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Factors Affecting Cloud ERP and Big Data Analytics Adoption in Nigeria: Perception of Accountants in Nigeria

Patricia Chinyere Oranefo[1], Chinedu Eke[2] and Chinedu Francis Egbunike[1,*]

[1]*Department of Accountancy, Nnamdi Azikiwe University, Nigeria*

[2]*Department of Accounting, Canterbury Christ Church University, UK*

Abstract: The purpose of this paper is to examine the factors that influence the adoption of cloud enterprise resource planning (ERP) and big data analytics (BDA) in Nigeria by combining the diffusion of innovation theory (DOI) and the technology-organization-environment (TOE) framework. The eight factors examined in this study are relative advantage, complexity, compatibility, trialability, observability, ICT infrastructure, top management support, and regulatory environment. A questionnaire-based survey was used to collect data from 156 accounting lecturers belonging to academic institutions in southeast Nigeria. Relevant hypotheses were derived and tested by multiple regression analysis. The findings revealed that relative advantage, compatibility, trialability, and top management support, firm size have a significant effect on the adoption of cloud ERP and BDA at 5% and 10%, respectively. Complexity, ICT infrastructure, and regulatory environment are negatively associated with cloud ERP and BDA adoption. The research was conducted from the perspective of academia, which may limit the generalizability of the findings. The findings offer insights into factors that influence the adoption of cloud ERP and BDA in the Nigerian context such a better understanding can inform policymakers and decision-making in organizations. The research contributes to the literature using the TOE and DOI frameworks to identify the implication of technology-based cloud ERP and BDA computing through the use of a wide range of variables.

Keywords: cloud enterprise resource planning, big data analytics, diffusion of innovation, technology-organization-environment

1. Introduction

The field of cloud computing has grown at an extraordinary rate in the previous few decades. It allows for the least amount of managerial work and service provider involvement when releasing computer resources (such as servers, networks, apps, storage, and services) for convenient, widespread, and on-demand access [1]. Cloud computing had a big impact on businesses and daily life. Businesses that use cloud computing can benefit from quicker innovation, more affordable specialized services, cost savings, and the guarantee that cutting-edge services live up to client expectations [2]. Enterprise resource planning (ERP) is the integrated administration of key business operations, frequently in real time and facilitated by software and technology. The market for ERP software is expected to generate US$49.38 billion in revenue by 2023 [3]. Cloud ERP is a type of software that helps businesses manage and automate their core business processes. Cloud ERP eliminates the requirement for on-premise equipment and offers better scalability and flexibility by hosting the software on remote servers and allowing internet access [4]. Cloud ERP has many advantages for companies. First of all, it gives workers instant access to data, empowering them to act promptly and decisively. This can boost output and effectiveness in various organizational departments [5]. Furthermore, because they do not require costly hardware or continuous maintenance, cloud ERP systems are frequently less expensive than conventional on-premise options [6]. Cloud ERP offers seamless integration with other cloud-based applications, enabling businesses to connect and share data between different systems easily. This integration can streamline operations and improve collaboration among teams. The market volume for cloud ERP software was estimated to be valued at $62.36 billion by 2028, with a compound annual growth rate of 13.6% between 2019 and 2025 [7]. According to Oracle, around 70% of Chief Financial Officers (CFOs) said that their company would think about using cloud ERP [8].

Big data (BD) is the term used to describe an enormous volume of electronic data, both organized and unstructured, that cannot be efficiently managed or processed promptly using standard software tools [9]. In essence, BD cannot be handled with standard data processing software because of its complexity or size. BD analytics is the process of examining large datasets to reveal insights—such as concealed patterns, correlations, market tendencies, and customer inclinations—that can assist companies in making knowledgeable business choices [9, 10]. BDA aids businesses in making data-based decisions that can improve the outcome of their business operations.

*Corresponding author: Chinedu Francis Egbunike, Department of Accountancy, Nnamdi Azikiwe University, Nigeria. Email: cf.egbunike@unizik.edu.ng

BDA enables businesses to make precise decisions in real time, which may aid in the development of a variety of business processes and reduce operating costs while also enhancing product quality [11].

