



Cloud-Based Software System and Organizational Performance of Oil and Gas Companies in South-South, Nigeria

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ABSTRACT

Today, organizations are increasingly adopting cloud-based software system to manage their workforce more efficiently. Cloud-based software system is a type of human resources management system that operate on the cloud rather than being installed on a company's local servers. This study examined the relationship between cloud-based software systems and organizational performance. The predictor variable is cloud based software systems, and the criterion variable organizational performance was measured using productivity, operational efficiency and cost effectiveness. The study adopted the positivist philosophical paradigm and employed correlational and cross-sectional survey research designs. The population comprised ten oil companies operating in South-South states of Nigeria. Due to the manageable population size, the census sampling technique was adopted, while purposive sampling was used to select 84 managerial respondents consisting of branch HR managers, supervisors and others HR staff. Primary data were collected using structured questionnaire, while validity was confirmed by academic supervisors, reliability was confirmed using Cronbach's Alpha coefficients above 0.70. Out of 84 questionnaire administered, 74 usable copies were retrieved and use for the analysis with the aid of SPSS version 27.0. Descriptive statistics were used for preliminary analysis, while Spearman Rank Order Correlation Coefficient and partial correlation analysis were used to test the hypotheses. Findings revealed that cloud based software system, positively and significantly enhanced organizational performance, operational efficiency, and cost effectiveness of oil and gas companies in South-South Nigeria. The study concluded that cloud based system significantly improve organizational performance. The study recommended that oil and gas companies should strengthen human resource system to improve organizational performance.

Keywords: Cloud-based software, cloud computing, organizational performance, operational efficiency, cost effectiveness, organizational productivity.

INTRODUCTION

The contemporary business environment is characterized by rapid technological advancement, increasing competition, changing customer expectations, and the need for organizations to make timely and informed decisions. As organizations seek to improve their efficiency and competitiveness, information technology has become an important component of organizational operations. Organizational performance generally reflects the extent to which an organization is able to achieve its objectives efficiently and effectively through the utilization of its human, financial, technological, and other resources. Performance may be assessed through indicators such as productivity, operational efficiency, profitability, service quality, innovation, customer satisfaction, and the achievement of organizational goals. In this regard, the effective use of information systems has increasingly become essential to organizational success.

Organizational performance refers to the extent to which an organization achieves its objectives efficiently and effectively. It may be assessed through indicators such as employee productivity, operational efficiency, service quality, profitability, employee satisfaction, and achievement of organizational goals. The adoption of cloud-based HR software may therefore influence organizational performance by improving the efficiency of HR processes and enabling HR professionals and managers to make better use of employee data. Consequently,



examining the relationship between HR cloud-based software and organizational performance is important for organizations seeking to use technology to improve their overall effectiveness.

Cloud-based software systems, particularly Software as a Service (SaaS), have emerged as an important means through which organizations can access and utilize software applications without necessarily investing heavily in physical computing infrastructure. Unlike traditional software systems that may require organizations to purchase, install, maintain, and periodically upgrade software on individual computers or internal servers, cloud-based software is generally hosted by a service provider and accessed through the internet. This arrangement can provide organizations with greater flexibility, scalability, accessibility, and reduced requirements for in-house infrastructure. The NIST framework identifies rapid elasticity, resource pooling, broad network access, and on-demand self-service as key characteristics of cloud computing (Mell & Grance, 2011).

Today, organizations are increasingly adopting cloud-based HR software to manage their workforce more efficiently. Cloud-based HR software is a type of human resources management system (HRMS) that operates on the cloud rather than being installed on a company's local servers. Essentially, it is a software platform hosted online by a service provider, allowing HR teams, employees, and managers to access the system anytime and anywhere with an internet connection.

The increasing adoption of cloud-based software systems can therefore have important implications for organizational performance. By allowing employees and managers to access organizational information and applications from different locations and devices, cloud-based systems can facilitate collaboration and improve the availability of information for decision-making. Similarly, the ability to scale computing resources according to organizational needs may enable organizations to respond more quickly to changes in demand. Cloud systems may also reduce some of the costs associated with maintaining physical information technology infrastructure, thereby allowing organizations to redirect resources toward core business activities.

However, the adoption of cloud-based software systems does not automatically guarantee improved organizational performance. Organizations may encounter challenges relating to data security, privacy, system reliability, internet connectivity, employee skills, and resistance to technological change, vendor dependence, and integration with existing systems. In addition, the performance benefits of cloud-based software may depend on how effectively the technology is implemented and utilized by employees. A technically advanced system may fail to produce the expected organizational benefits when users lack adequate training, management support, or willingness to adopt new work processes.

The relationship between cloud-based software systems and organizational performance is particularly important in developing economies, where organizations often operate under financial, infrastructural, and technological constraints. In such environments, cloud-based systems may provide an opportunity to access modern business applications without the substantial capital expenditure associated with developing and maintaining extensive in-house information technology infrastructure. At the same time, challenges such as unstable internet connectivity, inadequate technical expertise, cybersecurity concerns, and limited financial resources may influence the extent to which organizations can obtain the expected benefits from cloud technologies.

Consequently, there is a need to examine the extent to which cloud-based software systems influence organizational performance. Such an examination is important because organizations invest significant resources in information systems with the expectation that these investments will improve productivity, efficiency, decision-making, service delivery, and overall performance. Understanding whether and how cloud-based software contributes to these outcomes can assist managers in making informed technology investment decisions and developing appropriate strategies for successful implementation.

