on Investment*

How to Cite: Fachrian, Z., & Hidayat, W. W. (2023). The Influence of *Liquidity Ratio as Current (CR)*, *(DER) Rasio Leverage* and *Asset Structure to Return on Investment* of Coal Companies. *International Journal of Accounting and Management Information Systems*, 1(1), 17-31.

1. Introduction

Research interest in Management Information Systems (MIS) arose as a result of the role which MIS is deemed to play in areas such as education, institutional performance, employee task productivity, sustainable competitive advantage and financial profitability of firms. This is why the empirical inquiry of whether MIS significantly influences the financial lots of a firm has attracted the attention of academic and non-academic researchers in the last few decades (Ojo, Ringin, & Shuibu, 2022). Be that as it may, some extant literature on the above subject of discourse predominantly underscores that MIS,

or particularly the use of technology alone does not and cannot be a strategy in itself. In other words, firms can only achieve better financial success with MIS technology if the firm successfully integrates the system into an overall strategy that boosts the firm's competitive advantage (Kariuki & Nzuki, 2019; Ngelechei & Olweny, 2016; Onodi, Ibiam, & Akujor, 2021). In fact, the utilization of MIS was greatly necessitated by the highly competitive business environment of the present day market place which is characterized by stiff business competition, changes in customer taste and expectation, and change in the production process (Tantua & Godwin-Biragbara, 2020).

The dynamism that the features the present-day business environment has made it a basic requirement that corporate entities such as cement manufacturing firms must install and optimize management information systems to enable them to compete with their competitors in this globalized market world. More so, businesses that effectively adopt and optimize MIS are likelier to realize more financial success and earn superior profitability than firms whose investments in MIS are abysmal. It is through MIS that accounting and non-accounting information are incorporated into the firm's information system with the view to facilitating decision-making within the organization (Alzhrani, 2020). Once MIS is optimized to fit the firms' environment, structure and requirements of the task, there is a high possibility that the firm in question would have a suitable framework for financial and managerial decision-making of which quality will be very high, accurate, timely and reliable.

A management information system is a system that provides information support for decision-making in an enterprise, according to Tantua and Godwin-Biragbara (2020). More specifically, MIS refers to an integrated system of people and machines that aim at delivering the needed data necessary to support a firm's operations, management, and decision-making. It was argued by Onodi et al. (2021) that MIS has a connection and can be associated with corporate performance indices such as the market share portion of firms, growth in sales volume, revenue generation, enterprise goodwill and better customer relationship. Cement manufacturing firms are under considerably high pressure to make their operational, tactical and strategic processes more effective and efficient as the competitive global business environment continues to stiffen. So many challenges such as reduction in operating costs, increasing efficiency and improving performance have jointly led corporate entities into implementing MIS as a new organizing mechanism whose transaction processing system, decision support system and executive support system are capable of improving firm performance. Thus, firms with an adequate transaction processing system, decision support system and executive support system are ideally supposed to attain their financial objectives more effectively and efficiently.

However, there are cement manufacturing firms that have not attained optimal use of MIS probably as a result of the high cost of installation and maintenance. Some firms find it challenging to install, maintain and optimize their MIS structure on account of high capital requirements or cost of implementation. This high cost of installation, maintenance and optimization needs to be justified by increased performance levels; otherwise, managers will see such investment as a white elephant project. Predicated upon the issues raised above, this study examines how management information system influences the corporate performance of cement manufacturing companies in Southeast Nigeria.

MIS contributes to the financial success of firms by supporting business operations with reformed managerial decision-making which helps to bring about some strategic and competitive advantage for the firm that has an optimized MIS structure (Awan & Khan, 2016). However, various cement manufacturing firms are yet to optimize the use of MIS because of various inhibiting factors including the problem of developing new computerized based information systems, severe system crashes, loss of data and information, employee resistance to adopting the information systems coupled with the limited scope of the MIS platforms. As time changes, firms ought to update their MIS to meet the dynamism in the business environment (Alzhrani, 2020). This requires that employees should also be up-to-date about all the changes in the system. When employees are very much willing to flow with the changes, firms may find it challenging to install and optimize the MIS structure because of high capital requirements or the cost of implementation (bin Sulaiman Alhosni & Lehyeh, 2019). This cost continues

to increase as time goes on and each time the firm needs to adjust or maintain the system to reflect the ever-changing business environment. These inhibit MIS optimization in cement manufacturing firms. There have been several studies such as Alzhrani (2020); Awan and Khan (2016); Azeez and Yaakub (2019); bin Sulaiman Alhosni and Lehyeh (2019); Ikechukwu, Okechukwu, Erastus, and Epelle (2019); Kariuki and Nzuki (2019); Ojo et al. (2022); Okoye, Egbunike, and Onyali (2013); Onodi et al. (2021); Osodo and Jemaiyo (2015); Sari and Priantinah (2019); Sherry and Desai (2018); Young-Harry, Oparanma, and Ejo-Orusa (2018); (Tantua & Godwin-Biragbara, 2020); Emmanuel, Mary, and Peace (2019); and others which were conducted to address the issues raised above. However, to the best knowledge of the researchers, there is a dearth of empirical evidence that uncovers how management information system influences the corporate performance of cement manufacturing companies in Southeast Nigeria. Hence, the present study is being conducted to fill up this gap in knowledge and contribute to the body of knowledge.