BDA refers to the collection, organization, and analysis of massive amounts of data to derive business value and insights. It involves handling complex data in terms of volume, variety, velocity, and relation to other data [12]. The rapid growth of data generated by computers, including unstructured data such as emails, social media posts, and images, has led to the emergence of BD. Large datasets can be processed in parallel using Hadoop and MapReduce algorithms, in BDA. As both seek to enhance decision-making and promote innovation through the collection and application of knowledge, it has the potential to upend a variety of ecosystems and has connections with domains such as knowledge management [13]. Additional benefits include improved operational efficiency and better decision-making. Over the past two decades, BD's impact on business has increased dramatically [14]. Numerous companies have made significant investments in BD [15]. It contributes to further increasing the accuracy of an organization's accounting processes [16]. Many corporate procedures that once needed manual data input are now automated by AI [17]. Unlike humans, AI systems are capable of writing scripts, creating tests, and reviewing all data. BD processing entails the use of automation and AI, so data may be processed more quickly and in greater quantities to produce insightful information for managers.

Cloud ERP and BDA have revolutionized the field of information systems. Any kind of business can benefit from their flexibility, affordability, scalability, adaptation, availability, and customizable data [5]. Globally, both systems have experienced rapid expansion. However, implementing cloud ERP in developing nations like Nigeria is tough and demanding. The issue that most organizations face is that money and assets are under the care of managers, who are frequently not subjected to close supervision [18]. Additionally, with greater competition among firms brought on by globalization, managers are now more likely to engage in opportunistic conduct to compete for investors' limited financial resources. Nevertheless, research on this topic has been scant, in developing nations and Nigeria is still in its infancy.

The adoption of cloud ERP in several geographical areas, including Europe, Australia, and Asia, has been the subject of some research [5]. Thus, there have been a few studies, examining factors affecting Cloud ERP and BDA adoption that have primarily been understudied. A variety of factors have also been found by researchers to affect the adoption of cloud ERP, such as relative advantage, politics, ICT infrastructure, language, culture, and legal and administrative needs in addition to the competitive environment [19]. The majority of research has concentrated on the benefits and challenges of cloud-based ERP and BDA. The organization and end-user viewpoints, which are crucial in adopting BDA and cloud ERP, have not, however, received as much research attention [5]. The ongoing digitization of the economy presents challenges and opportunities for managers and requires them to adapt to meet client needs. The study investigates Cloud ERP and BDA affecting factors perceived by professionals. The current study has added to the body of knowledge regarding the factors that influence a company's adoption of cloud ERP and BDA. These intermediate contextual factors such as organizational and environmental context, which in turn may affect the company's overall performance are relatively underexplored.

2. Literature Review

2.1. Conceptual review

2.1.1. Cloud ERP

Cloud ERP describes how ERP solutions take advantage of cloud computing. It involves the implementation of ERP systems in the cloud, utilizing services such as infrastructure-as-a-service (IaaS), platform-as-a-service (PaaS), content-as-a-service (CaaS), and software-as-a-service (SaaS) [20]. Cloud ERP offers various benefits, including improved data security through global protection techniques and strategies [21]. It also enables effective manufacturing by supporting manufacturing systems through cloud services [22]. However, customization of cloud ERP systems can be a challenging issue, as it may affect future updates and upgrades [4]. To address the vendor lock-in problem, a cloud ERP API ontology has been proposed to describe the main resources used in cloud ERP APIs, promoting interoperability among different cloud ERP systems [6]. Overall, cloud ERP provides organizations with flexibility, scalability, and accessibility, making it a popular choice for many businesses. Bellamy [23] discovered that there is a considerable danger to data security. The two biggest obstacles to implementing cloud-based services are their high cost and shortage of experienced labor. Kinuthia [24] and Christiansen et al. [25] identified several critical elements that affect cloud ERP adoption, including firm size, cost, the CEO's mindset, staff IT proficiency, interoperability, and competitive pressure. Table 1 shows key insights from prior studies.

2.1.2. Big data analytics (BDA)

BD is defined by authors in terms of three primary dimensions: variety, volume, and velocity. Specifically, BD is defined as data in various formats (variety) that surpasses or challenges an organization's capacity for storage and processing due to its size (volume, which can include terabytes and petabytes of information) and that must be processed quickly (often in milliseconds) to enable effective real-time decision-making (velocity) [10, 26].