Therefore, this study focuses on **cloud-based software systems organizational performance oil and gas companies in South – South Nigeria**, with particular attention to how the adoption and effective utilization of cloud-based software can influence organizational efficiency, productivity, decision-making, flexibility, and achievement of organizational objectives. The study is significant because it contributes to the growing body of



knowledge on the organizational implications of cloud technology and provides a basis for understanding the conditions under which cloud-based software systems can translate into improved organizational performance.

Statement of the problem

The increasing complexity of the business environment has made organizational performance a major concern for both private and public organizations. Organizations are expected to improve productivity, reduce operating costs, provide quality services, respond quickly to changing customer demands, and achieve their objectives effectively. However, many organizations continue to experience challenges such as inefficient business processes, delays in decision-making, poor information management, high operating costs, and inadequate coordination of activities. These challenges may negatively affect productivity and the overall performance of an organization.

The rapid development of information and communication technology has provided organizations with new approaches to addressing these challenges. One of such approaches is the adoption of cloud-based software systems. Cloud computing provides on-demand access to shared computing resources, applications, and services through a network, thereby reducing the need for organizations to maintain extensive physical information technology infrastructure (Mell & Grance, 2011). Cloud-based software can enable employees to access organizational applications and information from different locations, support collaboration, improve information availability, and provide organizations with greater flexibility in managing their technological resources.

Despite these potential benefits, the adoption of cloud-based software systems does not necessarily result in improved organizational performance. Organizations may encounter challenges relating to data security and privacy, unreliable internet connectivity, inadequate technical skills, resistance to technological change, system integration, and dependence on external service providers. These challenges can limit the effective utilization of cloud-based software and may prevent organizations from realizing its expected benefits. According to Marston et al. (2011), issues such as security, privacy, interoperability, and regulatory concerns remain important considerations in the adoption of cloud computing by organizations.

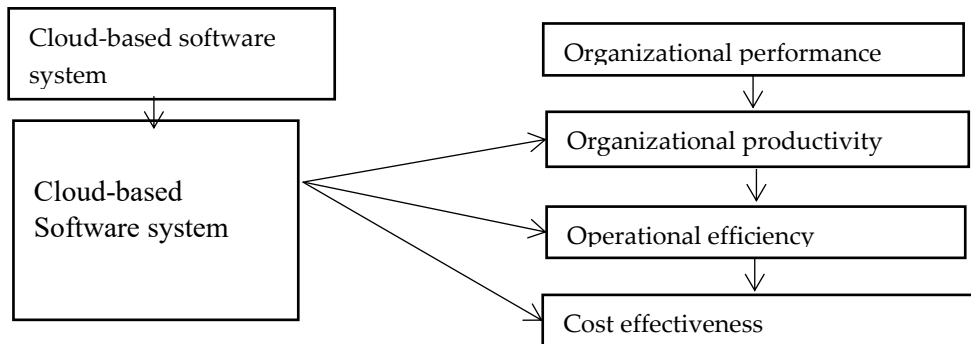
Furthermore, there is a concern about whether investments in cloud-based software actually translate into measurable improvements in organizational performance. While cloud computing has been associated with potential benefits such as cost reduction, scalability, flexibility, and improved access to information, the extent to which these benefits improve organizational productivity and effectiveness may vary among organizations. Empirical evidence indicates that cloud computing adoption can have a positive effect on firm performance, including profitability and market value (Chen et al., 2022). However, the realization of such benefits may depend on the organization's technological capabilities, employee competence, management support, and the effectiveness of implementation.

Another problem is that some organizations adopt cloud-based software primarily because of its popularity or perceived cost advantages without adequately assessing whether the system is compatible with their organizational processes and objectives. Poor planning and inadequate implementation may result in underutilization of the technology, wasted financial resources, employee frustration, and limited improvements in organizational performance. Consequently, the mere availability of cloud-based software does not guarantee that an organization will achieve better productivity or efficiency.

Therefore, the problem of this study is centered on the uncertainty regarding the extent to which cloud-based software systems contribute to organizational performance and the challenges that may hinder their effective utilization. It is against this background that the study seeks to examine the relationship between cloud-based software systems and organizational performance of oil and gas companies in South-South Nigeria, particularly with respect to operational efficiency, productivity, decision-making, cost effectiveness, and the achievement of organizational objectives. The findings of the study are expected to provide useful information to managers and other stakeholders on how cloud-based software can be effectively utilized to improve organizational performance.

CONCEPTUAL FRAMEWORK

A conceptual framework is a structured representation that shows the relationship among variables in a study and explains how they are expected to interact in addressing a research problem, thereby providing a clear guide for data collection, analysis, and interpretation. In this study, the conceptual framework present cloud-based software as predictor and organizational performance as criterion variable in oil and gas companies in South-South Nigeria.



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Purpose of the Study

The purpose of this study is to examine the relationship between Cloud-Based Software system and organizational Performance of Oil and Gas in South-South, Nigeria.

The specific objectives were to:

1. Examine the relationship between Cloud-Based Software system and organizational productivity of Oil and Gas in South-South, Nigeria.
2. Examine the relationship between Cloud-Based Software system and operational efficiency of Oil and Gas in South-South, Nigeria.
3. Examine the relationship between Cloud-Based Software system and cost efficiency of Oil and Gas in South-South, Nigeria.

