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The Effect of Digital Communication on Enhancing Operational Effectiveness in the Power Sector in Southeast Nigeria

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ABSTRACT

This study examines the effect of digital communication on enhancing the operational effectiveness in Enugu State Electricity Distribution Company (EEDC). As digital communication technologies continue to transform organizational operations, it is crucial to understand how digital communication influence effectiveness, decision-making, and service delivery in the Enugu Electricity Distribution Company. The research explores the use of two digital communication platforms, such as emails, whatsapp group, within EEDC, assessing their impact on communication flow, coordination, and overall operational effectiveness. The study employs both qualitative and quantitative methods, including surveys and interviews with 206 employees of EEDC, which served as the population for the study, the entire population was sampled for the study because it was manageable. Simple percentage was employed for analysis of data while chi square (X^2) was employed for testing of the hypotheses at 0.05 level of significance. The findings suggest that digital communication tools significantly improve operational effectiveness by enhancing real-time communication, reducing response time, and promoting better coordination across departments. The research concludes that while digital communication offers considerable benefits for improving power sector operations, strategic implementation and employee training are essential for maximizing its potential. This study provides valuable insights for public organizations aiming to leverage digital communication to enhance their operational effectiveness.

Keywords: Effect, Digital Communication, Operational Effectiveness, Public Organization, Collaboration, Field Operations

INTRODUCTION

The power sector plays a crucial role in national and economic development. It is the backbone of any country's infrastructure, providing the necessary energy for industries, households, and transportation [1]. Without a reliable and efficient power sector, a nation's economic growth and development would be severely hindered [2]. The power sector being essential for industrial development, has been a key driver of economic growth in developed nations [3]. It has provided the necessary infrastructure for industries, businesses, and households to thrive, created jobs and stimulated economic activity, and reduced poverty and improved living standards [4]. Industries rely heavily on electricity to power their machineries and production processes. A stable and affordable power supply ensures that industries can operate efficiently and competitively, leading to increased productivity and economic growth [5]. Moreover, the power sector provides the necessary infrastructure for the development of new industries, such as renewable energy and smart grid technologies, which can further drive economic progress [6]. For example, the availability of cheap and abundant electricity has enabled the growth of industries. This is an Open Access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited

such as manufacturing, which has been a major contributor to economic growth in countries like Germany and Japan [2]. However, since independence, Nigeria has experienced problem in the area of electricity generation, transmission and distribution [7]. The extent of this is underlined by the fact that Nigeria is the largest purchaser of standby electricity generating plants in the world. The poor condition of the power sector in Nigeria has been a major impediment to nation's economic growth [8]. In 2001, for instance, per capita power consumption in Nigeria was estimated at 82 kilowatts (kW) compared with an average of 456kW in other sub-Saharan African countries and 3,793kW in South Africa. Indeed, the gap in the power sector has far reaching implications for improving the business climate, sustaining economic growth and the social well-being of Nigerians [8]. The power sector is plagued by recurrent outages to the extent that some 90 percent of industrial customers and a significant number of residential and other non-residential customers provide their own power at a huge cost to themselves and to the Nigerian economy. Installed capacity is 8,000 megawatts, but only 4,000 megawatts is operable of which about 1,500 megawatts is available to generate electricity. At 125 kWh per capita, electricity consumption in Nigeria is one of the lowest in the world.