A fourth V-veracity has been added to this formulation, focusing on problems like data quality. Veracity highlights the idea of "data as a resource" that gives businesses a competitive edge [27]. Businesses frequently utilize technology that automates continuous and autonomous decision-making processes to manipulate BD effectively. This is frequently accomplished by combining affordable technologies and tools for data extraction, collecting, and analysis referred to as analytics with technology solutions [10, 28]. According to Cao et al. [29], BDA is the process of examining, purifying, changing, and modeling BD to find and convey relevant patterns and information, provide recommendations, and aid in decision-making. As per Cao et al. [29], BDA has the potential to enhance the efficacy and efficiency of audits of financial statements. Real-time data retrieval, analysis, and quick decision-making are made possible by these technologies. Data analytics, according to the IAASB, is the science and art of using analysis, modeling, and visualization to extract more relevant information from data that underpins or is connected to the subject matter. Patterns, deviations, and inconsistencies are also found and analyzed. Enhancing managerial decision-making is the primary motivation for the use of BDA. BDA can convert any data into easily understood presentations or structured forms. It can also create programs

Table 1
Cloud ERP adoption

Authors	Year	Title	Insights
Varma et al. [20]	2023	Cloud-based ERP systems and Data Security for Cloud-based ERP Applications—SAP S/4HANA	The paper discusses the use of cloud-based ERP systems and their advantages over traditional on-premises ERP systems. It states that cloud ERP solutions give companies the speed, adaptability, and insight they need to run in novel ways.
Kim et al. [21]	2023	Cloud-based ERP construction process framework in the customer's perspective	The paper discusses the process frameworks for implementing cloud ERP, which are classified into different types based on the construction type, such as IaaS, PaaS, CaaS, and SaaS.
Kuo et al. [22]	2023	Investigating the determinants of continuance intention on cloud ERP systems adoption	To forecast the ongoing aim of implementing the cloud ERP system, it offers an integrated managerial approach.
Hansen et al. [4]	2023	Investigating ERP System Customization: A Focus on Cloud ERP	It states that the majority of significant cloud ERP suppliers do not provide their customers with choices for system modification.
Duan [30]	2023	Analysis of ERP Enterprise Management Information System based on Cloud Computing Mode	The features and benefits of an ERP cloud-based enterprise management information system are covered in this article. It provides a thorough analysis of this system's application consequences.

Table 2
Big data adoption

Authors	Year	Title	Insights
Wessels and Jokonya [31]	2022	Factors affecting the adoption of big data as a service in SMEs.	The paper stresses the need for organizations to consider technological, organizational, and environmental factors when adopting BDA.
Park and Kim [32]	2021	Factors activating big data adoption by Korean firms.	The benefits from big data, technological capabilities, financial investment competence, and data quality and integration are perceived by the experts and the firms as the strongest determinants of adoption.
Cabrera-Sánchez and Villarejo-Ramos [33]	2020	Factors affecting the adoption of big data analytics in companies.	The paper used variables from the UTAUT model: performance expectancy, effort expectancy, social influence, and facilitating conditions.
Wang et al. [34]	2018	Analysis of influencing factors of big data adoption in Chinese enterprises using DANP technique.	The results show that leadership support, perceived usefulness, financial support, data resources, industrial development, data talents, and technical capability are key elements affecting the application of big data.

specifically designed to address the risks unique to a client or feed data straight into computerized ERP systems, which speeds up the decision-making process for managers. Table 2 reveals key insights from previous studies.

2.2. Theoretical framework

2.2.1. Diffusion of innovation (DOI)

E.M. Rogers proposed DOI in 1962. It was first used in communication to describe how, throughout time, a concept or item gathers traction and diffuses—or spreads—through a particular community or social structure. Rogers provided the subsequent explanation of an innovation: According to Rogers [35] on page 12, an innovation is defined as "an idea, practice, or project that is perceived as new by an individual or other unit of adoption." People embrace new ideas, behaviors, or products as a part of a social system as a result of diffusion. There are five established adopter categories: Innovators, Early Adopters, Early Majority, Late Majority, and Laggards. Rogers [36] identified five key characteristics that affect how innovative technology is adopted: trialability, observability, complexity, compatibility, and relative advantage. Each of these factors is at play to a different extent in the five adopter categories.

1) Relative Advantage: The extent to which an invention is thought to be superior to the concept, plan, or item it replaces.
2) Compatibility: How well the invention fits the requirements, experiences, and values of the intended audience.
3) Complexity: How challenging it is to comprehend and/or use the invention.
4) Trialability: The degree to which an idea can be tried out or tested before a decision is taken to embrace it.
5) Observability: How much innovation yields observable outcomes?

2.2.2. Technology-organization-environment (TOE)

A model for understanding technology diffusion is the TOE. Tornatzky et al. [37] established three institutional contexts of the TOE framework that influence the adoption and application of technological innovations: the technical, organizational, and environmental settings. TOE refers to the internal elements and circumstances that affect an organization's adoption, use, and administration of technology. This environment is made up of several components that might influence how technology is applied and incorporated within the company. Numerous studies have successfully examined the adoption of various IS applications, including cloud computing, e-business, e-commerce, etc. [38–40]. The fundamental tenet of the TOE concept is that users' current technological, organizational, and environmental settings have a significant impact on the specifics and results of adoption [41].