Research questions

In order to guide the researcher within the context of this study, the following research questions were posed for answers:

1. What is the relationship between Cloud-Based Software and organization productivity Oil and Gas in South-South, Nigeria?
2. What is the relationship between Cloud-Based Software and operational efficiency of Oil and Gas in South-South, Nigeria?
3. What is the relationship between Cloud-Based Software and cost effectiveness of Oil and Gas in South-South, Nigeria?

Research Hypotheses

Base on the above research questions the following null hypotheses were formulated for validation or refutation of the problem under investigation.

H01: There is no significant relationship between Cloud-Based Software and organizational productivity of Oil and Gas in South-South, Nigeria

H02: There is no significant relationship between Cloud-Based Software and operational efficiency of Oil and Gas in South-South, Nigeria

H03: There is no significant relationship between Cloud-Based Software and cost effectiveness of Oil and Gas in South-South, Nigeria

LITERATURE REVIEW

Theoretical Review

The theoretical review provides the conceptual foundation for understanding the relationship between cloud-based software systems and organizational performance. It explains how the adoption and effective utilization of cloud-based software can influence organizational performance.

Technology Acceptance Model (TAM)

The Technology Acceptance Model was developed by Davis (1989) to explain why individuals accept or reject information technology. The model proposes that two major factors—**perceived usefulness** and **perceived ease of use**—influence an individual's attitude and intention to use a technology. Perceived usefulness refers to the extent to which an individual believes that using a particular technology will improve job performance, while perceived ease of use refers to the extent to which the individual believes that using the technology will require minimal effort (Davis, 1989).

TAM is relevant to cloud-based software systems because organizational performance depends partly on employees' willingness and ability to use the software effectively. When employees perceive cloud-based applications as useful for completing tasks, accessing information, communicating, and improving productivity, they are more likely to adopt and use the systems. Similarly, software that is easy to understand and operate may encourage greater user acceptance.

The theory therefore suggests that the benefits of cloud-based software may not be fully realized simply because the technology has been introduced. Employees must accept and use the system effectively. If users perceive the cloud-based software as complicated, unreliable, or irrelevant to their responsibilities, they may resist its use, thereby limiting its contribution to organizational performance.

Resource-Based View (RBV)

The Resource-Based View of the firm was developed from the work of Penrose (1959) and later advanced by Barney (1991). The theory argues that organizations can achieve sustainable competitive advantage by possessing and effectively utilizing valuable, rare, difficult-to-imitate, and non-substitutable resources.

Cloud-based software can be viewed as a technological resource that may contribute to organizational performance when it is effectively integrated with other organizational resources. For example, cloud technology combined with skilled employees, effective management, organizational knowledge, and appropriate business processes can create capabilities that competitors may find difficult to replicate. Barney (1991) emphasizes that resources must possess strategic value and be effectively utilized to provide sustainable competitive advantage.

The RBV is therefore relevant to the study because it explains how cloud-based software can become a source of organizational performance. The technology itself may be available to many organizations, but the ability to integrate it effectively with human skills, organizational processes, and managerial capabilities may differ between organizations. Consequently, organizations that develop superior capabilities for utilizing cloud-based software may achieve better operational efficiency, productivity, and cost effectiveness.

Overall, the theories suggest that cloud-based software systems are most likely to improve organizational performance when the systems are of high quality, accepted and effectively used by employees, supported by organizational resources, properly integrated into business processes, and capable of responding to changing organizational requirements. These theoretical perspectives therefore provide a strong foundation for examining the effect of cloud-based software on operational efficiency, cost effectiveness, organizational productivity, and overall organizational performance.

Cloud-Based Software Systems

Cloud-based software systems have become an important component of modern information technology and organizational management. A cloud-based software system refers to software applications that are hosted on remote servers and accessed by users through the internet rather than being installed and maintained entirely on individual organizational computers. Cloud computing enables users to access computing resources and software services on demand, thereby changing the traditional approach to acquiring, deploying, and managing information technology resources. Mell and Grance (2011) define cloud computing as a model that enables convenient, on-demand network access to a shared pool of configurable computing resources that can be rapidly provided with minimal management effort.

Armbrust et al. (2010) explain that cloud computing allows computing capabilities to be provided as services, creating opportunities for organizations to access technological resources more flexibly. This model has made sophisticated software applications more accessible to organizations that may not have the financial or technical capacity to develop and maintain equivalent systems internally. Mell and Grance (2011) identify broad network access as one of the essential characteristics of cloud computing. This feature can support flexible working arrangements, remote access, collaboration, and faster information sharing. In an organizational context, employees may be able to continue performing their duties even when they are not physically located within the organization's premises.

Marston et al. (2011) argue that cloud computing can provide economic benefits by reducing capital expenditure and allowing organizations to acquire IT resources in a more flexible manner. However, organizations must also consider recurring subscription costs, data migration expenses, connectivity costs, and other implementation requirements. Sultan (2011) notes that cloud computing can provide organizations with greater flexibility and accessibility while changing the traditional management of IT resources. Improved collaboration may reduce duplication of effort and support more efficient organizational processes.

Cloud-based software systems can also contribute to business process automation. Many cloud applications incorporate automated functions for activities such as accounting, customer relationship management, human resource management, inventory management, payroll, communication, and reporting. Automation can reduce the amount of time employees spend on repetitive tasks and may minimize errors associated with manual processing. DeLone and McLean (2003) argue that effective information systems can generate organizational benefits through improved processes, productivity, and decision-making. Consequently, cloud-based applications can become an important tool for organizations seeking to improve their operational processes.