In a bid to enhance electricity generation and distribution in Nigeria, Nigeria has severally changed her policies on electricity with corresponding change in nomenclatures [9]. Prior to 1999, the name was NEPA (National Electric Power Authority) and it was changed to PHCN (Power Holding Company of Nigeria) after the return of democracy with some innovations; huge investment to stabilize electricity sector and enhance electricity supply. In some few years ago, the government of Nigeria succeeded in privatizing the power sector [10]. The privatization was based on the geopolitical zones of the country. In the South East, the name of the electricity distribution company is called EEDC Plc (Enugu Electricity Distribution Company). Notwithstanding, these monumental policy change aimed at enhancing electricity generation in Nigeria, Electricity generation and distribution in Nigeria, with particular reference to South East Nigeria which the Enugu Electricity Distribution Company covers is far from being satisfactory. EEDC has not fully realized its operational effectiveness. This could be attributed to poor communication which is often manifested in serious misunderstanding between the EEDC and her customers, resulting to claims and counter claims, incessant complaints and dissatisfaction with the EEDC Service delivery. The importance of digital communication in various industries has become increasingly evident. One such industry where digital communication plays a crucial role is the electricity distribution sector [11]. In Nigeria, where electricity distribution companies (EDCs) face numerous challenges, digital communication has emerged as a key factor on enhancing operational effectiveness [11]. Firstly, digital communication enables EDCs to streamline their operations and improve efficiency. By leveraging digital tools such as mobile apps, online platforms, and social media, EDCs can easily communicate with their customers, receive feedback, and address concerns in real-time. This not only enhances customer satisfaction but also helps EDCs to identify and resolve issues more promptly.

Secondly, digital communication facilitates better coordination and collaboration among different departments within EDCs. Through digital channels, employees can share information, collaborate on projects, and make decisions more efficiently. This leads to improved operational processes and ultimately, better service delivery to customers. Moreover, digital communication allows EDCs to gather valuable data and insights from their customers. By analyzing this data, EDCs can gain a deeper understanding of customer needs and preferences, enabling them to tailor their services accordingly. This not only enhances customer satisfaction but also drives business growth and profitability. The role of digital communication on enhancing operational effectiveness of electricity distribution companies in Nigeria cannot be overstated. By embracing digital tools and platforms, EDCs can streamline their operations, improve efficiency, and ultimately, deliver better services to their customers. As the demand for electricity continues to grow in Nigeria, the importance of digital communication in the electricity distribution sector will only continue to increase. It is based on the foregoing background that the researchers wish to investigate the effect of digital communication on enhancing operational effectiveness of public organizations in Enugu State a case study of Enugu Electricity Distribution Company (EEDC). Specifically, the study is designed to; ascertain the effect of EDDC whatsapp group on enhancing customer's satisfaction; identify the effect of email on enhancing collaboration among employees of EDDC in marketing operations.

LITERATURE REVIEW

Concept of digital communication

Digital communication, facilitated by digital technologies such as computers, smartphones, and the internet, has significantly transformed the ways individuals and organizations exchange information [12]. Unlike traditional communication, which relies on analog signals (e.g., face-to-face communication or telephony), digital communication uses binary data (0s and 1s) for encoding, transmission, and reception. This shift has impacted every aspect of communication, from personal interactions to corporate practices, media consumption, and social

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relationships [13]. The emergence of digital communication tools such as email, social media, instant messaging, and video conferencing has facilitated global connectivity, enabling real-time communication regardless of geographic boundaries. This literature review seeks to explore the evolution, types, advantages, and challenges of digital communication, focusing on its implications for individuals, organizations, and society as a whole.

Evolution of Digital Communication

The advent of the internet in the late 20th century marked a significant milestone in the evolution of communication technologies. Early forms of digital communication, such as email and early instant messaging systems, transformed personal communication, allowing messages to be exchanged rapidly and over long distances [14]. The development of multimedia tools, such as video calling, web conferencing, and collaborative platforms, further revolutionized how people communicate for work, education, and leisure [15]. By the 21st century, the rise of social media platforms such as Facebook, Twitter, Instagram, and WhatsApp reshaped the landscape of communication, enabling users to interact with vast networks of individuals across the globe [16],[17].