2.3. Innovation context and IS adoption

Numerous empirical research studies have demonstrated that innovation features both assess the rate of technology dissemination and help or impede the adoption and implementation of IT innovations [42]. Relative advantage is one of the most extensively researched innovation characteristics. The perceived advantages or benefits of implementing a new technology in contrast to an older one are referred to by this attribute. Companies embrace cloud-based ERP because they think it will improve communication, save costs and time, and enable the effective integration of new applications for business concepts faster than with conventional ERP solutions [43]. Businesses were more willing to incorporate cloud ERP into their operations, according to Basu et al. [43], if they could see how it would be superior to other conventional ERP options. However, one of the most important criteria in determining whether improvements in information systems are accepted is compatibility [44]. The degree to which an innovation fits with an organization's current requirements, experiences, and values is referred to as compatibility. An invention has a higher chance of being adopted if it works well with the organization's existing circumstances or routines. It is countered, nevertheless, that the process of invention in businesses is far more intricate. According to Premkumar and Ramamurthy [45], the greater complexity of technology is the main cause of its slower adoption rate. The perceived difficulty of comprehending and applying the innovation is referred to as its complexity. When organizations see technology as complicated or challenging to operate, they could be reluctant to embrace it. However, adoption is more likely if it is simple to use and comprehend. Conversely, it seems that observability and trialability are important factors that facilitate the application of new IT [46]. Observability is the extent to which an innovation's benefits or effects are apparent or observable to others. Adoption is promoted and social proof is created when others witness the successful outcomes or early adopters' tales of achievement. Cloud ERP is significantly impacted by innovation attributes like observability and trialability, as demonstrated by Jeyaraj et al. [47]. Trialability is the capacity of organizations to test before committing fully to an innovation. Reducing uncertainty and increasing the chance of adoption are achieved by allowing potential adopters to test new technologies on a limited scale.

H_1: There is a significant effect of relative advantage on the adoption of cloud ERP and BDA in organizations.

H_2: Compatibility has a significant effect on the adoption of cloud ERP and BDA in organizations.

H_3: There is a significant effect of complexity on the adoption of cloud ERP and BDA in organizations.

H_4: There is a significant effect of trialability on the adoption of cloud ERP and BDA in organizations.

H_5: There is a significant effect of observability on the adoption of cloud ERP and BDA in organizations.

2.4. Technological context and IS adoption

The ICT infrastructure makes up the technological context. ICT infrastructure refers to the foundational components and systems that support the delivery of information, communication, and technology services within an organization, community, or country. It includes hardware, software, networks, data centers, and other technical resources necessary for the efficient functioning of ICT services. ICT infrastructure facilitates the exchange of information inside the company and provides the framework for the use of cloud ERP. The installation of digital technology, communication, and the interchange and dissemination of information are all made possible by ICT infrastructure. If both the cloud provider and the users have enough bandwidth and fast Internet, the ERP service can operate quickly on the cloud [48]. Organizations must ensure that there is adequate bandwidth available for Internet connectivity before implementing cloud ERP [49]. ICT infrastructure that is dependable and efficient is necessary to support innovation, economic expansion, and digital transformation [5]. ICT infrastructure facilitates service delivery, boosts productivity, and establishes connections between people and organizations around the world.

H_6: There is a significant influence of ICT infrastructure on the adoption of cloud ERP and BDA in organizations.

2.5. Organizational context and IS adoption

A collection of organizational traits that may influence an organization's choice to accept or reject an innovation has been found in prior studies on ERP adoption [50, 51]. According to Ram et al. [52], top management support (TMS) is among the organizational traits that are most commonly mentioned when discussing the adoption of cloud ERP and BDA. TMS for technology adoption is crucial for the successful implementation and integration of new technologies within an organization. When top management actively supports and promotes technology adoption, it creates a positive environment that encourages employees to embrace and utilize these technologies effectively. TMS is thought to be the most crucial success element for the adoption of IS. An organization's top management approves the project before its implementation and allocates the funds needed for the adoption [53]. Low et al. [54] discovered that top-level management's level of support has an impact on cloud ERP adoption. In short, fostering an atmosphere where staff members feel empowered, encouraged, and supported to adopt new technologies requires the backing of upper management. It lays the groundwork for the organization's technology to be successfully implemented, used, and optimized.

