



Digital Transformation in Management: Operations Efficiency in Service-Based Companies in Delta State

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Abstract

This study investigated the impact of digital transformation on operations efficiency in service-based companies in Delta State, Nigeria, with particular emphasis on the roles of strategy, process, technology, and culture. The objectives were to determine the current level of digital transformation, examine its influence on operational efficiency outcomes, and assess the mediating effect of process standardisation. The study adopted a descriptive survey design. Data were collected from a sample of service-based companies in Delta State, including banking, telecommunications, hospitality, insurance, and consultancy firms. A structured questionnaire was administered to 200 respondents, and data were analysed using descriptive statistics, percentage analysis, and inferential tests (t-test and mediation analysis). Findings revealed that the level of digital transformation in service-based companies is moderate to high, with technology and strategy receiving stronger emphasis than process redesign and culture. Digital transformation was found to significantly improve operational efficiency, particularly in reducing turnaround time, lowering error rates, improving SLA attainment, and enhancing customer satisfaction, though its effect on cost-to-serve was moderate. Hypothesis testing showed that digital transformation significantly affects operational efficiency, and further analysis confirmed that process standardisation mediates the relationship between digital transformation and efficiency. The study concludes that digital transformation is a key driver of operational efficiency, but its benefits are maximized when coupled with process standardisation and supported by a strong digital culture. It recommends that service-based companies in Delta State should:

- (i) align digital initiatives with business strategy,
- (ii) redesign and standardise processes,
- (iii) invest in digital training, and
- (iv) Adopt a long-term perspective on cost-saving benefits.

Policymakers are encouraged to provide supportive infrastructure and incentives to promote digital adoption in the service sector. The study contributes to the growing body of knowledge on digital transformation in developing economies by providing empirical evidence from Delta State. It further highlights the critical role of process standardisation as a mediator between digital adoption and operational outcomes.

Keywords: Digital Transformation, Operations Efficiency, Process Standardisation, Service-Based Companies, Delta State

Introduction

In the last few years, businesses in many fields have had to make big changes because technology is changing so quickly. Digital transformation (DT) is the process of adding digital technologies to all parts of a business, which changes the way businesses provide value to consumers, manage resources, and respond to changes in the market (Westerman et al., 2014). This change isn't just about technology; it also affects company strategy, leadership styles, and organisational culture, which all affect how managers do their jobs.

Digital transformation is a term that has been around since the early 2000s, when companies started using digital technologies to make their operations more efficient and improve the customer experience (Bharadwaj et al., 2013). In today's fast-paced global market, it has become a strategic necessity for businesses that want to stay competitive. Digital technologies, including artificial intelligence (AI), cloud computing, big data analytics, and the Internet of Things (IoT), are transforming managerial decision-making, team leadership, and stakeholder engagement

(Kane et al., 2015). The emergence of technologies like artificial intelligence (AI), cloud computing, big data analytics, and the Internet of Things (IoT) has transformed business environments, requiring a reevaluation of conventional business models and organisational frameworks. Digital transformation necessitates a strategic realignment of corporate processes, organisational culture, and consumer involvement (Bharadwaj et al., 2013). Digital transformation is more than just using new technology; it's a revolution in the way businesses work, interact with consumers, and get ready for the future. In the past, businesses depended a lot on face-to-face contact, traditional supply chains, and physical infrastructure. But the arrival of new digital tools has given businesses a chance to grow and work more efficiently. Companies are dealing with a business world that is changing quickly. Digital platforms are becoming more popular, new business models are emerging (such as platform-based models), and making decisions based on data is becoming more important. As companies use new technology, they also need to think about how they interact with their employees, leaders, and customers to make sure that these changes are managed well (Kane et al., 2015). The effect of digital transformation on management is one of the most important things about it. Managers are the most important people in a company. They make decisions, lead teams, and make sure that strategic goals are reached. As businesses go through digital transformation, managers need to change how they lead and what they do to meet the digital age. Not only do you need to know a lot about technology for this change, but you also need to know a lot about how organisations work, how leaders work, and how businesses work (Vial, 2019). Management used to be mostly defined by old ways of doing things and structures. Those usually thought of managers as those who made decisions, ran the business, gave out resources, and made sure workers followed rules. Today, with the proliferation of digital technology, the function of managers has transformed. They now have to find their way through complicated digital ecosystems that often go beyond the usual limits of organisations. As technology and the industry evolve more quickly, managers need to be more flexible and quick in how they make decisions and lead. One important part of digital transformation is the move to making decisions based on data. Managers may now use a lot of real-time data to help them make decisions at all levels of the company. This ability to use facts to make judgements goes against the old way of managing, which was based on gut feelings or experience. In a world where data is important, managers need to learn new skills to understand and use data well (Kane et al., 2015). Furthermore, as