Advantages of Digital Communication

1. **Speed and Efficiency:** Digital communication allows for rapid exchange of information. Messages, data, and media can be sent almost instantaneously across the globe, enhancing both personal and organizational communication [18].
2. **Cost-Effectiveness:** Unlike traditional forms of communication, such as phone calls or postal services, many digital communication tools are low-cost or free, making them highly economical for both personal and business use [19].
3. **Global Connectivity:** The internet has broken down geographic and temporal barriers, allowing individuals from different parts of the world to communicate in real time. This global reach has enhanced international collaboration, business operations, and social relationships [7].
4. **Interactivity and Engagement:** Digital platforms facilitate two-way communication, enabling users to engage in dynamic interactions through comments, feedback, and shared content. This has empowered individuals and organizations to form communities, foster dialogue, and engage in collective action [20].
5. **Multimedia Integration:** Digital communication allows for the integration of text, images, audio, and video, enabling richer forms of interaction and content delivery. For instance, social media platforms combine various media types, providing an immersive communication experience [17].

Operational effectiveness

Operational effectiveness (OE) is a critical concept within both business and military contexts, as it pertains to the ability of an organization or operation to efficiently execute its functions and achieve its desired outcomes. In its essence, operational effectiveness involves optimizing internal processes, resources, and strategies to maximize performance, reduce costs, and increase overall output. Across sectors, organizations strive for high operational effectiveness to remain competitive and resilient in rapidly changing environments. This literature review explores the concept of operational effectiveness, its importance, and the key factors influencing it in various organizational settings, focusing on strategic alignment, resource utilization, technology adoption, and continuous improvement. The term "operational effectiveness" has evolved over time. Initially, it was mostly used in military and manufacturing contexts, where it referred to the ability of an operation to execute tasks in a timely and cost-effective manner. According to [21], operational effectiveness involves performing similar activities better than rivals do. This includes practices such as optimizing supply chains, improving operational processes, and innovating management techniques. [22], further emphasized that operational effectiveness is essential to achieve competitive advantage, but it must be continuously updated to maintain long-term success in any industry. They argued that while operational effectiveness is important for competing in existing markets, it is not enough by itself to ensure sustained competitive advantage, which requires a focus on strategic positioning [23].

Digital communication and organizations' operational effectiveness

In recent years, digital communication has become a transformative force in the management and operation of public organizations. From local government agencies to large public institutions, the adoption of digital tools such as emails, social media, online collaboration platforms, and mobile applications has significantly impacted operational effectiveness [24]. This literature review explores the effect of digital communication on enhancing the operational effectiveness of public organizations. The review examines how digital communication improves communication processes, decision-making, resource allocation, public engagement, and service delivery, all of which contribute to more efficient and responsive public services [25].

1. Improved Communication and Coordination

Digital communication tools, such as emails, online meeting platforms (e.g., Zoom, Microsoft Teams), and intranet systems, have vastly improved communication within public organizations. According to [26], the shift from traditional communication channels to digital ones has made it easier for employees across different departments to coordinate, share information, and collaborate in real time, regardless of geographic location. In public organizations, this has led to faster decision-making processes and more efficient task execution. [27], highlighted that enhanced internal communication results in more synchronized efforts between departments, allowing for quicker response times and reducing the chances of errors in service delivery. For example, the implementation of integrated communication systems in local governments has improved inter-departmental collaboration, facilitating quicker responses to public inquiries and requests. As [28], notes, when public sector agencies share real-time information and coordinate effectively, they can provide more seamless services, which ultimately contributes to greater operational effectiveness.

2. Enhanced Decision-Making Capabilities

Digital communication technologies facilitate access to real-time data and information, which is crucial for decision-making in public organizations. According to [28], digital tools like data analytics platforms and dashboards enable public sector managers to track performance metrics, monitor service delivery, and identify inefficiencies. The ability to collect, analyze, and disseminate data in real-time allows decision-makers in public organizations to make informed decisions that improve both operational performance and service outcomes. For instance, [29] found that the implementation of digital systems in public health departments allowed managers to access critical data about disease outbreaks and resource needs, leading to more targeted and effective interventions. This real-time decision-making capability has made public organizations more responsive to emergencies and dynamic public needs, ultimately improving operational effectiveness.