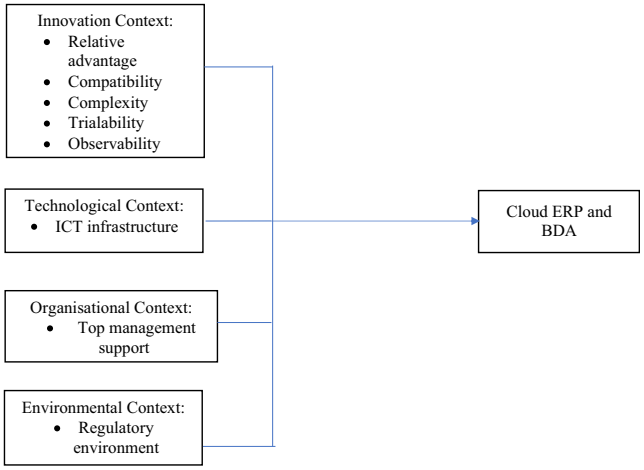
H_7: There is a significant influence of top-level management support on the adoption of cloud ERP and BDA in organizations.

2.6. Environmental context and IS adoption

The regulatory environment is part of the environmental context. The adoption of innovations, including cloud ERP, has been proven to be significantly influenced by regulatory environment support [55]. According to earlier studies, laws and regulations from governments can have a significant impact on whether or not new technology cloud-based ERP is adopted, particularly in developing nations [56]. Technology adoption in an organization can be greatly impacted by the regulatory environment. The kinds of technologies that can be utilized, how they are used, and how much money is needed to deploy them can all be influenced by rules and policies set by governmental organizations or trade associations. Li [57] asserts that when a government has a clear mandate to adopt new technology, organizations are more inclined to comply.

H_8: There is a significant influence of the regulatory environment on the adoption of cloud ERP and BDA in organizations. Figure 1 shows a schematic representation of variables which were studied in the current research (See Figure 1).

Figure 1
Conceptual model in the study



3. Methodology

A study design is an organizational framework that guides the collection and processing of data. The study employed a survey research design [58]. This research describes the behavior of the phenomenon [59]. This is utilized to ascertain details concerning the attributes of a particular issue. Numerical data collection, analysis, and statistical testing are all part of descriptive research. The population of this study was drawn from accounting academia in Universities in Anambra State, Nigeria. The final useable sample comprised one hundred and fifty-six (156) lecturers with experience in accounting-related functions. The researcher chose to employ the purposive sampling technique after taking the manageability of the sample size into account. However, the study used primary sources for its data, which were obtained from respondents who completed a standardized questionnaire. The field researcher had direct access to this data source. A structured questionnaire was primarily employed to generate the major source of data for this investigation.

3.1. Measurement instrument

A structured questionnaire that was distributed to the respondents served as the study's instrument. A questionnaire is a series of questions or elements from a document used to elicit answers relevant to a study or research effort [60]. Additionally, it is thought that this approach is quicker and more effective, giving administrators and data collectors more control over their work. This study uses the DOI theory and TOE framework to generate a total of 45 items, in 9 categories, i.e., "relative advantage" (5 items); "compatibility" (5 items); "complexity" (5 items); "trialability" (5 items); "observability" (5 items); "ICT infrastructure" (5 items); "TMS" (5 items); and, "regulatory environment" (5 items). The adoption of cloud ERP and BDA was measured using 5 items. Every measurement item for latent constructs was created using prior research and adjusted to the Nigeria research scenario. The items for Relative Advantages, Compatibility, Complexity, and TMS were adopted from Premkumar and Roberts [61]; Trialability and Observability from Kendall et al. [62]; ICT Infrastructure from Premkumar and Ramamurthy [45]; Regulatory Environment from Zhu et al. [63] and adoption of cloud ERP and BDA from Ha et al. [64]. Each variable was measured using a 5-point Likert scale.

There are two sections to the questionnaire. Section B contains questions about every variable in the study model, whereas Section A offers relevant data on participant demographics. Years were used to measure age. All informants were given the assurance that their responses would be kept private and would only be displayed in aggregate form to promote participation. Additionally, the author pledged to give copies of the results to each respondent. An online questionnaire was successfully used in this study to collect data on the selected subject. To guarantee the validity and reliability of the results, the questionnaire was carefully prepared. In a quick and easy way, participants may offer insightful commentary and criticism. A comprehensive analysis was conducted on the questionnaire data in order to derive significant conclusions and consequences. All things considered, the online questionnaire used in this study turned out to be a helpful research tool.