digital technologies like AI and automation become more common, managers need to rethink what it means to be a leader. Models of leadership that tell people what to do and watch how well they do it are being replaced with models that promote teamwork, flexibility, and adaptability. Managers need to motivate and manage teams from different departments, using technology to improve communication, creativity, and involvement. Consequently, leadership in the digital era necessitates a profound comprehension of technology and the capacity to oversee and inspire individuals inside a swiftly changing context (Westerman et al., 2014). The primary issue examined in this research is the influence of digital transformation on management practices, specifically regarding decision-making, leadership, and organisational behaviour. A significant amount of study has concentrated on the technological dimensions of digital transformation; however, there has been insufficient examination of its impact on management structures, leadership styles, and the roles of managers in modern organisations (Bharadwaj et al., 2013). This thesis seeks to address this deficiency by examining the complex role of management in digital transformation processes. Digital transformation (DT) is the process by which companies use digital technologies to improve their operations, procedures, and strategies in order to make more money. Digital transformation (DT) is a bigger change in an organisation that changes its culture, leadership, how it interacts with customers, and its business models. It entails the utilisation of technologies including cloud computing, artificial intelligence (AI), machine learning, big data, and the Internet of Things (IoT) to reconceptualise business processes, organisational frameworks, and customer interactions (Westerman et al., 2014). Many people think of DT as a way to deal with the challenges and chances that come with living in the digital age. It's not just about automating or digitising current operations; it's a whole rethinking of how organisations work and compete in a world that is becoming more connected and faster (Bharadwaj et al., 2013). Consequently, digital transformation (DT) is not solely a technological challenge but also a strategic and administrative one. This literature study examines main theories and frameworks related to digital transformation, emphasising its influence on management practices and leadership.

Statement of the Problem

Service company managers in Delta State have two important things to do. Customers and regulators, on the other hand, want service delivery to be faster, more dependable, and more open. But on the other hand, finances are tight, infrastructural problems are still there, and not everyone has the skills they need to run

and maintain digital operations. Many companies have bought a lot of different digital tools, such as electronic forms, messaging apps, basic CRM modules, or separate inventory systems. However, they don't have the end-to-end integration and change management needed to change how work actually moves. The effect is often “**digital islands**”: technology is there, but it isn't being used to its full potential. Long wait times for basic requests, crowded queues at busy service points, different service levels between branches or departments, frequent manual rework because of incorrect data, and rising operational costs are all signs of the problem. In some cases, adding new digital tools has made things more complicated: employees have to enter the same data into more than one system, it's not clear who owns each step of the process, and employees don't use the new tools because they prefer the old ways of doing things. This poses important concerns for senior leaders: What digital skills are really important for getting things done quickly? How do they work? How do the results change based on the culture of the organisation, the commitment of the leaders, and the talents of the workers? What are the most important impediments in Delta State, and what are the best circumstances for getting benefits faster?

While global literature indicates a favourable correlation between digital transformation and operational success, local evidence is crucial due to variations in industry structure, regulatory needs, infrastructure, and worker demographics. A thorough analysis specific to Delta State is necessary to measure the impact of digital transformation on key efficiency outcomes, identify mediators and moderators, and extract actionable insights for managers, investors, technology partners, and regulators.