Armbrust et al. (2010) highlight availability and reliability as important considerations in the adoption of cloud computing. In areas with inadequate or unstable internet infrastructure, these challenges may be particularly significant.

Cloud-based software systems also present challenges relating to integration and interoperability. Organizations often use several applications for different business functions, and the ability of cloud applications to communicate with existing systems can influence their usefulness. Poor integration can result in duplicated data, inefficient processes, and additional costs. Marston et al. (2011) identify interoperability as one of the major challenges associated with cloud computing. Effective implementation therefore requires organizations to evaluate whether cloud-based software can integrate with their existing technological and organizational

infrastructure. DeLone and McLean (2003) emphasize the importance of system quality, information quality, service quality, use, and user satisfaction in determining the benefits derived from information systems.

Empirical evidence suggests that cloud adoption can generate positive organizational outcomes. Chen, Guo, and Shangguan (2022) found that cloud computing adoption had a positive effect on firms' profitability and market value. This finding indicates that cloud-based technologies can potentially contribute to broader organizational performance. However, the realization of these benefits is dependent on the organization's ability to select appropriate cloud services, manage implementation effectively, and integrate the technology into its business processes.

Organizational Performance

Organizational performance is a central concept in management and organizational studies because it reflects the extent to which an organization is able to achieve its stated objectives using available resources effectively and efficiently. It encompasses the outcomes generated from an organization's activities and the extent to which those outcomes correspond with its strategic goals. Richard et al. (2009) describe organizational performance as a multidimensional construct that includes financial performance, product-market performance, and shareholder returns. This indicates that organizational performance cannot be adequately assessed using a single measure because organizations pursue several objectives simultaneously.

According to Daft (2016), organizational effectiveness concerns the degree to which an organization realizes its goals, while organizational efficiency focuses on the relationship between inputs and outputs. The distinction is important because an organization may use its resources efficiently but fail to achieve its strategic objectives, or it may achieve its objectives while using excessive resources. Consequently, organizational performance generally combines both effectiveness and efficiency in evaluating how well an organization operates.

Organizational performance can be measured using both **financial and non-financial indicators**. Financial measures include profitability, return on investment, revenue growth, cost reduction, and sales growth. Non-financial measures include customer satisfaction, employee productivity, service quality, innovation, market share, operational efficiency, and achievement of strategic objectives. Kaplan and Norton (1992) argue that organizations should not rely exclusively on traditional financial measures because financial indicators often provide information about past performance rather than the factors that drive future performance. Their Balanced Scorecard approach therefore incorporates financial, customer, internal business process, and learning and growth perspectives.

Customer-related performance is also an important aspect of organizational performance. Organizations depend on customers for revenue and long-term survival, making customer satisfaction, customer retention, service quality, and responsiveness important indicators. Kaplan and Norton (1992) identify the customer perspective as one of the major components of organizational performance measurement. An organization that provides high-quality products and services and responds effectively to customer needs is more likely to develop customer loyalty and strengthen its competitive position. Barney (1991) argues that valuable, rare, difficult-to-imitate, and non-substitutable resources can provide organizations with sustainable competitive advantage. Human resources can therefore serve as an important source of organizational performance when effectively managed.

Organizational Productivity

Organizational productivity is an important measure of organizational performance and refers broadly to the extent to which an organization transforms its available resources into valuable outputs. It is concerned with achieving greater output from available inputs such as labour, capital, technology, materials, and time. Productivity is therefore different from simply increasing the volume of output; it also considers how efficiently resources are utilized in producing that output. Syverson (2011) explains that productivity is fundamentally

concerned with the efficiency with which an organization or firm converts inputs into outputs. Higher productivity implies that an organization can produce more goods or services with the same level of resources or maintain its output while using fewer resources.

Organizational productivity is particularly important because it influences the ability of an organization to remain competitive, control costs, improve profitability, and achieve its objectives. Porter (1985) argues that the efficiency with which organizational activities are performed can influence competitive advantage. An organization that utilizes its resources efficiently is more likely to provide products or services at competitive costs while maintaining quality. Consequently, productivity is often considered an important indicator of an organization's operational and overall performance.

Organizational Productivity and Resource Utilization

A major component of organizational productivity is the effective utilization of organizational resources. Resources include human resources, financial resources, physical infrastructure, information, and technology. Poor resource utilization may result in waste, idle time, duplication of activities, and increased operating costs. Conversely, effective allocation of resources can increase output and improve organizational efficiency. According to Drucker (1999), knowledge workers and their productivity are increasingly important to the success of modern organizations because the effectiveness of knowledge and information use has become a major determinant of organizational performance.

Human resources remain a particularly important determinant of productivity. Employees perform the activities through which organizational inputs are transformed into outputs. Their knowledge, skills, motivation, and access to appropriate tools can influence the quantity and quality of work produced. Barney (1991) argues that valuable and difficult-to-imitate organizational resources can provide a basis for sustained competitive advantage. Therefore, organizations seeking to improve productivity need to develop employee capabilities and provide appropriate technological and organizational support.

Organizational Productivity and Technology

Technological development has significantly changed the way organizations perform their activities. Information technology can automate routine tasks, facilitate communication, improve access to information, and support managerial decision-making. DeLone and McLean (2003) argue that effective information systems can produce organizational benefits through improvements in productivity, management processes, and decision-making. Technology can therefore increase organizational productivity by enabling employees to complete tasks more quickly and accurately.