1.1 Objectives of the Study

The main objective of the study is to examine the extent to which management information system affects the corporate performance of cement manufacturing companies in Southeast Nigeria. The study specifically sought to:

1. Determine the degree to which the decision support system influences the corporate performance of cement manufacturing companies in Southeast Nigeria.
2. Examine the degree to which transaction processing system affects the corporate performance of cement manufacturing companies in Southeast Nigeria.
3. Ascertain the influence of the executive support system on the corporate performance of cement manufacturing companies in Southeast Nigeria.

2. Literature Review

2.1 Conceptual Review

2.1.1 Management Information System

Management Information System can be conceptualized as a system designed to provide specific, decision-oriented information required by management to control, plan and evaluate organizational activities (Agu, Ugwu, & Igwegbe, 2017; Okeke, 2021). It refers to a unified system that makes available information that supports organizational management, operations, and decision-making functions (Onodi et al., 2021; Tantua & Godwin-Biragbara, 2020). The scope of MIS covers collecting and processing of data, including the storing and transmitting of relevant information that supports management operations (Emmanuel et al., 2019).

Agu et al. (2017) provided a detailed definition of MIS, arguing that it is the structural configuration of an integrated and interactive combination of hardware, software, manpower, and other resources that ensures the collection and processing of data in a way that provides the necessary information (connected to the beneficiaries, storage, updating, and retrieval) at the appropriate time, cost, and quantity. According to Osodo and Jemaiyo (2015), management information systems have three crucial dimensions: organizational, managerial, and technical. Therefore, Laudon and Laudon (2004) claimed that in order to improve performance, these three crucial characteristics should be necessarily balanced.

MIS is viewed as the conversion of data, or the organization's everyday facts and figures, into information necessary for decision-making (Osodo & Jemaiyo, 2015). The support of management support is crucial to the success of MIS design since they are qualitatively distinct from data processing systems. Data from both internal sources and external sources are transformed into information that can be conveyed to managers at various levels to support timely and effective decision-making for planning, directing, and managing the activities of the organization. The utilization of information systems, not the creation of information, is the focus of MIS. Virtually all sectors of society—including businesses, individuals, and even governments—have increased their use of MIS in recent years. The usage of MIS has also been pushed by other several factors such as the tremendous growth of the information economy, the emergence of fiercely competitive digital enterprises, and the technological advances, including those in telecommunications which created a limitless worldwide market.

2.1.2 Decision Support System

An interactive computer-based system called a "Decision Support System" (DSS) is designed to assist managers in making decisions. It aids in the retrieval, synthesis, and analysis of facts necessary for decision-making. A DSS is an interactive, tightly integrated system that offers data tools and models to support tactical or semi-structured judgments. It supports the usage of intuitions and judgments while automating the repetitive and routine components of a problem. Decision support systems are most suitable for issues such as resource placement, selection, hiring new staff, and determining how resource price increases affect earnings (Emmanuel et al., 2019).

2.1.3 Transaction Processing System

Information systems that are used to track regular business transactions are referred to as transaction support systems. The users have typically educated professionals ranging from human resource managers to accountants. The support workers who make sure the system is functioning properly are typically part of the ICT department. Computer experts, managers, and users of the computer-based information system are also among the diverse MIS staff. A great number of the workforce prepare plans, programs, rules and regulations of the system in addition to making various judgments with the use of computer-based information. Information systems specialists and end users can be seen as two different categories of MIS support personnel. Systems analysts, programmers, and operators are examples of information systems specialists. The individuals who use the information system or the output it produces are known as end users.

2.1.4 Executive Support System

The executive support system is a sort of MIS infrastructure that helps and supports the informational and decision-making needs of top executives. The ultimate goal of an executive support system in organizations is to make both internal and external information necessary to attaining the objectives of the firm readily accessible. In other words, executive information systems are primarily created to facilitate management learning about the organization's work processes and interactions with the outside world. Managers that are knowledgeable can make better decisions and ask better questions. The secondary goal of the executive support system is to provide timely access to information.