In the study, a pilot test was recently conducted to evaluate the effectiveness of the questionnaire. The pilot test provided valuable insights that was used to fine-tune the questionnaire before full implementation. The pilot test was conducted on 20 respondents, and feedback from users was overwhelmingly positive.

3.1.1. Validity of instrument

The appropriateness or accuracy of an instrument in measuring what it is intended to measure is known as validity. Streiner and Norman [65] state that, validity is an assessment of how well the study's constituent parts correspond to the theory, concept, or variable being investigated. Face validity as well as content validity were used for the instrument. Few chosen specialists offered insightful feedback during the questionnaire's development. Measurements produced by an ideal instrument are efficient, one-dimensional, pertinent, precise, and objective [66].

3.1.2. Reliability of instrument

This is the degree to which an instrument consistently measures the things it is intended to assess. Since Cronbach's alpha is the most helpful test for determining a scale's consistency and reliability, it was used to guarantee the reliability of the instruments (See Table 3). The SPSS was utilized in the study to compute it.

The innovation context consisted of five subscales, "relative advantage" ($\alpha = 0.781$); "compatibility" ($\alpha = 0.780$); "complexity"

Table 3
Cronbach's alpha of the instrument

	Cronbach's alpha (α)		
Cloud ERP and BDA adoption	0.811		
Relative advantage		0.781	
Compatibility		0.780	
Complexity		0.738	
Trialability		0.710	
Observability		0.810	
ICT Infrastructure			0.885
Top management support			0.861
Regulatory environment			0.871

Note: The result is a SPSS Ver. 23 output.

($\alpha = 0.738$); "trialability" ($\alpha = 0.710$); and, the "observability" ($\alpha = 0.810$). The technology context consisted of one subscale "ICT infrastructure" ($\alpha = 0.885$), the organizational context consisted of one subscale "TMS" ($\alpha = 0.861$), and the environment context consisted of one subscale "regulatory environment" ($\alpha = 0.871$).

3.2. Methods of data analysis

This is a reference to the techniques the study used to support or contradict its stated hypotheses. To analyze the data, the researcher used both descriptive and inferential statistical approaches. The PPMC was used to analyze the degree of association, and the hypotheses were tested using the linear regression technique.

4. Results

4.1. Demographic information

Table 4 below provides an overview of the respondents' demographic data.

Table 4
Demographic information of respondents

Items	No of responses	Percentage (%)
Sex of respondents		
Male	99	63.5%
Female	57	36.5%
Years of employment		
0 ≤ 2 yrs	53	34.0%
3 – 4 yrs	40	25.6%
5 – 6 yrs	20	12.8%
7 yrs and above	43	27.6%
Age distribution of respondents		
25 – 30 yrs	48	30.8%
31 – 35 yrs	72	46.2%
36 – 40 yrs	27	17.3%
41 yrs and above	9	5.7%
Total	156	100

Note: The result is a SPSS Ver. 23 output.

4.2. Descriptive statistics

Table 5 shows the descriptive statistics of the innovation context consisting of five subscales, "relative advantage" ($\chi = 4.91$, $SD = 0.288$); "compatibility" ($\chi = 4.8$, $SD = 0.298$); "complexity" ($\chi = 4.9$, $SD = 0.287$); "trialability" ($\chi = 4.8$, $SD = 0.292$); and, "observability" ($\chi = 4.9$, $SD = 0.286$). The technology context consisted of one subscale "ICT infrastructure" ($\chi = 4.8$, $SD = 0.288$), the organizational context consisted of one subscale "TMS" ($\chi = 4.8$, $SD = 0.288$), and the environment context consisted of one subscale "regulatory environment" ($\chi = 4.9$, $SD = 0.286$). The cloud ERP and BDA measures had a $\chi = 4.8$, $SD = 0.290$; all items were accepted as means scores were above 3.0.

4.3. Research hypotheses

Table 6 indicated that the model R^2 (or the coefficient of determination) showed a value of 0.956 and an adjusted R^2 of 0.954 which means that 95.4% of the variance in the dependent variable can be accounted for by the explanatory variables. The model significance is evaluated in Table 7.

The statistical significance of the model is assessed using the F-Statistic value of 403.794 with a p-value<0.05, thus confirming the appropriateness of the model.

4.3.1. Restatement of null hypotheses

The hypotheses are evaluated using t-stat. value from Table 8.

Ho_1: There is no significant effect of relative advantage on the adoption of cloud ERP and BDA in organizations.