The effect of technology on productivity, however, depends on how effectively it is implemented and used. The mere acquisition of new technology does not automatically result in increased productivity. Employees may require training, technical support, and appropriate organizational processes to use technological systems effectively. In addition, technological investments may produce limited benefits when they are poorly aligned with organizational objectives. Brynjolfsson and Hitt (2000) emphasize that the benefits of information technology investment are often realized when technological investment is accompanied by complementary organizational changes.

Cloud-Based Software and Organizational Productivity

The emergence of cloud-based software systems has created new opportunities for organizations to improve productivity. Cloud computing allows organizations to access software applications and computing resources through the internet without necessarily maintaining extensive internal infrastructure. Mell and Grance (2011) identify broad network access, resource pooling, rapid elasticity, and on-demand self-service as important characteristics of cloud computing. These features can enable organizations to access applications and

information when required and from different locations. Armbrust et al. (2010) note that cloud computing changes the way computing resources are delivered and can provide organizations with flexible access to technological capabilities.

Operational Efficiency

According to Porter (1985), operational effectiveness involves performing activities better than competitors, while improvements in processes, technology, and resource utilization can contribute to competitive advantage. Operational efficiency can therefore be reflected in reduced operating costs, faster service delivery, improved productivity, effective resource utilization, and better quality of organizational outputs.

Another important aspect of operational efficiency is **cost reduction**. Traditional information systems may require substantial expenditure on hardware acquisition, software installation, maintenance, upgrades, and technical personnel. Cloud-based software can reduce some of these infrastructure-related costs because software and computing resources are provided by cloud service providers. Marston et al. (2011) argue that cloud computing can provide organizations with economic benefits through reduced capital expenditure and greater flexibility in the use of IT resources. Organizations can therefore redirect some of the resources previously devoted to maintaining IT infrastructure toward core operational activities.

Cost Effectiveness

According to Drummond et al. (2015), cost-effectiveness analysis provides a systematic approach for comparing the costs and consequences of alternative courses of action and determining which option provides better value for resources utilized. Porter (1985) argues that organizations can achieve competitive advantage by performing activities more efficiently than competitors and by managing the costs associated with their value-creating activities. Cost effectiveness can consequently be reflected in lower operating expenses, efficient utilization of human and technological resources, reduced waste, and improved productivity.

Cloud-based software systems have particularly attracted attention because of their potential to reduce the cost of acquiring, maintaining, and upgrading information technology infrastructure. Unlike traditional on-premises systems, cloud computing allows organizations to obtain computing resources and software services from external providers through a network. Mell and Grance (2011) identify measured service, resource pooling, on-demand self-service, and rapid elasticity as important characteristics of cloud computing. These characteristics can enable organizations to pay for computing resources according to their requirements rather than investing heavily in infrastructure that may not always be fully utilized. Marston et al. (2011) argue that cloud computing can provide organizations with economic benefits by reducing the need for substantial investment in IT infrastructure and allowing firms to obtain computing resources more flexibly.

Empirical Review

Armbrust et al. (2010) conducted a comprehensive study on cloud computing and identified several potential economic and operational benefits associated with cloud adoption. Their study found that cloud computing could reduce the cost of IT infrastructure, provide greater scalability, and enable organizations to access computing resources according to demand. The authors also observed that cloud computing could improve the flexibility with which organizations deploy and manage applications. The study is relevant because it demonstrates that the characteristics of cloud computing can potentially contribute to organizational efficiency and resource utilization. However, the study was largely conceptual and technical in nature, creating a need for further empirical investigation of how these benefits translate into measurable organizational performance.

Marston et al. (2011) examined cloud computing from a business perspective and investigated its potential implications for organizations. Their study identified benefits including cost savings, flexibility, scalability, and the ability to access advanced technological resources without substantial investment in physical infrastructure. At the same time, the study identified security, privacy, interoperability, and regulatory concerns as major challenges that could influence the successful adoption of cloud computing. The study therefore suggests that

although cloud-based systems have the potential to improve organizational performance, the realization of such benefits depends on effective management of technological and organizational risks.

Sultan (2011) examined how small and medium-sized enterprises could utilize cloud computing to manage their information technology resources. The study argued that cloud computing provides smaller organizations with access to technological resources that might otherwise require significant financial investment. Cloud-based services can reduce the need for organizations to maintain extensive internal IT infrastructure and can provide greater flexibility in resource utilization. The findings suggest that cloud computing can improve organizational agility and support business operations. This is particularly relevant to organizational performance because improved access to technology can enable organizations to compete more effectively and focus their resources on core activities.

DeLone and McLean (2003), although not focused exclusively on cloud computing, developed an influential information systems success model that provides a basis for understanding how technology can affect organizational performance. Their empirical and theoretical review identified system quality, information quality, and service quality as important determinants of system use and user satisfaction. These factors ultimately influence individual and organizational benefits. Applied to cloud-based software, the model suggests that the quality, reliability, usability, and usefulness of cloud applications can determine whether organizations achieve improved productivity and operational outcomes. The study therefore provides a useful theoretical foundation for examining the relationship between cloud-based software and organizational performance.

Chen, Guo, and Shanguan (2022) conducted an empirical investigation into the impact of cloud computing on firm performance using data from listed firms. Their findings indicated that cloud computing adoption had a positive effect on firms' profitability and market value, both in the short and long term. The study provides direct empirical evidence that investment in cloud computing can contribute to measurable improvements in firm performance. This finding is important because it moves beyond the assumption that cloud computing provides only technological benefits and demonstrates that cloud adoption may also produce financial and strategic benefits.