2.1.5 Corporate Performance

Corporate performance entails a measure of a company's success in achieving its goals (Aaron, 2017). It refers to the ability of a company to effectively employ the resources from its main business model to generate profits. Corporate performance in modern literature refers to the entire outcomes of a company's or investment's operations over a specific time period (Alzhrani, 2020). Additionally, it is the completion of predetermined corporate goals assessed in comparison to established standards, completeness, and cost (Tantua & Godwin-Biragbara, 2020). Authors such as El Fallahi, Ibenrissoul, and Adil (2022) and Nworie, Moedu, and Onyali (2023) have conceptualized corporate performance in light of its financial aspects.

Furthermore, a company's performance is the outcome of the techniques it uses to accomplish its financial and market-oriented objectives (Alzhrani, 2020). The performance of a company over a chosen time period is used to gauge its level of success within its industry. To measure or operationalize corporate performance, researchers have employed performance metrics such as financial outcomes like return on investment, market share, sales growth (Nosike & Egbunike, 2021), return on investment (ROI), return on sales, and other financial ratios that serve as objective criteria of corporate performance. In this study, corporate performance is measured by how well a company is able to transform inputs into outputs in line with the study by Onyekwelu, Monyei, and Muogbo (2022). A firm's general financial health is gauged by corporate performance (Nworie & Mba, 2022). This is demonstrated by both the amount of revenue earned from operations and the rate of the company's expansion. A key criterion for measuring business success is profitability (Nworie et al., 2023), but

studying corporate financial performance is challenging due to measurement issues and the numerous factors that influence performance (Esmeray, 2016).

2.1.6 Hypotheses Development

The ability to provide real-time updates of systems or corporate events is a feature of MIS programs. Real-time, as used by academics, merely refers to current updates of events in a system. These quick updates help managers in taking the essential steps as soon as they are thought necessary, particularly when discovering and managing emergencies. This promotes the advancement and enhancement of business operations through prompt decision-making. This is crucial for businesses in the modern era since even the smallest error in managerial decision-making can result in enormous losses (Onodi et al., 2021).

The foundation of a management information system is the organization's database, which is frequently a computerized business processing system that generates data for various users within an organization to satisfy their information needs and support them in making decisions. The benefit of this is that it readily helps the company realize its corporate goal of profit maximization, growth, and sustainability. The financial success that a company records cannot be better than the caliber of the managerial decisions made. In other words, improving business performance requires excellent managerial decision-making (Anoke, Onu, & Agagbo, 2022). A successful MIS adoption is a tactical means of gaining a competitive edge; it increases firm profitability and task productivity by raising the standard of information shared within the organization (Omolola, 2018).

Optimal utilization of MIS structure brings about high-quality information that is characterized by timeliness, accuracy, relevance and reliability. Because MIS follows a formalized procedure to provide managers at various levels with the appropriate information from all relevant sources, MIS contributes to the timely and effective decision-making process of the firm and so facilitates the planning, directing, evaluation, and control of financial and non-financial resources of the firm (Emmanuel et al., 2019). Therefore, the study hypothesizes that:

H_{O1}: Decision support system significantly affects the corporate performance of cement manufacturing companies in Southeast Nigeria.

H_{O2}: Transaction processing system significantly affects the corporate performance of cement manufacturing companies in Southeast Nigeria.

H_{O3}: Executive support system has a significant effect on the corporate performance of cement manufacturing companies in Southeast Nigeria.

2.1.7 Conceptual Framework

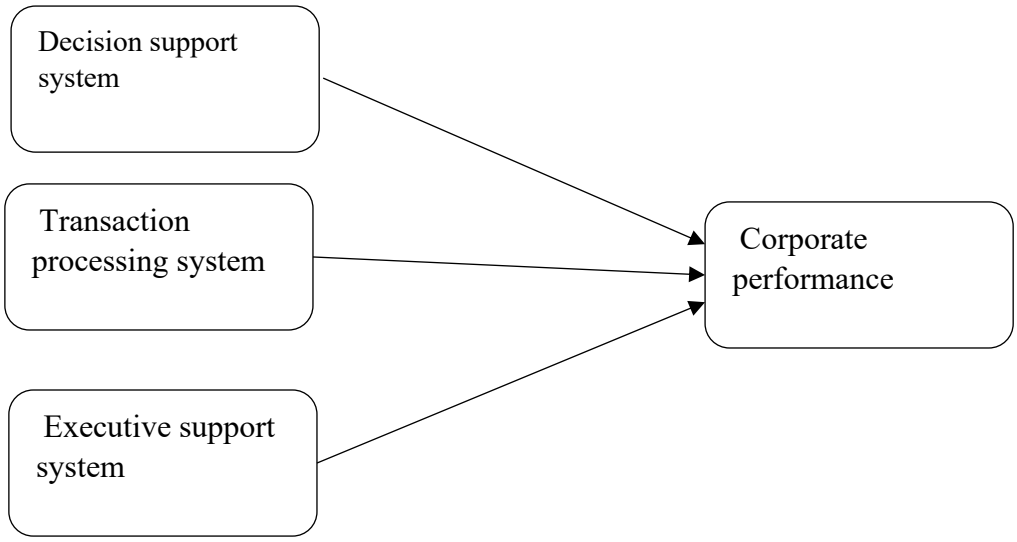

Figure 1 Conceptual Framework
Source: Researchers' Conceptualisation (2023)