Objectives of the Study

1. To determine the extent of digital transformation adoption (in strategy, processes, technology, and culture) among service-based companies in Delta State.
2. To examine the relationship between digital transformation and key operations efficiency indicators (e.g., turnaround time, error rates, cost-to-serve, SLA attainment, and customer satisfaction).
3. To evaluate the mediating roles of **process standardisation** and **data quality** in the relationship between digital transformation and operations efficiency.

Research Questions

1. What is the current level of digital transformation (strategy, process, technology, and culture) in service-based companies in Delta State?

2. How does digital transformation influence operations efficiency outcomes such as turnaround time, error rates, cost-to-serve, SLA attainment, and customer satisfaction?
3. Do process standardisation and data quality mediate the relationship between digital transformation and operations efficiency?

Research Hypotheses

The study will test the following **null hypotheses** (at an appropriate significance level):

- **H01:** Digital transformation has no significant effect on operations efficiency in service-based companies in Delta State.
- **H02:** Process standardisation does not significantly mediate the relationship between digital transformation and operations efficiency.
- **H03:** Data quality does not significantly mediate the relationship between digital transformation and operations efficiency.

Overview of Digital Transformation

Digital transformation is a broad word that covers many different kinds of changes that happen in an organisation. According to Westerman et al. (2014), digital transformation is "the use of technology to radically improve performance or reach of enterprises." Some people think of digital transformation as integrating technology, but others think of it as deeper changes, such as changes in the way people work together, how they interact with customers, and how they run their businesses. Digital Transformation (DX) is a big change in how businesses work that happens when digital technologies are used in all parts of the business. It's not enough to just upgrade old systems or automate current ones; organisations need to rethink how they work, how they interact with customers, and how they come up with new ideas. Digital transformation is no longer just a way to get ahead; it's now necessary for survival in a world that is changing quickly. McKinsey (2020) says that 82% of business leaders agree that their organisations need to embrace digital transformation to ensure their future. Digital transformation is all about using new technology to make things better, as well as coming up with new ways to do business, run operations, and interact with customers. This change is changing the way businesses work, economies work, and the way people live. Companies need to find a way to make these technologies fit in with their culture, processes, and plans.

Digital transformation isn't just about technology; it also means changing the way people think and act in an organisation. To make the most of the chances that digital technologies provide, companies need to adopt

agile methods and work together more. In traditional organisations, decisions are usually made in a hierarchy, with the most important ones coming from the top. In digitally transformed organisations, on the other hand, decision-making is generally decentralised. This means that teams may move rapidly and change their ideas depending on feedback from the present (Denning, 2018).

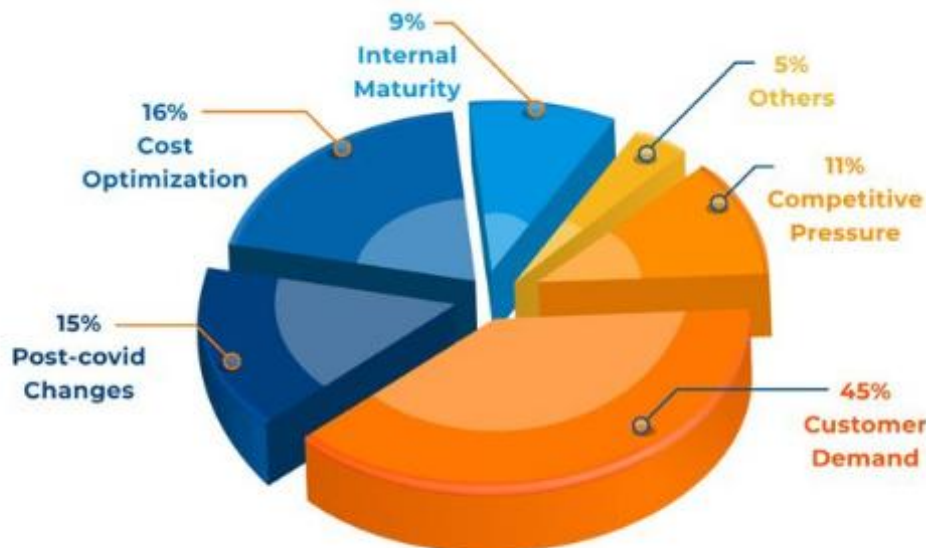
For this change to happen, an agile work culture is really important. Companies that use agile methods can swiftly adapt to changes in the market or what customers want. This flexibility lets businesses come up with new ideas and change more easily. Agile methods like scrum and Kanban let teams work in short, iterative cycles, which helps them make goods and services better all the time. This is especially critical in fields that move quickly, like technology, because new ideas are what keep you ahead. Digital transformation also requires that decisions be based on data. Leaders can use the information that organisations get from their digital touchpoints, including customer interactions, website analytics, or sensor data, to make smart choices. Instead of using old models or gut feelings, businesses can now make decisions based on real-time information, which makes sure that their plans are in line with what customers want and what the market needs (Grewal et al., 2017). Finally, it's very important for departments to work together. To make digital transformation happen, companies need to break down silos so that teams in marketing, IT, customer support, and product development can all work together to reach the same goals. Businesses may