The empirical literature also indicates that **operational efficiency** can be improved through cloud-based systems. Cloud applications can automate repetitive activities, facilitate information sharing, reduce processing time, and enable employees to access organizational resources from different locations. Armbrust et al. (2010) and Marston et al. (2011) both emphasize the flexibility and scalability of cloud computing as important organizational benefits. These capabilities can allow organizations to respond more quickly to changes in workload and customer demand, potentially improving service delivery and productivity.

In terms of **cost effectiveness**, empirical and business-oriented studies suggest that cloud computing can reduce some of the costs associated with traditional IT infrastructure. Organizations can avoid substantial investments in servers, storage systems, and software infrastructure while paying for services based on their requirements. Sultan (2011) found that cloud computing could be particularly beneficial to smaller organizations because it allows them to access sophisticated IT capabilities without the high initial investment associated with traditional systems. However, cloud adoption may also create recurring subscription, connectivity, training, migration, and security costs, meaning that the actual cost advantage may differ between organizations.

With regard to **organizational productivity**, cloud-based software can provide employees with easier access to information, collaborative applications, and automated business processes.

RESEARCH METHOD

This paper empirically utilizes a quantitative method using a descriptive causal design to assess the effect of deploying cloud-based software Systems on organizational Performance in oil and gas companies in South-South Nigeria. The survey-based data were analyzed statistically in order to explore the associations between the

variables. The study contributes to further knowledge of the impact of cloud-based software system on organizational performance in oil and gas companies in South-South Nigeria.

Population and Sample

A purposive sampling method was employed in selecting samples, these are the: companies that have been using cloud-based software system for a period of five years, companies with more than 53 employees, and companies that have more branch or have international operations. In accordance with these criteria, a research sample of 10 oil companies was chosen in the South-South Nigeria. A number of 82 respondents took part comprising HR managers, HR staff, supervisors, and employees who use the cloud-based software system in their daily activities. All employed respondents were randomly drawn from all qualifying companies.

Research Instrument

This researcher employs a questionnaire that has been developed for two major constructs: cloud-based software system and organizational performance of oil and gas industries. The questionnaire is divided into two parts. The first group of questions relates to the adoption of a cloud-based software system overall including issues of perceived ease of use, its ability to be interfaced with other systems in the organization, the ease with which data are available to relevant stakeholders and the reliability of the system to ensure continual running of operations. The second part pertains to HR Management performance, consisting of items that capture the increase cost reduction, time reduction, savings in operational cost, reduction in processing time, and enhanced data accuracy, and customer satisfaction and feedback with the installed system.

All items in the questionnaire are rated on a 5-point scale according to the Likert scale, ranging from 1 to 5 (ranging from 1 = strongly disagree, 5 = strongly agree). The survey aims to collect information on the impact of the adoption of cloud-based software systems on HR management and on the use of systems by oil and gas companies.

Data Collection Procedure

The primary method of data collection was employed with the aid of a structured questionnaire which will be the major instrument for data collection and it was administered by the researcher through emails and personal contacts. The information was gathered through two different methods: self-distributed and self-administered questionnaire. Prior to the commencement of the survey, a pre-test was carried out among 10 respondents outside the study who are not part of the sample to assess the face validity and reliability of the instrument.

Validity and Reliability Testing

The validation and reliability of the questionnaire instrument was pre-tested before analysing the data. Construct validity was applied in order to verify that the questionnaire measures what is supposed to do. To examine Reliability, which analyzes the internal consistency of the instrument. The reliability test results revealed a Cronbach Alpha of greater than 0.7, which is a confirmation of the reliability of the questionnaire.

Table 3 .2: Test of Reliability Coefficient Alpha (α) of Study Variables

S/N	Dimensions/ Measures	No. of Items	Alpha(α)
1.	Cloud-based software system	5	0.794
2.	Cost Reduction	5	0.799
3.	Time Reduction	5	0.867
4.	Data Accuracy	5	0.849

Source: SPSS Version 23.0 Output

From the reliability test, it was indicated that all measures in this task force have high Cronbach's Alpha values, demonstrating that these dimensions are dependable towards measuring the factors associated with the implementation of cloud-based human resource systems and organizational, respectively.

Data Analysis

This paper employs a quantitative method with a causal-descriptive type and aims at investigating the effects of adopting a cloud-based software system on the organizational performance in oil and gas companies. The study was carried out in ten companies that met the selection criteria; a total of 74 employees who were respondents to surveys received them either directly or through an online form. The validity of instruments utilized was tested for construct validity by Cronbach Alpha check. Descriptive statistics were utilized to examine the respondent characteristics, and multiple linear regression was used to examine the relationship between technology adoption and organizational performance.

Data Analysis and Results

Respondent Description

The 74 participants in this study were HR managers, HR staff, and others staff who are end users of cloud-based software system in oil and gas companies. Participants were chosen based on predetermined criteria and were between 31 and 50 years of age. Most participants had over 5 years' experience in the field of HR management. The respondents were selected those who have been knowledge to the implementation of cloud-based software system in their companies. Through the inclusion of several positions, the research intended to gain a variety of viewpoints on the effects of cloud-based software system in improving organizational performance.

