

**Emerging Technologies Adoption on Administrative Services
at Dangote Cement Plc, Ibeshe, Ogun State, Nigeria**

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Abstract

The importance of administrative services in the smooth running of organization's activities and goals achievement cannot be underestimated and serve as the backbone that supports all other functions. However, the rapid advancement in technology necessitates organizations to integrate emerging technologies in their administrative services. This study therefore examines the impact of emerging technology adoption on administrative services at Dangote Cement Plc, Ibeshe. Survey design was adopted and the population comprised all administrative staff of the organisation. A research question and two hypotheses were formulated and a 4-point Likert type questionnaire was developed and administered on 50 randomly selected administrative staff of Dangote Cement Plc, Ibeshe. Descriptive statistics were used to analysis the research question while the hypotheses were tested with regression analysis at 0.05 level of significance. The results showed that emerging technology adoption facilitates administrative service's effectiveness ($r = 0.745$, $p\text{-value} = 0.000 < 0.05$) and also contributes to administrative service efficiency ($r = 0.735$, $p\text{-value} = 0.000 < 0.05$) in the organisation. The study concluded that the adoption of emerging technologies significantly influences both the effectiveness and efficiency of administrative services in the organisation, thus positioning the organisation to better meet its strategic administrative goals and respond to competitive pressures. It was recommended among others, that the management should intensify its technology adoption and continuously update staff skills in this direction.

Key Words: *Administrative services, emerging technologies, service's efficiency, service's effectiveness*

Introduction

Administrative services play a vital role in the smooth operation of any organization, serving as the backbone that supports all other functions. These services which include tasks such as record management, financial planning, human resources management, communication, strategic resource management etc. enable organizations to manage their resources effectively, make informed decisions and achieve their goals. However, the rapid advancement in emerging technologies are transforming the landscape of administrative services and the adoption of these technologies such as artificial intelligence, cloud computing, data analytics, chatbots, digital communication tools etc. will streamline

operations, reduced costs and improved decision-making thereby providing exceptional opportunities to enhance efficiency, productivity and service delivery. This shift towards technology-driven administration is not only reshaping the way organizations function but also redefining the roles and skills of administrative personnel in the modern workplace.

Administrative services refer to the various tasks and functions that support the day-to-day operations of an organization. It can be defined as a range of support services provided to staff, customers, and government agencies in order to enhance their experience and ensure the smooth operations (Werther & Davis, 2017). These services provide essential support to the core operations which include managing office supplies, handling correspondence, scheduling meetings, and maintaining records. Administrative services encompass the strategic management of organizational resources, human resources, financial management, and information systems towards supporting strategic goals and enhancement of organizational efficiency (Nkondo & Masola, 2019). It is fundamental for the smooth running and coordination of organisation's activities, staff welfare, client, government agencies, and ensuring stakeholders' satisfaction (Giri, 2020), and also provide the necessary infrastructure for other departments to function (Chapman, 2015). Ekere, et al (2019), believes that administrative services form an integral part of organization, facilitating the realization of short- and long-term goals in organisation taking cognizance of their categories, components, smooth running and functions.

However, Deloitte (2022) asserted that administrative services in organizations are delineated in various ways depending on the perspective and context which reflect its multifaceted nature or its critical role in organizational operations, strategic resource management, communication, and service delivery. Similarly, quality assurance is essential in maintaining effective and efficient administrative processes and services in order to ensure that organisations achieve their set goals and development (Wang 2017). So high-quality administrative services are essential for supporting management activities in maintaining accurate records and providing timely information as well as enable organisations to meet internal and external requirements and deadlines. This support is critical in fostering work environment where excellence thrives. Effective and efficient services prompt departments and units to access easily information to obtain support when required. Nevertheless, administrative services continue to serve as a driving force behind the diverse functions of interconnected organs of organization facilitating policy implementation, ensuring

compliance with service standards, and optimizing resource utilization to achieve objectives (Prince-George, 2022). The adoption of emerging technology and reorganization of daily activities to enhance administrative operations and user satisfaction have been identified as factors positively associated with organizational efficiency and the effectiveness of administrative services (Nwinyokpugi & Dornanu, 2022).