3. Resource Management and Allocation

Digital communication systems contribute significantly to the efficient management of public resources, particularly in the allocation of personnel, equipment, and financial resources. [30], suggest that by using digital tools such as resource management software and scheduling applications, public organizations can better track resource usage, reduce waste, and ensure that resources are allocated where they are most needed. For example, [19], discusses how digital communication technologies in public transportation agencies have optimized fleet management and scheduling. By collecting real-time data about traffic patterns and vehicle availability, these agencies have been able to reduce delays and improve service reliability, directly enhancing operational effectiveness.

4. Increased Public Engagement and Transparency

Digital communication platforms also enhance the relationship between public organizations and the public, allowing for greater engagement, transparency, and accountability. [31], argue that social media, online surveys, and government portals offer a direct line of communication between citizens and government bodies, enabling citizens to voice their concerns, provide feedback, and receive information about public services. This level of engagement promotes greater accountability within public organizations, as citizens can monitor progress on public initiatives and assess the quality of services. [22], emphasizes that transparency, facilitated by digital communication, fosters trust between public organizations and the communities they serve. The increased transparency brought about by digital communication also aids in the efficient delivery of services, as public organizations can receive direct feedback on the effectiveness of their operations and make adjustments as needed.

5. Service Delivery Improvement

One of the most significant impacts of digital communication on operational effectiveness is its influence on public service delivery. [31], suggest that digital platforms allow public organizations to offer services more efficiently, especially in sectors like healthcare, education, and social services. For example, e-governance initiatives and digital health platforms allow citizens to access public services remotely, reducing wait times and increasing the convenience of service delivery.

Concept of Field Operations

Field operations encompass activities that take place outside a fixed office environment and are generally conducted directly at the point of service, site of production, or location where the work is to be done. According to [32], field operations involve direct engagement with external environments and stakeholders, such as customers, suppliers, or external facilities, and are central to the execution of tasks that cannot be performed remotely. Field operations are commonly associated with the deployment of field teams or personnel, who are tasked with carrying out specific activities such as sales, service delivery, installations, inspections, data collection, and repairs. [33], further defined field operations as "activities requiring the mobilization of personnel and This is an Open Access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited

resources to work directly on-site, often involving real-time decision-making and problem-solving." These operations require dynamic and adaptive management practices due to their dependence on external factors such as geography, weather, client needs, and logistical constraints.

Employee Collaboration

Employee collaboration refers to the process by which employees work together to achieve common organizational goals and objectives. It involves the exchange of ideas, sharing of knowledge, and leveraging collective skills and expertise to enhance productivity, innovation, and problem-solving within an organization. In today's increasingly global and digitally interconnected workplace, collaboration among employees is more crucial than ever. Organizations are increasingly relying on teamwork, collective intelligence, and collaborative tools to drive performance and stay competitive. This literature review explores the various facets of employee collaboration, examining its benefits, challenges, the role of technology, and strategies to enhance collaboration in the workplace. Collaboration has long been recognized as a key driver of organizational success. According to [34], collaboration enhances communication, fosters knowledge sharing, and strengthens relationships between employees. It enables organizations to combine different perspectives and expertise, leading to more innovative solutions and better decision-making. Effective collaboration can also help organizations achieve operational efficiency by reducing redundancies, improving workflow, and streamlining processes. [35], emphasizes that employee collaboration promotes the pooling of resources, making it easier to tackle complex tasks that may be difficult to address individually. In fast-changing industries, the ability to collaborate effectively is often what sets high-performing organizations apart from their competitors. In fact, research by [29], indicates that organizations that prioritize collaboration are better equipped to adapt to market changes, improve customer satisfaction, and enhance overall performance.