The conceptual framework above depicts the association between proxies of MIS (transaction processing systems, decision support system and executive support system) and corporate performance. The hypotheses that were tested in the study are clearly shown respectively by the diagrammatical illustration in Figure 1 above. In clearer terms, it shows that transaction processing systems, decision support systems and executive support systems are directly associated with the corporate performance of firms.

2.2 Theoretical Framework

2.2.1 Theory of Resource-Based View

Akanbi and Adewoye (2018) posited that the possession of strategic resources, such as management information system infrastructure, provides an organization with a golden opportunity to develop competitive advantages over its rivals. According to some proponents of this theory such as George, Philip, and Schulman Lawrence (1992), a firm is thought to be made up of internal and external coalitions that result from social exchanges that are developed to improve and regulate behavior. It is presumed that the external environment contains valuable resources that are in short supply and essential to an organization's survival. This is due to the unpredictability that exists in the external environment when acquiring resources (Akanbi & Adewoye, 2018). Thus, firms try to enhance their competitive edge by installing a valuable management information system that will improve their task productivity, which in turn is intended to enable the firm to maximize its value (corporate performance).

The relevance of this theory is that the manufacturing sector is dynamic; it is characterized by risks and uncertainties due to changes in the external environment. This necessitates the need for adopting strategies to counter challenges in the external environment. According to Ngelechei and Olweny (2016), organizations aim to achieve a key objective of control over resources in order to reduce their dependence on other firms. An effective organization also aims at gaining control over resources that enhance the dependence of other firms on the enterprise (Akanbi & Adewoye, 2018). Therefore, a manufacturing company would ordinarily implement MIS for either or all of the reasons noted above.

2.3 Empirical Review

Ojo et al. (2022) assessed the influence of MIS on the performance of MTN using a sample of 346 employees of MTN Nigeria. The study carried out a multiple regression which showed that the Financial Management Information System has a positive influence on the organizational performance of MTN. Onodi et al. (2021) used a sample of 100 respondents to investigate how MIS influences the performance of listed consumer goods firms in Nigeria. Simple regression analysis and ANOVA were used to assess the data, which revealed that firm profitability is positively impacted by systems for managing sales, management accounting, and budgets. A significant correlation between MIS and office productivity was found in the study by Tantua and Godwin-Biragbara (2020), which examined how MIS affects office productivity using 58 managers from 38 printing companies in Port Harcourt, Rivers State.

Emmanuel et al. (2019) used a sample size of 384 to examine how the management information system affects the organizational performance of banks in south-eastern Nigeria. They then conducted a multiple regression analysis and discovered that the executive information system, artificial intelligence, research and development information system, and management information system support staff all significantly improve organizational performance. A similar study by Kariuki and Nzuki (2019) found that MIS enhances the performance of supermarkets in Nairobi, Kenya, after analyzing the responses of 121 sample participants. In the study conducted by bin Sulaiman Alhosni and Lehyeh (2019) to examine the impact of MIS on performance management in the Sultanate of Oman, a regression tool was applied to establish that MIS enhances employee performance management. Azeez and Yaakub (2019) examined how MIS relates to the organizational performance of Missan Oil Company in Iraq using 201 respondents and structural equation modeling. The study

found that the information quality of MIS improves organizational performance. Alene (2018) assessed how management information system enhances effectiveness in Debre Markos city administration revenue authority using 76 respondents to find that management information system positively enhances firm effectiveness.

Young-Harry et al. (2018) examined the association between MIS and the performance of Seven Up bottling company in Port Harcourt and Aba using a sample size of 117 and Spearman's rank correlation which found that MIS is positively associated with organizational performance. Omolola (2018) while examining the effect of management information system on the performance of Union Bank Plc. in Nigeria using 45 respondents and the Chi-square method found that management information system positively affects firm performance. Other empirical literature reviewed includes Al-Gharaibeh and Malkawi (2013); Awan and Khan (2016); Ngelechei and Olweny (2016); Okoye et al. (2013); Oladejo (2013); Osodo and Jemaiyo (2015) carried out an exploratory study to ascertain how the implementation of MIS influences the performance of managers in the product and service sectors of Nigeria. Primary data obtained from 45 respondents were analyzed using multiple regression which showed that the implementation of MIS positively affects the competencies of managers.