Emerging technologies can be described as a novel and rapidly changing technologies that are in the early stages of development and adoption but have the potential to significantly impact various sectors, including industry, economy, society, education and culture. These technologies are characterized by their innovative approaches, transformative potential, and ability to create new opportunities or challenges (Kumar & Pansari, 2016). This means that emerging technologies are new, disruptive innovations that significantly alter the way businesses, industries, or societies operate. These technologies can displace older technologies and create new markets and value networks (Dietrich & Cudney, 2021). Some key examples include artificial intelligence (AI), blockchain, quantum computing, cloud computing, Internet of Thing, biotechnology, advanced materials etc.

The adoption of these technologies is anticipated to create substantial or even enormous advantages (Abubakar, 2023), as technology provides a collection of resources to enhance workflow and activities (Sharmin et al., 2017). Emerging technologies, such as artificial intelligence (AI), blockchain, cloud computing, and the Internet of Things (IoT), are reshaping the landscape of organisational administration (Dietrich & Cudney, 2021). These technologies offer innovative solutions to long-standing challenges such as data management, records management, financial transactions, and communication processes (Sadeghi et al., 2015). For instance, AI can automate routine tasks, provide predictive analytics for decision-making, and improve services through chatbots and virtual assistants (Holmes, et al., 2020). Blockchain technology ensures secure and transparent record-keeping, reducing the risk of fraud and enhancing trust (Steu, 2020). Cloud computing, facilitates the centralization of data, making it accessible to authorized personnel from anywhere at any time. (Kumar & Pansari, 2016). Administrative services in organisations encompass a wide range of functions - as a result, the integration of emerging technology in these areas can lead to significant improvements in efficiency, accuracy, and user satisfaction. According to Holmes, et al. (2019), the adoption of emerging technologies in administrative services holds great promise

for enhancing efficiency, transparency, and service delivery. It is not just an option but a necessity for staying relevant and competitive.

However, there are few empirical studies on the adoption of emerging technologies with a specific focus on administrative services, despite the growing concern for service productivity and efficiency as evidenced by the changing technologies and the fundamental shifts in the way administrative services are provided in organizations. Therefore, the study sought to ascertain the degree to which the adoption of emerging technologies affects the effectiveness and efficiency of administrative services, with a focus on emerging technologies. In addition to providing a pathway for scalable suggestions and recommendations that could promote better technology-driven culture and administration, goal achievement, and stakeholders' satisfaction from the organization's and other similar industries' administrative services, evaluating these will provide knowledge-based perspectives on emerging technology and the organization's administrative services. This study therefore examines the impact of emerging technologies on administrative service in organisations with particular interest in Dangote Cement Plc, Ibadan.

Objectives of the Study

1. To determine the level of emerging technology adoption for administrative purposes at Dangote Cement Plc, Ibadan.
2. To ascertain the extent to which emerging technology adoption facilitates administrative service's effectiveness at Dangote Cement Plc, Ibadan.
3. To determine the extent to which emerging technology adoption contributes to administrative service's efficiency at Dangote Cement Plc, Ibadan.

Research Question

1. What is the level of emerging technology adoption for administrative purposes at Dangote Cement Plc, Ibadan?

Hypotheses

- H_{01} : There is no significant contribution of emerging technology adoption to administrative services' effectiveness at Dangote Cement Plc, Ibadan.
- H_{02} : There is no significant contribution of emerging technology adoption to administrative services' efficiency at Dangote Cement Plc, Ibadan.

Methodology

The population of the study, which used a descriptive survey approach, consisted of all administrative staff of Dangote Cement Plc in Ibese, Ogun State. A simple random sampling procedure was used to choose 50 administrative staff members from various departments and units within the organization to serve as the study's sample. The sample taken from the population is representative of the organization's whole administrative workforce. Data collection was done using the questionnaire approach which has items with alternatives on a 4-point Likert rating scale. Content validity was done to make sure the instrument measured what it was supposed to measure, and this was accomplished by submitting the instrument to subject-matter experts who assessed its contents and applicability. After careful examination, some of the pieces were rebuilt, and a pre-test was carried out to confirm the content. Using the Pearson Product Moment Correlation test-retest method, the instrument's reliability was assessed, yielding a correlation coefficient of 0.83. Data analysis was conducted using 47 of the 50 copies of the questionnaire that were distributed. Descriptive statistics were utilized to analyze the data obtained in relation to the research question and regression analysis, an inferential statistical technique, was employed to evaluate the hypotheses.

Results

Research Question 1: What is the level of emerging technology adoption for administrative purposes at Dangote Cement Plc, Ibese?