Marketing operations

Marketing operations encompass the planning, management, and execution of marketing strategies that contribute to achieving the organization's business objectives. [36], defines marketing operations as the set of activities designed to streamline marketing efforts by ensuring that resources (human, financial, technological) are effectively utilized to deliver on brand promises, engage customers, and generate measurable results. These activities include campaign management, marketing resource management, data analytics, customer segmentation, and performance measurement. [37], suggest that marketing operations are also concerned with maintaining the internal infrastructure and processes that support marketing initiatives, ensuring consistency, efficiency, and effectiveness across all marketing functions. By focusing on operationalizing marketing strategies, marketing operations play an important role in bridging the gap between the vision and execution of marketing goals.

Employee WhatsApp Groups

An **employee WhatsApp group** is a group chat created on WhatsApp, where employees of an organization communicate informally to discuss work-related topics, share information, and coordinate tasks. This literature review explores the existing research on the use of employee WhatsApp groups, focusing on their impact on communication, productivity, collaboration, and organizational culture. One of the primary advantages of WhatsApp groups in organizations is their ability to enhance communication efficiency. According to [38], digital communication tools like WhatsApp enable real-time communication, allowing employees to exchange information quickly and resolve issues promptly. WhatsApp's instant messaging feature helps employees bypass delays typically associated with traditional communication channels, such as email, leading to quicker decision-making and faster problem resolution. In a study by [39], it was found that employees who used WhatsApp for communication experienced reduced response times in their interactions, especially when compared to email communication. The real-time nature of WhatsApp communication, as noted by [40], is crucial for improving organizational workflow and reducing bottlenecks in communication. WhatsApp groups thus help maintain the momentum of operations by enabling immediate feedback and fostering quick exchanges.

The Effect of Employee WhatsApp Groups on enhancing Organizational Field Operations

In today's digital age, instant messaging platforms have become key tools for enhancing communication within organizations, particularly in field operations. Among these platforms, WhatsApp stands out due to its widespread usage, ease of access, and real-time communication capabilities. WhatsApp groups are commonly used in various organizational contexts to facilitate rapid communication, coordination, and information sharing among employees. This literature review explores the impact of employee WhatsApp groups on enhancing field operations in organizations. It highlights the benefits, challenges, and best practices related to the use of WhatsApp groups in field operations, particularly focusing on communication efficiency, real-time decision-making, team collaboration, and operational performance. Field operations in organizations typically involve activities performed outside the central office, such as service delivery, sales, maintenance, inspections, logistics, This is an Open Access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited

and customer support. These operations often require employees to work in remote locations, necessitating effective communication, coordination, and resource management [41]. [22], argue that seamless communication is crucial for operational success in field-based environments, as real-time updates, quick responses, and collaborative efforts significantly affect service quality and efficiency. Traditional communication methods, such as phone calls and emails, are often inadequate for field operations due to delays, limited accessibility, and lack of real-time interactions. [42], note that digital communication tools, such as WhatsApp, overcome these challenges by enabling instant communication between field employees, their supervisors, and other team members.

The Effect of Email on enhancing employee collaboration in Marketing Operations

In today's digital age, email has become one of the most widely used communication tools in organizations, particularly in marketing operations. It enables employees to communicate, share information, and collaborate in a fast, efficient, and cost-effective manner. In marketing departments, where timely coordination, strategic alignment, and effective communication are crucial for success, email plays a central role in ensuring that marketing teams can work together efficiently across various functions, including strategy development, campaign execution, content creation, and customer relationship management. This literature review explores the impact of email on enhancing collaboration among employees in marketing operations. The review examines how email communication facilitates information sharing, coordination, decision-making, and overall collaboration in marketing teams.