3. Research Methodology

This research work was carried out with the use of a descriptive survey research design. The design was deemed appropriate for the study since it permits the collation of data from various respondents sampled from a population target in order to obtain their opinions on a specific phenomenon of interest (Saunders, 2012). The population comprised 143 staff in the accounting and management information system departments of the four (4) cement companies in Southeast Nigeria, as given in Table 1 below:

Table 1. Distribution of the Study Population

Firm	No of Staff in the Specific Departments
1) Ibeto Cement	72
2) Lafarge Cement	18
3) BUA Cement	22
4) Dangote Cement Plc.	31
Total	143

Source: Field Survey, December (2022)

Yamane (1967) formula for sample size was utilized while determining the sample size of the study. The computation is as follows:

$$n = \frac{N}{1+N\,(e)^2}$$

Where:
n is the Sample size, N is the Population size and *e* is the Sampling error.

Therefore, substituting the values in the formula where *e* = 1% we have:

$$n = \frac{143}{1+143(0.01)^2}$$

$$n = 141$$

With the help of a standardized questionnaire, the researchers in the field were able to collect primary data for this study. Statistical Package for Social Sciences (SPSS) V. 23 was used to analyze the data using mean, frequency distribution, and Pearson Product Moment Correlation analysis.

4. Results and discussions

4.1 Analysis of Research Questions in the Questionnaire

Out of the 141 copies of questionnaires prepared and distributed to the respondents, a total of 135 were also returned. The analysis carried out in this study henceforth was based on 135 data points.

Table 2. Mean-Point Analysis of Questionnaire Items

S/N	Items	SA	A	N	D	SD	Mean	Remark
	Research Question I							
1	Our managers use the decision support system to plan for events that have an economic effect on the firm	90	25	10	7	3	4.42	Accept
2	The management information provided with the use of the decision support system makes the planning process accurate	95	35	5	0	0	4.67	Accept
3	A decision support system facilitates planning by using the barest time period to make available the appropriate sets of management reports to the relevant users	75	40	10	6	4	4.30	Accept
4	A decision support system helps managers produce information that is free from errors	95	10	7	14	9	4.29	Accept

	and material misstatement							
5	Our managers use the decision support system to formulate firm objectives and to determine ways to achieve those objectives	100	15	10	5	5	4.48	Accept
	Research Question II							
1	The use of a transaction processing system provides us with management information that relates to organizational operations in order to provide support to the activities of managers	79	35	7	8	6	4.33	Accept
2	We utilizes transaction support system as a program to record financial transactions using automated commands	46	65	10	9	5	4.02	Accept
3	Our mechanized devices help us organize our accounting records with ease, accuracy and speed	53	64	11	3	4	3.79	Accept
4	Information required for managerial	90	25	7	10	3	4.40	Accept

	organizing in a firm, such as the interaction between cost, volume and profit, is better produced using the transaction processing system							
5	The use of transaction processing systems helps firms realize their objectives in the most efficient manner	40	55	15	10	15	3.70	Accept
	Research Question III							
1	Executive support system helps managers to measure the actual results of the firms' operational activities	40	50	20	15	10	3.70	Accept
2	Our managers use executive support system to compare actual results against predetermined objectives	65	40	13	10	7	4.08	Accept
3	Executive support system helps managers coordinate the efforts of people towards accomplishing the goals and objectives of	40	60	13	11	11	3.79	Accept

	the firm using available resources							
4	Use of executive support system enables managers to control firm operations by meeting the information needs of users on time	35	77	8	8	7	3.92	Accept
5	Executive support system helps control managers reach healthy management decisions	45	67	8	8	7	4.00	Accept

Source: Processed Data (2022)

Table 2 above shows the reject/accept analyses of the research variables. Based on the above Likert-scale system, a mean score of "3" implies neither reject nor accept. Each of the questionnaire items has a mean score greater than 3.0. Thus, they were all remarked "accepted" in the analysis.

4.1.2 Descriptive Statistical Analysis of Research Variables

The effect of management information systems on corporate performance is indexed by decision support systems (DSS), transactions processing systems (TPS), and executive support systems (ESS). The mean and standard deviation are presented below in Table 3.

Table 3. Descriptive Statistical Analysis

Variables	**Mean**	**Std. Deviation**
Effect of DSS on Corporate Performance	4.4320	.14658
Effect of TPS on Corporate Performance	4.0480	.29510
Effect of ESS on Corporate Performance	3.8980	.14520

Source: Processed Data (2022)

The descriptive statistical analysis shown in Table 3 above reveals that the mean value of DSS, TPS and ESS are 4.432, 4.048 and 3.898 with a standard deviation of 0.146, 0.295 and 0.145, respectively. The mean scores of the independent variables show that, on average, the respondents agree with the statements in the Research Instrument.