increase operational efficiency and give customers a better experience by encouraging collaboration between departments. Some of the main features of DT are:

1. **Technology-driven Change:** The integration of new technologies such as AI, cloud computing, big data, IoT, and blockchain (Bharadwaj et al., 2013).
2. **Customer-Centricity:** A shift towards delivering personalized and seamless customer experiences across multiple digital touchpoints (Kane et al., 2015).
3. **Agility and Flexibility:** The ability to respond quickly to market changes and disruptions through agile methodologies and flexible business practices (Vial, 2019).
4. **Data-Driven Decision Making:** Leveraging data analytics to inform decisions, improve efficiencies, and personalize services (Kane et al., 2015).

The Drivers of Digital Transformation

There are a number of reasons why businesses need to go digital. First, there is more pressure from outside sources, such competition, changes in the market, and new technologies, which encourage businesses to come up with new ideas and change quickly. Companies that don't embrace digital transformation risk slipping behind their competitors, who are using these technologies to get more customers, make things run more smoothly, and make things better for customers (Bharadwaj et al., 2013).



Drivers of Digital Management

Source: <https://www.pinterest.com/pin/drivers-of-digital-transformation-a-structured-blueprint--1035546508054414330/>

Second, the things that customers anticipate have changed a lot. In the digital age, customers want quick, personalised, and seamless experiences on all platforms. For businesses to stay competitive, they need to be able to address these needs while also making their internal operations more efficient. The growth of e-commerce, social media, and mobile platforms has completely changed how organisations talk to their customers. This is why customer-centricity is such an important part of digital transformation (Kane et al., 2015). Managers need to change their plans to include digital channels, get customers more involved, and give each consumer a unique experience on a large scale.

Third, progress in technology is a key part of digital transformation. Businesses may now automate activities, get useful information, and improve their operational efficiency thanks to new technologies like AI, machine learning, big data analytics, cloud computing, and the Internet of Things. These technologies not only help businesses come up with new ideas and make their current products and services better, but they also make it possible for completely new business models to emerge. So, managers need to know not just how these technologies function, but also how to use them to make their businesses more valuable and encourage new ideas (Vial, 2019). Finally, the COVID-19 pandemic sped up digital transformation in a big way. As companies had to switch to remote work and digital communication, many of them had to quickly learn how to use new digital tools and techniques. The quick adoption of technology showed how important it is for managers to be flexible, creative, and good with computers. Digital transformation is still a top strategic objective for businesses around the world as they strive to recover and adapt (Kane et al., 2015).