Level of Emerging Technologies Adoption

S/N	Items	Mean	St. Dev.	Remark
1.	Internet-of-thing	3.06	1.056	Accepted
2.	Digital communication and collaboration tools	3.58	.284	Accepted
3.	Artificial intelligence	3.31	.695	Accepted
4.	Data Analytics	3.33	.553	Accepted
5.	Chatbots and virtual assistants	3.38	.453	Accepted
6.	Cloud Computing	3.46	.343	Accepted
7.	Blockchain technology	2.71	1.178	Accepted

Source: Field Survey

Table 1 above shows the analysis of data collected on the research question. The result indicated that the most adopted emerging technology in the organization is digital communication and collaboration tools with a mean of 3.58 and standard deviation of 0.284. This is closely followed by cloud computing, chatbots and virtual assistants, data analytics, artificial intelligence and internet of things with mean scores of 3.46, 3.38, 3.33, 3.31, 3.06 and standard deviation of 0.343, 0.453, 0.553, 0.695 and 1.056 respectively. Blockchain technology has the lowest mean score of 2.71 and 1.178 standard deviation. This suggests that emerging technologies are effectively integrated into the administrative services of the organization.

Test of Hypotheses

H₀₁: There is no significant contribution of emerging technology adoption to administrative services' effectiveness at Dangote Cement Plc, Ibeshe.

“Table 2: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.747 ^a	.558	.548	.333	.558	56.818	1	45	.000	.656

Table 3: ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	6.293	1	6.293	56.818	.000 ^b
	Residual	4.984	45	.111		
	Total	11.277	46			

Table 4: Regression Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.022	.242		8.354	.000

ETECH.	.515	.068	.747	7.538	.000
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a. Dependent Variable: ASEFF.

b. Predictors: (Constant), ETECH”.

The result of the relationship between the variables as presented in the model summary in Table 2, indicated that there is a strong positive relationship between emerging technology adoption and administrative services’ effectiveness with correlation coefficient of 0.747. The result also revealed that about 55.8% of the total variation in administrative services’ effectiveness could be ascribed to emerging technology adoption. The analysis of the variance as presented in table 3 above presented a p-value of 0.000 which is lesser than 0.05 significant level confirming the model as statistically adequate and sufficient in relating the dependent variable (administrative services’ effectiveness) with the independent variable (emerging technology adoption).

Table 4 illustrates the mean increase in administrative services in every additional increment in emerging technology adoption. Based on the results, a unit increase in emerging technology adoption will lead to about 51.5% increase in administrative services’ effectiveness. The results also indicated that administrative service’s effectiveness will stand at 2.02% without emerging technology adoption. Hence, at t-value 7.538 and p-value $0.000 < 0.05$, we refute the null hypothesis and accept the alternative hypotheses that emerging technology adoption has significant impact on administrative services’ effectiveness at Dangote Cement Plc, Ibeshe.

H₀₂: There is no significant impact of emerging technology adoption to administrative services’ efficiency at Dangote Cement Plc, Ibeshe.

“Table 5: Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.735 ^a	.540	.530	.462	.540	52.830	1	45	.000	2.588

Table 6: ANOVA^a

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	11.260	1	11.260	52.830	.000 ^b
Residual	9.591	45	.213		
Total	20.851	46			

Table 7: Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	.930	.379		2.455	.018
ETECH.	.740	.102	.735	7.268	.000

a. Dependent Variable: ASEY

b. Predictors: (Constant), ETECH”.

The above table shows the model summary of the relationship of the variables. The result indicates that there is a positive relationship between emerging technology adoption and administrative services’ efficiency with correlation coefficient of 0.735. The result also revealed that about 54% of the total variation in administrative service’s efficiency could be attributed to emerging technology adoption. The analysis of variance of the mean of the independent and dependent variables (emerging technology adoption and administrative services’ efficiency as illustrated in table 6 above shows a p-value of 0.000, which fails below the significance level of 0.05, along with an F-value of 52.830. These results signified a statistically notable distinction between the mean of the independent variable (emerging technology adoption) and dependent variable (administrative services’ efficiency).

Table 7 presented the result of the regression co-efficient of the impact of emerging technology adoption on administrative services’ efficiency which shows that emerging technology adoption is a significant predictor of administrative services’ efficiency ($\beta = 0.735$, $t = 7.628$, $p < 0.005$). The results also indicated that a unit increase in emerging technology adoption will lead to approximately 74% increase in administrative services’

efficiency. Hence, with $p\text{-value } 0.000 < 0.05$, we refute the null hypothesis and accept the alternative hypothesis that emerging technology adoption has significant impact on administration efficiency at Dangote Cement Plc, Ibeshe.