Theoretical Framework

Media Richness Theory (MRT) by Daft and Lengel (1986)

Digital communication has become an essential component in modern organizations, significantly influencing organizational effectiveness. This theoretical framework seeks to explore the relationship between digital communication tools and organizational effectiveness, using relevant theories to illustrate how these tools impact various organizational processes. Digital communication tools include email, instant messaging, video conferencing, social media platforms, collaboration software, and more. By leveraging these technologies, organizations can improve collaboration, streamline decision-making, enhance employee engagement, and foster innovation, all of which contribute to improved organizational performance. The theoretical framework on which this study is based is the media richness theory Developed by [43], the Media Richness Theory suggests that communication effectiveness depends on the richness of the communication medium. Media richness refers to the ability of a medium to carry contextual, nuanced information that can facilitate understanding and decision-making. Digital communication tools vary in terms of their richness. For example, face-to-face communication is considered the richest medium, followed by video conferencing, phone calls, emails, and text-based communication. The more "rich" the medium, the more effectively it can reduce ambiguity, facilitate problem-solving, and support decision-making. Digital tools such as video conferencing or collaborative platforms like Slack or Microsoft Teams allow for more direct and nuanced communication, which improves decision-making, reduces misunderstandings, and accelerates problem-solving. When, organizations match the communication medium to the complexity of the task at hand (i.e., using richer media for more complex tasks), they can increase operational efficiency and overall effectiveness.

Empirical Review: The Effect of Digital Communication on enhancing Organizational Effectiveness

The role of digital communication on enhancing organizational effectiveness has been widely studied in recent years, particularly as businesses increasingly adopt digital tools to streamline processes, improve communication, and foster collaboration. Digital communication, encompassing tools such as email, instant messaging, video conferencing, and collaborative platforms (e.g., Slack, Microsoft Teams), has revolutionized how organizations operate, contributing to improvements in efficiency, decision-making, employee engagement, and overall organizational performance. This empirical review examines various studies that explore the effect of digital communication on organizational effectiveness. One of the most significant effects of digital communication on organizational effectiveness is its impact on employee productivity. A study by [17], explored the relationship between digital communication tools and employee performance in a corporate setting. The researchers found that the use of email and instant messaging platforms significantly enhanced employee productivity by enabling faster communication, reducing delays in information exchange, and facilitating more efficient collaboration. Employees reported spending less time on routine administrative tasks and had more time to focus on core work responsibilities. In a similar vein, [6] examined the role of internal communication technologies on enhancing job performance. Their study indicated that employees who used intranets and email systems for collaboration experienced improved communication flow and higher work efficiency. The authors argued that digital tools improve knowledge sharing, decision-making speed, and reduce communication barriers, all of which contribute to better productivity. These studies demonstrate that digital communication platforms enhance employee

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productivity by improving communication efficiency and reducing the time spent on less impactful tasks, directly contributing to organizational effectiveness. [5] conducted a study on how the use of digital communication platforms like email, instant messaging, and collaborative project management tools impacts organizational collaboration. Their findings suggest that the adoption of digital communication technologies significantly increases cross-functional collaboration by providing employees with the tools to share ideas, update project statuses in real time, and coordinate efforts more effectively. Additionally, [3], found that the use of digital communication tools within a multinational organization enhanced coordination among teams dispersed across various geographies. Their research indicated that digital tools, such as video conferencing and instant messaging, allowed teams to overcome geographical barriers and enabled real-time problem-solving, which ultimately led to improved organizational performance. Empirical evidence supports the notion that digital communication tools promote interdepartmental collaboration by enhancing the speed and ease of communication, leading to more efficient coordination, knowledge sharing, and collective problem-solving. Organizational agility is another key component of effectiveness, particularly in dynamic business environments. [21] conducted a study on the relationship between digital tools and organizational agility. They found that organizations that implemented digital communication tools such as Slack, Microsoft Teams, and video conferencing experienced increased flexibility in responding to changing market conditions. These tools allowed organizations to quickly adjust strategies, reallocate resources, and communicate changes to employees more effectively, all of which contributed to improved agility. [18], similarly found that organizations leveraging digital communication tools were better equipped to adapt to market disruptions, such as economic shifts or technological advances. By enabling rapid communication, virtual team collaboration, and quicker decision-making, these tools allowed organizations to remain agile and responsive to external pressures. Empirical evidence supports the view that digital communication tools significantly enhance organizational agility by providing the flexibility needed to quickly adapt to changes in the business environment.