4.2 Hypotheses Testing

4.2.1 Hypothesis I

H_{O1}: Decision support system does not significantly affect the corporate performance of cement manufacturing companies in Southeast Nigeria.

Table 4. Correlation Result for Test of Hypothesis I

		Corporate Performance
Decision Support System	Pearson Correlation	.321
	Sig. (2-tailed)	.006
	N	135

Source: SPSS Processed Data (2022)

Table 4 above shows the test of the hypothesis that determined whether the Decision Support System is significantly related to corporate performance. Table 4 indicates that the relationship between the use of DSS and the corporate performance of the cement-producing firm is positive (R = 0.321, p-value = 0.006). The $R^2 = 0.103$ indicates that 10.3% of changes in corporate performances of cement-producing firms were a result of variation in the use of Decision Support System. The coefficient of correlation which is 0.321 means that an increase in the use of DSS by 1 unit will increase the performance of the firm under study by 0.321. Since the p-value of the test = 0.006 is less than 0.05, we, therefore, fail to accept the null hypothesis. This led to the conclusion that the Decision support system significantly and positively affects the corporate performance of cement-producing firms in Southeast Nigeria.

4.2.2 Hypothesis II

H_{O2}: Transaction processing system does not significantly affect the corporate performance of cement manufacturing companies in Southeast Nigeria.

Table 5. Correlation Result for Test of Hypothesis II

		Corporate Performance
Transaction Processing System	Pearson Correlation	.496
	Sig. (2-tailed)	.008
	N	135

Source: SPSS Processed Data (2022)

Table 5 above shows the test of the hypothesis that determined whether the transaction processing system is significantly related to corporate performance. Table 5 indicates that the relationship between the use of TPS and firm performance of cement-producing firm is positive (R = 0.496, p-value = 0.008). The $R^2 = 0.246$, which indicates that 24.6% of changes in the corporate performance of cement-producing firms were a result of variation in the use of TPS. The coefficient of correlation which is 0.496 indicates that an increase in the use of a Transaction Processing System by 1 unit will increase the performance of the firms under study by 0.496. Since the p-value of the test = 0.008 is less than 0.05, we, therefore, fail to accept the null hypothesis. This led to the conclusion that the Transaction processing system significantly and positively affects the corporate performance of selected cement-producing firms in Southeast Nigeria.

4.2.3 Hypothesis III

H_{O3}: Executive support system has no significant effect on the corporate performance of cement manufacturing companies in Southeast Nigeria.

Table 6. Correlation Result for Test of Hypothesis III

		Corporate Performance
Executive Support System	Pearson Correlation	.501
	Sig. (2-tailed)	.001
	N	135

Source: SPSS Processed Data (2022)

Table 6 above shows the test of the hypothesis that determined whether the executive support system is significantly related to corporate performance. Table 6 indicates that the relationship between the use of the Executive Support System and performance of Cement-producing firms is positive (R = 0.501, *p-value* = 0.001). The R^2 = 0.251, which indicates that 25.1% of changes in the corporate performance of cement-producing firms were a result of variation in the use of the executive support system. The coefficient of correlation which is 0.501 indicates that an increase in the use of the executive support system by 1 unit will increase the performance of the firms under study by 0.501. Since the p-value of the test = 0.001 is less than 0.05, we, therefore, fail to accept the null hypothesis. This led to the conclusion that the executive support system significantly and positively affects the corporate performance of cement-producing firms in Southeast Nigeria.

4.3 Discussion of Findings

The results revealed that an increase in the use of transaction processing system, decision support system and executive support system will lead to a corresponding increase in the firms' performance by 0.321, 0.496 and 0.501, respectively. These increases were shown to be statistically significant. Therefore, the contribution of the use of transaction processing system, decision support system and executive support system to the enhancement of corporate performance of cement-producing firm is statistically meaningful. This finding is consistent with the results found by (Alzhrani, 2020; Emmanuel et al., 2019; Ikechukwu et al., 2019; Kariuki & Nzuki, 2019; Ojo et al., 2022; Onodi et al., 2021; Tantua & Godwin-Biragbara, 2020).

The contribution of MIS to the attainment of the financial objectives of the firm is made possible because of the following likely reasons: the management information provided with the use of decision support system makes the planning process accurate through the faithful report of transactions; decision support system facilitates planning by using the barest time period to make available the appropriate sets of management reports to the relevant users; and decision support system helps managers produce information that is free from errors and material misstatement in order to enhance firm growth. Furthermore, the use of transaction processing system provides organizations with management information that relate to organizational operations in order to provide support to the activities of managers; firms utilize transaction support system as a program to record financial transactions using automated commands; and information required for managerial organizing in a firm, such as the interaction between cost, volume and profit, are better produced using transaction processing system.