Age Distribution of Respondents					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	31-40 years	27	36.0	36.0	36.0
	41-50 years	32	43.0	43.0	79.0
	51 years and above	15	20.0	20.0	100.0
	Total	74	100.0	100.0	

Source: SPSS output version 23.0

Table 4.3 and Figure 4.2 display the age distribution of the respondents. 27 (36%), were within the age range of 31-40 years, while 44 (44%) fell within the 41-50 age bracket. Additionally, 15 respondents (20%) were aged 51 and above. The age distribution indicates that a significant proportion of employees in oil and gas companies are in their early to mid-career stages. This suggests that many respondents have accumulated substantial experience and career growth, as age is often correlated with professional development and expertise in the industry.

Showing Educational Levels of Respondents					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	PhD	1	1.3	1.3	1.3
	Master's degree	31	41.3	41.3	42.7
	Bachelor's degree	42	57.3	57.3	100.0
	Total	74	100.0	100.0	

Source: SPSS output version 23.0

Table 4.4 and Figure 4.3 present the educational qualification of the respondents. The majority, 43 (57.3%), hold a Bachelor's degree, followed by 31 respondents (41.3%) with a Master's degree, while 1 respondent (1.3%) possess a PhD degree. The distribution suggests that most employees in oil and gas companies have Bachelor's degree which indicates a well-educated workforce highlights the emphasis on advanced education and expertise within the industry. The presence of a notable percentage of respondents with master's and bachelor's degrees highlights the emphasis on advanced education and expertise within the industry.

Analysis of cloud-based software system and HR Management performance

Decision Rules:

The hypotheses were stated in null form and tested at 0.05 significance level. Hence, if sig-calculated is $> P$ -value, the researcher will accept the null hypothesis and if the sig-calculated is $< p$ -value the researcher will reject the null hypothesis. Therefore, these analyses, results and decisions/interpretations of the study were guided by the positions of Cooper and Schindler (2014) on decision scale frame. The interpretation of Cooper and Schindler (2014) correlation decision scale frame as used in this study are presented below:

- i. $\pm .00 - .19$ = Very Weak Correlation
- ii. $\pm .20 - .39$ = Weak Correlation
- iii. $\pm .40 - .59$ = Moderate correlation
- iv. $\pm .60 - .79$ = Strong Correlation
- v. $\pm .80 - .99$ = Very Strong Correlation
- vi. ± 1 = Perfect Correlation

Cloud-based software system and Measures of organizational Performance

The result of correlation matrix obtained for cloud-based software system and measures of organizational performance. Also displayed in the here is the statistical test of significance (p - value), which makes us able to answer our research question and generalize our findings to the study population.

Correlation matrix for cloud-based software system and organizational performance measures						
			Cloud-based software system	Organizational productivity	Operational efficiency	Cost effectiveness
Spearman's rho	Cloud-based software system	Correlation Coefficient	1.000	.726**	.812**	.798**
		Sig. (2-tailed)	.	.000	.000	.000
		N	74	74	74	74
	Organizational productivity	Correlation Coefficient	.726**	1.000	.810**	.907**
		Sig. (2-tailed)	.000	.	.000	.000
		N	74	74	74	74
	Operational efficiency	Correlation Coefficient	.812**	.810**	1.000	.814**
		Sig. (2-tailed)	.000	.000	.	.000

	N	74	74	74	74
Cost effectiveness	Correlation Coefficient	.798**	.907**	.814**	1.000
	Sig. (2-tailed)	.000	.000	.000	.
	N	74	74	74	74

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

Source: SPSS Output

RQ1: What is the relationship between cloud-based software system and organizational productivity in oil and gas companies in South-South, Nigeria?

The correlation coefficient (rho) result shows a Spearman Rank Order Correlation Coefficient (rho) of 0.726 on the relationship between cloud-based software system and organizational performance. This value implies that a strong relationship exists between the variables. The direction of the relationship indicates that the correlation is positive; implying that cost reduction was as a result of the adoption of cloud-based technologies. Therefore, there is a strong positive correlation between cloud-based soft system and organizational performance of oil and gas companies in South-South, Nigeria. From the sig- calculated is less than significant level ($p = 0.000 < 0.05$). Therefore, based on this finding the null hypothesis earlier stated is hereby rejected and the alternate upheld. Thus, there is a significant relationship between cloud-based software system and organizational productivity.

RQ2: What is the relationship between cloud-based software system and operational efficiency oil and gas companies in South-South, Nigeria?

Similarly, a Spearman Rank Order Correlation Coefficient (rho) of 0.812 on the relationship between cloud-based software system and operational efficiency of oil and gas companies in South-South. This value implies that a strong relationship exists between the variables. The direction of the relationship indicates that the correlation is positive; implying that the reduction of time wastage was as a result of the adoption of cloud-based technologies. Therefore, there is a strong positive correlation between cloud-based software system and operational efficiency in oil and gas companies in South-South, Nigeria. The sig- calculated is less than significant level ($p = 0.000 < 0.05$). Therefore, based on this finding the null hypothesis earlier stated is hereby rejected and the alternate upheld. Thus, there is a significant relationship between cloud-based software system and operational efficiency.

RQ3: What is the relationship between cloud-based software system and cost effectiveness oil and gas companies in South-South, Nigeria?