Discussion of Results

From the analysis of the respondents' responses to research question, it was observed that the rate of adoption of emerging technology in the organization high. The organization appears to have successfully incorporated emerging technologies into its administrative functions, as seen by the high adoption rate of these technologies. This demonstrates that the organization's administrative staff are properly outfitted with the tools they need to carry out their daily responsibilities, creating a more responsive and effective administrative environment.

The first hypothesis was developed in order to ascertain how the effectiveness of administrative services in the organization under review is impacted by the adoption of emerging technologies. The effectiveness of administrative services provided by the organization has been found to be significantly impacted by the adoption of emerging technologies. New technologies like the Internet of Things (IoT), chatbots and virtual assistants, cloud computing, data analytics, virtual communication and collaboration tools, and others have been shown to improve record keeping, resource allocation and utilization, database management, financial activities and reporting, payroll and salary administration, internal and external communication, community and public relations, and procurement. According to the findings, the adoption of emerging technologies significantly influences how quickly administrative services are rendered within the organization. Adoption of chatbots, visual assistants, artificial intelligence, digital communication and collaboration tools, and other technologies in various administrative service domains has been found to improve organizational administrative services and support workflow. The results support the claim made by Holmes, et al. (2019) and Giri, (2020) that organizations can enhance their services, automate repetitive operations, and use predictive analytics for decision-making by utilizing new and evolving technologies.

The purpose of the second hypothesis was to determine whether the efficiency of administrative services in the organization under review was significantly impacted by the adoption of emerging technologies. The results highlight how emerging technology adoption has the ability to revolutionize administrative services by increasing their efficiency.

Adoption of emerging technologies improves information access and coordination, streamlines financial activities and reporting, improves performance, improves internal and external communication, improves records management, and increases customer satisfaction. In addition to increasing administrative efficiency, the incorporation of these cutting-edge tools has put the organizations in a better position to handle its competitive challenges and strategic goals. The results are consistent with Zhang et al. (2018), who claim that new technologies have transformed administrative procedures by offering safe, expandable, and easily available platforms for storing and retrieving data. The findings also support Balu (2021) assertion that new technological platforms, like virtual communication and collaboration tools like Zoom, Microsoft Teams, and Slack, enhance internal and external communication by enabling real-time interaction and collaboration between staff members and external stakeholders, which enhances the provision of administrative services.

Recommendations

Base on the findings of this study, the following recommendations were made:

1. Management should continually invest in upgrading and adopting the latest emerging technologies. Keeping abreast of advancements in emerging technology will ensure that the company continues to improve administrative efficiency and effectiveness
2. Technological infrastructure should be assessed regularly and updated to the to prevent obsolescence and leverage the full potential of new innovations.
3. Management should invest more in comprehensive training programmes for employees, with focus on building digital literacy and competency.
4. Management should establish clear metric and benchmarks to monitor and evaluate the impact of these technologies on administrative services making adjustments as needed to optimize their benefits.

Conclusion

The study examines the impact of emerging technology adoption on administrative services within Dangote Cement Plc, Ibeshe, Ogun State, Nigeria. It reveals insights into the transformation role that emerging technologies play in enhancing the effectiveness and efficiency of administrative services. The findings of this study clearly revealed that the adoption of emerging technologies significantly influences both the effectiveness and efficiency of administrative services of the organisation. With the adoption of emerging technologies tools such as the Internet of Things (IoT), virtual communication and

collaboration tools, artificial intelligence (AI), data analytics, chatbots and virtual assistants, cloud computing, blockchain technology, etc. the organisation has substantially enhanced its administrative functions.

These technologies have markedly improved records management by ensuring accuracy and real-time data updates and also facilitated seamless information access and coordination, thereby supporting informed decision-making and efficient operations. Resource coordination and utilization have been optimized, reducing wastage and enhancing productivity. Similarly, performance improvement has been achieved through continuous monitoring and proactive management interventions enabled by emerging technologies. Overall, the strategic adoption of emerging technologies has not only improved the operational efficiency of administrative services but has also enhanced their effectiveness, positioning the organisation to better meet its strategic goals and respond to competitive pressures.

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