The hypothesis had a t-statistic value of 1.768; $p = 0.079 > 0.05$; therefore, there is a non-significant positive effect of relative advantage on the adoption of cloud ERP and BDA in organizations.

Ho_2: Compatibility has no significant effect on the adoption of cloud ERP and BDA in organizations.

The hypothesis had a t-statistic value of 3.124; $p = 0.002 < 0.05$; therefore, compatibility has a significant effect on the adoption of cloud ERP and BDA in organizations.

Ho_3: There is no significant effect of complexity on the adoption of cloud ERP and BDA in organizations.

The hypothesis had a t-statistic value of −0.936; $p = 0.351 > 0.05$; therefore, there is a non-significant negative effect of complexity on the adoption of cloud ERP and BDA in organizations.

Ho_4: There is no significant effect of trialability on the adoption of cloud ERP and BDA in organizations.

The hypothesis had a t-statistic value of 2.255; $p = 0.026 < 0.05$; therefore, there is a significant positive effect of trialability on the adoption of cloud ERP and BDA in organizations.

Ho_5: There is no significant effect of observability on the adoption of cloud ERP and BDA in organizations.

The hypothesis had a t-statistic value of 0.312; $p = 0.756 > 0.05$; therefore, there is a non-significant positive effect of observability on the adoption of cloud ERP and BDA in organizations.

Ho_6: There is no significant influence of ICT infrastructure on the adoption of cloud ERP and BDA in organizations.

Table 5
Descriptive statistics of questionnaire constructs

Descriptive statistics				
	N	Minimum	Maximum	Mean	Std. Deviation
Relative advantage	156	4.00	5.00	4.9051	0.28867
Compatibility	156	4.00	5.00	4.8564	0.29864
Complexity	156	4.00	5.00	4.9026	0.28781
Trialability	156	4.00	5.00	4.8910	0.29213
Observability	156	4.00	5.00	4.9051	0.28687
ICT Infrastructure	156	4.00	5.00	4.8718	0.28822
Top management support	156	4.00	5.00	4.8590	0.28846
Regulatory environment	156	4.00	5.00	4.9000	0.28692
cloud ERP and BDA adoption	156	4.00	5.00	4.8654	0.29020
Valid N (listwise)	156				

Note: The result is a SPSS Ver. 25 output.

Table 6
Model summary of test of hypotheses

Model summary				
Model	R	R square	Adjusted R square	Std. Error of the estimate
1	0.978[a]	0.956	0.954	0.06217

Note: [a]Predictors: (Constant), Regulatory environment, Compatibility, ICT infrastructure, Top management support, Trialability, Complexity, Observability, Relative Advantage
The result is a SPSS Ver. 25 output.

Table 7
ANOVA output of test of hypotheses

ANOVA[a]						
Model		Sum of squares	df	Mean square	F	Sig.
1	Regression	12.485	8	1.561	403.794	0.000[b]
	Residual	0.568	147	0.004		
	Total	13.053	155			

Note: [a]Dependent: cloud ERP and BDA adoption
[b]Predictors: (Constant), Regulatory environment, Compatibility, ICT infrastructure, Top management support, Trialability, Complexity, Observability, Relative Advantage
The result is a SPSS Ver. 25 output.

Table 8
Coefficients output of test of hypotheses

Coefficients[a]						
		Unstandardized coefficients		Standardized coefficients		
Model		B	Std. Error	Beta	t	Sig.
1	(Constant)	0.064	0.088		0.734	0.464
	Relative Advantage	0.426	0.241	0.424	1.768	0.079
	Compatibility	0.247	0.079	0.254	3.124	0.002
	Complexity	−0.105	0.112	−0.104	−0.936	0.351
	Trialability	0.398	0.176	0.400	2.255	0.026
	Observability	0.057	0.182	0.056	0.312	0.756
	ICT Infrastructure	−0.095	0.081	−0.095	−1.172	0.243
	Top management support	0.153	0.084	0.153	1.821	0.071
	Regulatory environment	−0.097	0.115	−0.096	−0.844	0.400

Note: [a]Dependent Variable: cloud ERP and BDA adoption
The result is a SPSS Ver. 25 output.

The hypothesis had a t-statistic value of -1.172; $p = 0.243 > 0.05$; therefore, there is a non-significant negative influence of ICT infrastructure on the adoption of cloud ERP and BDA in organizations.

Ho_7: There is no significant influence of top-level management support on the adoption of cloud ERP and BDA in organizations.

The hypothesis had a t-statistic value of 1.821; $p = 0.071 > 0.05$; therefore, there is a non-significant positive influence of top-level management support on the adoption of cloud ERP and BDA in organizations.