Spearman Rank Order Correlation Coefficient (rho) of 0.798 on the relationship between cloud-based software system and Data accuracy. This value implies that a very strong relationship exists between the variables. The direction of the relationship indicates that the correlation is positive; implying that an increase in effective cost was as a result of the adoption of cloud-based software system. Therefore, there is a strong positive correlation between cloud-based software system and cost effectiveness in oil and gas companies in South-South, Nigeria. The sig- calculated is less than significant level ($p = 0.000 < 0.05$). Therefore, based on this finding the null hypothesis earlier stated is hereby rejected and the alternate upheld. Thus, there is a significant relationship between cloud-based software system and cost effectiveness.

Therefore, the results for the first set of hypotheses with regards to the relationship between HR information system and organizational resilience measures are stated as follows:

1. There is a strong positive significant relationship between cloud-based software system and Cost Reduction oil and gas companies in South-South, Nigeria.

2. There is a strong positive significant relationship between cloud-based software system and Time Reduction oil and gas companies in South-South, Nigeria.
3. There is a strong positive significant relationship between cloud-based software system and Data Accuracy oil and gas companies in South-South, Nigeria.

DISCUSSION OF FINDINGS

Cloud based software system helps to improve organization performance. As explained by Utami et al. (2024), cloud based software enables companies to work with HR in a more effective manner, minimize reliance on expensive hardware and makes the data access more quick. Local infrastructure, and hence operational costs, can be minimized. The results of the present study are also in line with those of Pratama et al., (2024), based on which, cloud based software increases the operation productivity by supporting the real-time information retrieval. Mell and Grance (2011) identify broad network access, resource pooling, rapid elasticity, and on-demand self-service as important characteristics of cloud computing. These features can enable organizations to access applications and information when required and from different locations

Cloud-based software system and operational efficiency. This study also reveal that Cloud-based software system has made things became quicker and more accurate once a cloud-based system was adopted. These findings are in line with those of Aziz and Wardhani (2018) who said in his work that cloud based software facilitates a better integration and more efficient employee data management without wasting time. Also in line with this study is Sharma et al. (2024), in their work , they provided evidence that strengthen the finding of this result Cloud based system software allows organizations to stitch different parts of the organization together, enhancing interdepartmental co-ordination and enabling the sharing of information required to make decisions in lesser time.

There is a strong positive significant relationship between cloud-based software system and cost effectiveness. This is consistent with Gautam et al. (2025) underlined that the reliability of cloud system services can improve the overall performance of a company by providing the continuous availability of accurate gathered data. Also, Abugre and Nasere (2020) who continue to find that adoption of cloud technologies led to higher organizational performance, facilitated by HR processes becoming more organized and effective.

CONCLUSION

In conclusion, cloud-based software systems and organizational performance demonstrates that cloud technology has become an important tool for improving the way organizations operate and achieve their objectives. Cloud-based software provides organizations with access to applications, data, and computing resources through the internet, thereby reducing dependence on traditional in-house information technology infrastructure (Mell & Grance, 2011). Its characteristics, including accessibility, scalability, flexibility, resource sharing, and on-demand service, provide organizations with opportunities to improve their operational processes.

The study further indicates that cloud-based software systems can contribute to organizational performance through **operational efficiency, cost effectiveness, and organizational productivity**. Cloud applications can automate routine processes, improve information accessibility, facilitate collaboration, and support faster decision-making. These benefits can enable employees to perform their responsibilities more effectively and allow organizations to utilize their resources more efficiently (DeLone & McLean, 2003). In addition, cloud computing can reduce some infrastructure and maintenance costs and provide organizations with greater flexibility in acquiring technological resources (Armbrust et al., 2010; Marston et al., 2011).

However, the adoption of cloud-based software does not automatically guarantee improved organizational performance. Factors such as poor internet connectivity, cybersecurity and privacy concerns, inadequate employee skills, resistance to change, system integration difficulties, and dependence on cloud service providers may limit the benefits derived from the technology (Marston et al., 2011). Therefore, organizations need

appropriate planning, employee training, management support, security measures, and effective implementation strategies to maximize the benefits of cloud-based software.

The study showed a positive relationship between cloud-based software systems and organizational performance. Empirical evidence indicates that cloud adoption can contribute to improved firm outcomes, including, productivity, operational efficiency, productivity and market value (Chen et al., 2022). Consequently, organizations that strategically adopt and effectively manage cloud-based software systems are more likely to achieve improvements in efficiency, productivity, cost management, information management, and overall performance. The extent of these benefits, however, depends on how well the technology is aligned with organizational objectives and integrated into existing business processes.

RECOMMENDATIONS

Based on the review of literature on **cloud-based software systems and organizational performance**, the following recommendations are proposed:

1. **The oil and gas should adopt cloud-based software strategically to improve productivity.** Organizations should carefully assess their operational needs, objectives, financial capacity, and existing information technology infrastructure before adopting cloud-based software. The selected system should be aligned with organizational goals so that investment in cloud technology can translate into improved performance (Mell & Grance, 2011).
2. **Oil and gas companies should use cloud software to improve operational efficiency.** Management should identify processes that can be automated or integrated through cloud-based applications, such as accounting, human resource management, inventory control, customer relationship management, and reporting. Effective automation can reduce delays, minimize errors, and improve productivity (DeLone & McLean, 2003).
3. **The oil and gas companies should regularly evaluate the cost effectiveness of cloud systems.** Management should periodically compare the costs of cloud subscriptions, maintenance, connectivity, training, security, and other related expenses with the benefits obtained. This will help organizations determine whether the cloud-based system is providing adequate value and contributing to improved organizational performance (Armbrust et al., 2010).

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