Finally, the executive support system helps managers to measure the actual results of the firms' operational activities; managers use the executive support system to compare actual results against predetermined objectives, and the executive support system helps managers coordinate the efforts of people towards accomplishing the goals and objectives of the firm using available resources.

5. Conclusion

5.1. Conclusion

The study concludes that the transaction processing system, decision support system and executive support system have a significant and positive effect on the corporate performance of cement manufacturing companies in Southeast Nigeria. This conclusion was arrived at after the series of descriptive and inferential tests conducted using the primary data collected for the purpose of the study. Thus, the implication of the findings is that since the financial success, a firm records cannot be better than the quality of the decision the managers make, it takes high-quality managerial decision-making to realize higher corporate performance. Effective adoption of the management information system is a strategic way of attaining a competitive edge; such adoption improves firm profitability and task productivity by enhancing the quality of information that is passed across in the firm. Because high-quality information that is characterized by timeliness, accuracy, relevance and reliability is most effectively got by firms with optimal utilization of MIS structure, the association of MIS with firm performance is logical. MIS is a veritable tool that supplies corporate decision-makers with relevant information that enhances firms' overall decision-making process.

5.2. Limitation

This study sourced its evidence from only cement manufacturing companies. Thus, the findings are more fittingly applicable to only the cement manufacturing industry from which responses were obtained. They cannot, therefore, be generalized to other sub-sectors of the Nigerian manufacturing industry. Also, the study was specifically focused on three aspects of management information systems, while neglecting other areas. Survey research design is often affected by biased opinions in the responses provided by the sample participants. Thus, the findings realized in this study are valid to the extent that the responses to the questionnaire are free from bias.

5.3. Suggestion

The researchers recommend that: managers of cement-producing firms should use the decision support system to plan for events that have an economic effect on the firm; cement-producing firms should utilize a transaction support system as a program to record financial transactions using automated commands; and managers of cement-producing industry should use the executive support system to compare actual results against predetermined objectives.

Subsequent researchers in the area of the management information system should expand the industry scope of their study to incorporate other sub-sectors of the Nigerian manufacturing industry. In addition, the geographical scope can also be widened to include other regions in the country. More importantly, other aspects of MIS such as customer relations management systems can as well be studied.

References

Aaron, B. A. (2017). Accounting Information System And Financial Performanceof Busoba Saving And Credit Cooperative Society,Mbale District, Uganda.

Agu, P., Ugwu, J., & Igwegbe, D. (2017). Effect of Management Information System on Organizational Performance: A Study of 7Up Bottling Company Enugu. *NG-Journal of Social Development,* 6(1), 1-9.

Akanbi, T., & Adewoye, J. (2018). Effects of Accounting information system adoption on the financial performance of commercial bank in Nigeria. *Journal of Accounting & Marketing,* 1(6), 1-6.

Al-Gharaibeh, S. M., & Malkawi, N. M. (2013). The impact of management information systems on the performance of governmental organizations-Study at Jordanian ministry of planning. *International Journal of Business and Social Science,* 4(17), 101-109.

Alene, G. (2018). the Role of Management Information System in Improving Organizational Performance and Effectiveness in Case of Debre Markos City Administration Revenue Authority, Ethiopia. *ICTACT Journal on Management Studies,* 4(1), 691-697.

Alzhrani, A. M. (2020). The use of management information system to help decision-making in digital firms. *International Journal of Business and Management Future,* 4(1), 21-26.

Anoke, A. F., Onu, A. N., & Agagbo, O. C. (2022). Managerial Competencies and Growth of Small and Medium Enterprise (SMEs) in Abuja Metropolis, Nigeria. *International Journal of Financial, Accounting, and Management,* 4(3), 255-268.

Awan, A. G., & Khan, F.-U.-H. (2016). Impact of Management Information System on the Performance of the Organization (Profitability, Innovation, and Growth) *Journal of Poverty, Investment and Development,* 21(1), 1-8.

Azeez, R. T., & Yaakub, K. B. (2019). The Effect of Management Information System on Organizational Performance: A Survey Study at Missan Oil Company in Iraq. 2, 135-165.

bin Sulaiman Alhosni, S., & Lehyeh, S. M. A. (2019). The Impact of Management Information System on the Employees Performance Management in Sultanate of Oman Telecommunication Companies. *International Journal of Human Resource Studies,* 9(3), 55-74.