METHODOLOGY

The study was carried out in Enugu Electricity Distribution Company. In this study, a research survey was conducted to supplement other sources of data which include textbooks, journal and other printed materials, the target population of this study is basically 206 employees of Enugu State Electricity Distribution Company, while a sample of 136 respondents were drawn using Taro Yamane sampling techniques, a questionnaire designed by the research served as the instrument for data collection. However the data gathered were analyzed using simple percentage while chi square was employed for testing of the hypotheses at 0.05 level of significance.

DATA PRESENTATION, ANALYSES AND DISCUSSION

Presentation and Analysis of Research Question

This is the statistical presentation of the respondents' view to the research question.

Research Question 1

What are the effects of EEDC customers' support group on enhancing customer's satisfaction?

Table 1: the respondents view on the effects of EEDC customers' support group on enhancing customer's satisfaction

Effects of EEDC customers' support group on enhancing customer's satisfaction	Frequency	Percent
WhatsApp allows for real-time communication. Customers can instantly reach customer support for queries or complaints, reducing response times and enhancing satisfaction	30	22.05
With WhatsApp being widely used, it makes it easier for customers to contact support, even without internet access or needing to call. This accessibility improves customer engagement.	27	19.85
EEDC can send instant notifications on power outages, maintenance schedules, or service changes, ensuring customers are well-informed. This helps to manage expectations and prevent frustration.	19	13.97
Customer support agents can engage in more personalized communication with customers via WhatsApp, offering tailored advice and resolving specific issues, which enhances the customer experience.	29	21.32
WhatsApp allows for quick exchange of information such as photos or videos, which can help resolve technical issues faster, leading to quicker fixes and better customer satisfaction.	31	22.79
Total	136	100.0

Source: Researcher (2025)

From the findings of table 1 above, 22.05% of the respondents were of the opinion that WhatsApp allows for real-time communication. Customers can instantly reach customer support for queries or complaints, reducing response times and enhancing satisfaction, 19.85% agreed With WhatsApp being widely used, it makes it easier for customers to contact support, even without internet access or needing to call. This accessibility improves customer engagement, 13.97% concurred that EEDC can send instant notifications on power outages, maintenance schedules, or service changes, ensuring customers are well-informed. This helps to manage expectations and prevent frustration, 22.13% believed it that Customer support agents can engage in more personalized communication with customers via WhatsApp, offering tailored advice and resolving specific issues, which enhances the customer experience, while finally 22.79% affirmed that WhatsApp allows for quick exchange of information such as photos or videos, which can help resolve technical issues faster, leading to quicker fixes and better customer satisfaction.

Research Question 2

What are the effects of email on enhancing EEDC marketing operations?

Table 2: the respondents view on effect of email on enhancing EEDC marketing operations

effect of email on enhancing EEDC marketing operations	Frequency	Percent
Email allows for automation of marketing campaigns. For instance, EEDC can set up automated emails for welcome messages, bill reminders, or promotional offers. This saves time and ensures timely communication with customers.	30	22.05
Regular email campaigns help keep EEDC's brand at the forefront of customers' minds.	28	20.59
With email marketing platforms, EEDC can track open rates, click-through rates, and customer responses. This data helps EEDC understand the effectiveness of their campaigns, optimize future strategies, and measure return on investment (ROI).	27	19.85
Regular email communications, such as newsletters or updates on new services, energy-saving tips, or loyalty programs, can help keep existing customers engaged and loyal to EEDC's services, thus improving retention rates.	25	18.38
Email allows EEDC to reach customers directly, ensuring that important marketing messages, promotions, or updates reach the target audience effectively and promptly.	26	19.12
Total	136	100

Source: Researcher's Field Survey (2025)