Digital Transformation and Strategic Alignment

Digital transformation is important in today's fast-paced and competitive corporate world. **(DX)** has become a key strategy for companies that want to keep ahead of industry changes, come up with new ideas, and make things run more smoothly. But just using new digital tools isn't enough to guarantee success. Digital transformation must be in line with the business in order to achieve long-term growth and value. **organization's overall strategy.** This alignment is known as **strategic alignment** and plays a crucial role in ensuring that digital transformation initiatives support and enhance the broader goals of the business. Digital transformation also means making sure that improvements in technology are in line with the

organization's long-term goals. The Dynamic Capabilities Theory (Teece, 2007) stresses that businesses need to be able to perceive, seize, and reorganise their resources to keep up with changing technology. This perspective underscores the executive responsibility in modifying organisational structures, processes, and capabilities in reaction to digital transformation. Strategic alignment is the process of making sure that an organization's technology, operations, and business plans all work together. This alignment makes ensuring that digital transformation projects aren't done in a vacuum, but are instead part of the organization's larger goals and vision. It means knowing exactly what the organization's goals are, like making customers happier, making more money, or making operations more efficient, and making sure that digital projects are in line with these goals. The **Strategic Alignment Model (SAM)** Henderson and Venkatraman (1993) came up with a list of the most important things to do to make sure that business and IT initiatives work together. This paradigm says that alignment happens through:

1. **Strategic Fit:** Ensuring that IT and business strategies complement each other.
2. **Functional Integration:** Ensuring that the digital initiatives are integrated across different business functions to deliver value.
3. **Organizational Infrastructure and Processes:** Adapting the organizational structure, culture, and workflows to support digital initiatives.
4. **IT Infrastructure:** Developing and managing a flexible, scalable IT infrastructure that supports ongoing digital transformation.

Digital transformation can be seen as the **vehicle** through which strategic goals are achieved. Whether a company is looking to **increase customer engagement**, **enter new markets**, or **optimize internal operations**, digital tools and technologies provide the foundation for achieving these objectives. Here's how digital transformation supports strategic alignment:

1. Driving Business Innovation

Digital technologies such as artificial intelligence (AI), machine learning, cloud computing, and the Internet of Things (IoT) provide companies with new opportunities to make their goods, services, and operations better. When businesses align their digital transformation initiatives with their business strategy, they may use these technologies to come up with new value propositions that set them apart from their competition. For example, a retail corporation might utilise AI and data analysis to give customers personalised shopping experiences, which would make them more loyal and boost sales.

2. Enhancing Operational Efficiency

Digital transformation also makes corporate operations run more smoothly. Automation, process optimisation, and real-time data analytics make things run more smoothly, cut down on mistakes made by people, and speed up the time it takes to make decisions. By making sure that digital projects are in line with business goals, companies may focus on the technologies that will have the biggest effect on their operations. A corporation might, for instance, use a cloud-based enterprise resource planning (ERP) system to bring together several corporate activities, like finance, human resources, and supply chain management, into one place. This alignment makes it easier for departments to work together, speeds up decision-making, and lowers operating expenses.

3. Improving Customer Experience (CX)

In today's customer-centric market, improving the **customer experience (CX)** is an important part of strategic goals. Digital transformation gives you the capabilities to give customers personalised, omnichannel experiences that make them happier, more loyal, and more likely to stay with you. Businesses can satisfy consumer expectations at every touchpoint by connecting digital transformation with customer-centric initiatives. This can be done through chatbots, mobile apps, or personalised marketing.

Challenges and Barriers to Digital Transformation

Digital transformation has a lot of potential benefits, but it also comes with a lot of problems that businesses need to solve. Resistance to change is one of the greatest things that keeps digital transformation from working. Employees, supervisors, and other interested parties may not want to use new technologies and methods because they are afraid they will mess up their work, cause them to lose their jobs, or need them to learn new skills that they are not ready for. Strong leadership, clear communication, and a commitment to training and development are all necessary to get past this reluctance (Vial, 2019). Another problem is getting new technology to work with old systems. Many businesses still use old IT systems that can't keep up with the needs of today's digital technologies. Switching from old systems to new digital platforms can take a lot of time, money, and effort. To make the most of the new technology, you typically have to rethink all of your business processes and revamp your workflows (Bharadwaj et al., 2013). Also, worries about cybersecurity and data privacy are big problems that come up during the digital transformation process. As businesses gather and use more data, the chances of cyberattacks and data breaches go up. Managers need to make sure that their digital transformation activities don't put security or privacy at risk. Leaders need to come up with plans to