Ho_8: There is no significant influence of the regulatory environment on the adoption of cloud ERP and BDA in organizations.

The hypothesis had a t-statistic value of -0.844; $p = 0.400 > 0.05$; therefore, there is a non-significant negative influence of the regulatory environment on the adoption of cloud ERP and BDA in organizations.

5. Discussion

Therefore, H_2 and H_4 were supported at 5% while H_1 and H_7 were significant at 10%. H_3, H_5, H_6, and H_8 were not supported. Our results agree with those of other research. According to research by Alshamaila et al. [67], the adoption of cloud services is significantly influenced by relative advantage, TMS, and ICT expertise. Using data from the Saudi Arabian context, AlBar and Hoque's [5] study found support for H1 and H_7. According to assessments, the most important element influencing the acceptability and uptake of IT/IS services or systems is RA [68].

However, contrary to this study AlBar and Hoque [5] found no support for H2 and H_4. Interestingly, while the current study failed to accept H3 at 5%, AlBar and Hoque's [5] study found support for H_3. Other relevant earlier research, such as Gangwar [69] and Lai et al. [70], documented that complexity had a detrimental impact on the adoption of BD. Regretfully, compatibility's impact on BD uptake runs counter to the conclusions of earlier research by Park and Kim [32] and Idris and Mohamad [71].

Interestingly, H_5 was not supported in this study; however, AlBar and Hoque's [5] study supported H5. The same scenario also played out concerning H6 and H8. Low et al. [54] find that cloud-based services are determined by regulatory and competitive settings. The adoption of cloud ERP is negatively correlated with ICT infrastructure, according to this study's findings, which are not supported by Abdelghaffar and Azim [72]. Thus, the assistance from upper management can facilitate technology learning and dissemination, which is why it is important at different phases of its adoption [73]. This is somewhat consistent with the positive effect of H8.

Wen and Chen [40] provide evidence to support the hypothesis that technological readiness and competition intensity have a favorable influence, whereas financial resource appropriation for IT and the regulatory environment have no effect. They do this using a sample of SMEs, TOE, and DOI.

5.1. Contribution

To the best of our knowledge, this study is the first exploratory one that combines DOI and TOE to identify factors impacting cloud ERP and BDA adoption in a developing African nation, based on a review of the literature. In addition to examining the adoption of cloud ERP and BDA in Nigeria, it attempted to identify the significant relationships that exist between innovation, organizational, technological, and environmental aspects. The effect of several factors, such as RA, Compatibility, Complexity, trialability, observability, ICT infrastructure, TMS, and RE toward cloud ERP and BDA adoption is an important topic that should be considered further in the future. The study's conclusions will make it easier for Nigeria's commercial sectors to adopt cloud ERP and BDA. This study explored the factors that affect cloud ERP and BDA adoption in Nigeria to increase awareness about the use of these technologies in a variety of industries. The findings of this study will help organization executives recognize the advantages and disadvantages of implementing cloud ERP and BDA.

6. Conclusion and Policy Recommendation

Businesses that are facing operational challenges are showing a strong demand for cloud ERP and BDA. However, not much research has been done on the factors influencing cloud ERP and BDA adoption, particularly in developing countries. This study adds significantly to the body of research since it is one of the few that look at the factors impacting cloud ERP and BDA in the setting of underdeveloped countries like Nigeria utilizing the DOI and TOE framework. The adoption of cloud ERP and BDA was found to be significantly influenced by the TOE and DOI parameters. The study's findings will make it easier for Nigeria to adopt cloud ERP and BDA. Organizations will benefit from this research by tackling the challenges preventing cloud ERP and BDA from being successfully adopted.

Ethical Statement

This study does not contain any studies with human or animal subjects performed by any of the authors.

Conflicts of Interest

Chinedu Francis Egbunike is an Editorial Board Member for *Journal of Comprehensive Business Administration Research*, and was not involved in the editorial review or the decision to publish this article. The authors declare that they have no conflicts of interest to this work.

Data Availability Statement

The data that support this work are available upon reasonable request to the corresponding author.

Author Contribution Statement

Patricia Chinyere Oranefo: Conceptualization, Validation, Investigation, Writing – review & editing, Supervision, Project administration. **Chinedu Eke:** Conceptualization, Validation, Investigation, Writing – review & editing, Visualization, Project administration. **Chinedu Francis Egbunike:** Conceptualization, Methodology, Validation, Formal analysis, Investigation, Data curation, Writing – original draft, Writing – review & editing, Project administration.

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