From the findings of table 2 above, 22.05% of the respondents affirmed that Email allows for automation of marketing campaigns. For instance, EEDC can set up automated emails for welcome messages, bill reminders, or promotional offers. This saves time and ensures timely communication with customers, 20.59% concurred that Regular email campaigns help keep EEDC's brand at the forefront of customers' minds, 19.85% agreed With email marketing platforms, EEDC can track open rates, click-through rates, and customer responses. This data helps EEDC understand the effectiveness of their campaigns, optimize future strategies, and measure return on investment (ROI), 18.85% believed Regular email communications, such as newsletters or updates on new services, energy-saving tips, or loyalty programs, can help keep existing customers engaged and loyal to EEDC's services, thus improving retention rates, and finally 19.12% is of the view that Email allows EEDC to reach customers directly, ensuring that important marketing messages, promotions, or updates reach the target audience effectively and promptly.

Test of Hypothesis

Hypothesis one

Ho: EEDC customers' support group has no significant positive effect on enhancing customer's satisfaction

Table 3 Chi square table for testing of hypothesis one (Table value 5.99)

Observed Frequency (Fo)	Expected Frequency (Fe)	Fo-Fe	(Fo-Fe) ²	$\frac{(Fo-Fe)^2}{Fe}$
30	15.26	9.74	94.87	6.22
27	15.26	11.74	137.82	9.03
19	15.26	3.74	13.99	0.91
29	15.26	13.74	188.79	12.3
31	15.26	15.74	247.75	16.26
136				44.72

Researcher's Chi-square (X^2) computation (2025)

The findings of table 3 revealed chi square calculated value of 44.72 which is greater than the table value of 5.99 at 0.05 level of significance with four degree of freedom.

Decision

Since the calculated value (44.72) is greater than the table value (5.99), the H_0 (null hypothesis) is rejected. This implies that EEDC customers' support group has significant positive effect on enhancing customer's satisfaction

Hypothesis Two

Ho.: email has no positive effect on enhancing EEDC marketing operations

Table 4 Chi square table for testing of hypothesis Two (Table value 5.99)

Observed Frequency (Fo)	Expected Frequency (Fe)	Fo-Fe	(Fo-Fe) ²	$\frac{(Fo-Fe)^2}{Fe}$
30	15.26	14.74	217.27	14.24
28	15.26	12.74	162.31	10.63
27	15.26	8.74	76.39	5.00
25	15.26	7.74	59.91	3.93
26	15.26	10.74	115.35	7.56
136				41.36

Researcher's Chi-square (X^2) computation (2025)

The findings of table 4 revealed chi-square calculated value of 41.36 which is greater than the table value of 5.99 at 0.05 level of significance with four degree of freedom.

Decision

Since the calculated value (41.36) is greater than the table value (5.99), the H_0 (null hypothesis) is rejected. This implies that email has positive effect on enhancing EEDC marketing operations

Summary of the findings

The findings of this study revealed;

1. EEDC customers' support group has significant positive effect on enhancing customer's satisfaction
2. email has positive effect on enhancing EEDC marketing operations

CONCLUSION

The study on the effect of digital communication tools on enhancing operational effectiveness in the Nigeria power sector, with a specific focus on the Enugu Electricity Distribution Company (EEDC), reveals that the integration of digital communication technologies has significantly impacted operational efficiency, service delivery, and customer satisfaction within the company. The findings show that tools such as mobile applications, real-time monitoring systems, social media platforms, and automated customer support systems have streamlined

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communication between EEDC and its stakeholders, improved response times to outages, and enhanced the overall management of resources. Digital communication tools have facilitated better coordination among departments, improved information flow, and enabled more accurate decision-making processes, contributing to enhanced operational effectiveness. Moreover, the adoption of these technologies has helped EEDC in managing customer relations more effectively, providing customers with timely updates, resolving complaints faster, and building trust within the community.

RECOMMENDATIONS

1. To fully harness the potential of digital communication in the power sector, it is recommended that EEDC invests in upgrading its digital infrastructure,
2. implements robust cybersecurity measures, and prioritizes the development of digital literacy among employees and customers.

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