El Fallahi, F., Ibenrissoul, A., & Adil, E. (2022). Does Innovation Play a Role in the Relationship Between Corporate Social and Financial Performance? A Systematic Literature Review. *International Journal of Financial, Accounting, and Management,* 4(3), 315-334.

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.

Esmeray, A. (2016). The impact of accounting information systems (AIS) on firm performance: empirical evidence in Turkish small and medium sized enterprises. *International Review of Management and Marketing,* 6(2), 233-236.

George, S., Philip, E., & Schulman Lawrence, E. (1992). Competing on Capabilities; the New Rules of Corporate Strategy. *Harvard Business Review,* 70(2), 54-66.

Ikechukwu, N. P., Okechukwu, A., Erastus, B., & Epelle, S. E. (2019). Management Information System and Organizational Success in a Competitive Environment: A Study of Small Scale Businesses in Port Harcourt. *International Journal of Engineering and Management Research (IJEMR),* 9(4), 93-101.

Kariuki, M., & Nzuki, D. (2019). Management information systems capabilities and organizational performance of supermarkets in Nairobi City County, Kenya. *International Journal of Education and Research,* 7(6).

Laudon, K. C., & Laudon, J. P. (2004). *Management information systems: Managing the digital firm*: Pearson Educación.

Ngelechei, P., & Olweny, T. (2016). Management Information System and Achievement of Sustainable Competitive Advantage in Kenyan Banking Sector: A Case of Kenya Commercial Bank. *Strategic Journal of Business Change and Management,* 3(3), 60-72.

Nosike, C., & Egbunike, C. (2021). Customers' Loyalty and Sales Performance of Dangote Cement Product in Awka, Anambra State. *Annals of Management and Organization Research,* 3(2), 115-128.

Nworie, G. O., & Mba, C. J. (2022). Modelling financial performance of food and beverages companies listed on Nigerian exchange group: the firm characteristics effect. *Journal of Global Accounting,* 8(3), 37-52.

Nworie, G. O., Moedu, V. O., & Onyali, C. I. (2023). Contribution of Current Assets Management to the Financial Performance of Listed Consumer Goods Firms in Nigeria.

Ojo, M. O., Ringin, K. J., & Shuibu, H. (2022). IMPACT OF MANAGEMENT INFORMATION SYSTEM ON ORGANIZATIONAL PERFORMANCE OF MTN NIGERIA. *INTERNATIONAL JOURNAL OF MANAGEMENT, SOCIAL SCIENCES, PEACE AND CONFLICT STUDIES,* 5(2).

Okeke, C. O. (2021). Effect of management information system on organizational performance in manufacturing firms. *Research Journal of Management Practice| ISSN,* 2782, 7674.

Okoye, P. V. C., Egbunike, F. C., & Onyali, C. I. (2013). The Nexus of Management Information System (MIS) Implementation and Managerial Performance: An Exploratory Study. *Nexus,* 3(13).

Oladejo, K. (2013). Management information system impact on profitability and decision-making in selected manufacturing firms in Nigeria. *Greener journal of economic and accountancy,* 2(1), 30-43.

Omolola, O. S. (2018). The Impact Of Management Information System To Businessorganization: A Study Of Union Bank Plc. *National Open University Of Nigeria*.

Onodi, B. E., Ibiam, O., & Akujor, J. C. (2021). Management accounting information system and the financial performance of consumer goods firms in Nigeria. *European Journal of Business and Management Research,* 6(1), 112-120.

Onyekwelu, N. P., Monyei, E. F., & Muogbo, U. S. (2022). Flexible Work Arrangements and Workplace Productivity: Examining The Nexus. *International Journal of Financial, Accounting, and Management,* 4(3), 303-314.

Osodo, O., & Jemaiyo, B. (2015). Relationship between the use of management information systems and employee job performance: Evidence From Ken India Assurance Company Limited. *British Journal of Marketing Studies,* 3(5), 61-70.

Sari, E. N., & Priantinah, D. (2019). Managerial decision-making With The Role Of Management Information Systems (MIS): What The Literature Says. *Petra International Journal of Business Studies,* 2(1), 53-58.

Saunders, M. (2012). *Research methods for business students*: Pearson Education.

Sherry, A. M., & Desai, M. (2018). Comparative Study of Management Information System and Decision Support System. *International Journal of Engineering Research in Computer Science and Engineering (IJERCSE),* 5(2).

Tantua, E., & Godwin-Biragbara, F. (2020). Management Information System and Office Productivity of the Print Media in Rivers State, Nigeria.

Yamane, T. (1967). Elementary sampling theory prentice Inc. *Englewood Cliffs. NS, USA,* 1(1), 371-390.

Young-Harry, D. L., Oparanma, A., & Ejo-Orusa, H. (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.