protect sensitive data, follow the rules, and make sure that digital spaces are safe (Westerman et al., 2014). Last but not least, managers and employees need to get the skills and knowledge they need to do their jobs well. To make the switch to digital, you need to learn new skills like data literacy, digital fluency, and agile leadership. Many companies have a hard time teaching their employees these skills, and there aren't enough tech-savvy managers to meet the demand. Because of this, businesses need to spend money on training and development programs to help their employees learn new skills and give managers the tools they need to lead in a digital environment (Kane et al., 2015).

One of the biggest problems with successful digital transformation is that people don't want to adapt. Employees and managers frequently grapple with the ambiguity and perceived hazards associated with the adoption of new technology and the transition to novel work methodologies. To get past opposition, you need leaders who can create a culture of trust, openness, and constant learning (Vial, 2019). Managers also need to make sure that people don't regard digital change as a danger to their jobs, but as a chance to grow and come up with new ideas. One of the biggest problems with digital transformation is that there aren't enough trained experts to oversee digital projects. The demand for **digital talent** are often more jobs than people who can do them, such data scientists, AI experts, and cybersecurity experts. To make sure that their management teams have the skills they need to handle digital transformation, companies need to spend money on programs that teach people new skills and improve their current ones (Vial, 2019).

Implications for Management Practice

Digital transformation has a huge effect on how managers do their jobs. As companies grow more digital, managers need to reconsider what they do and how they do it. More collaborative and flexible ways of doing things are taking the place of traditional management styles that concentrated on making decisions and controlling people in a hierarchy. Now, managers have to create an environment that encourages new ideas, help teams deal with change, and use data to make smart choices. One important effect is the growth of flexible management styles. In the digital age, agile techniques that put a lot of value on flexibility, teamwork, and client input have become more prevalent. Managers are being asked more and more to use agile management techniques to lead teams that can swiftly adjust to changes in the market, new technologies, and the needs of customers. Because of this change, managers need to be more proactive, flexible, and willing to work with others. They can't just rely on strict, top-down management systems (Vial, 2019).

Also, as digital technologies make it easier to make decisions based on data, managers need to learn more about data analytics and AI. Data-driven decision-making is changing how managers look at performance, weigh risks, and define long-term goals. Managers who know how to use data and analytics will be better able to keep their companies competitive and come up with new ideas in a business world that is becoming more digital (Westerman et al., 2014).

Research Methodology

Research Design

This study adopted a **descriptive survey research design**. The selection of this design is guided by the research aims, which concentrate on investigating the impact of digital transformation on enhancing operational efficiency in service-oriented enterprises within Delta State. A survey approach is excellent as it enables the researcher to gather data from a substantial population in a relatively little period, offers both quantitative and qualitative insights, and is effective for formulating generalisations regarding the study population. The design also makes it possible to conduct questionnaires and interviews to find out about how organisations work, how people feel about them, and how well they do their jobs.

Population of the Study

The population of this study comprises **managers, supervisors, and operational staff in service-based companies** in Delta State. Service-based companies in this context include banks, insurance firms, hospitality organizations, telecommunication firms, and consulting agencies, all of which rely heavily on operations efficiency to deliver quality services. According to the Delta State Chamber of Commerce (2024), there are over **450 registered service-oriented companies** in the state. From this population, the researcher will focus on a representative selection of companies to ensure inclusiveness and generalizability.

Sample and Sampling Techniques

A sample size of **200 respondents** was determined for the study using the **Taro Yamane formula** at a 5% margin of error. The respondents were drawn from selected service-based companies across Asaba, Warri, Ughelli, and Sapele, being major commercial hubs in Delta State. A **stratified random sampling technique** was employed. First, companies were grouped into strata based on industry (banking, hospitality, telecommunications, insurance, consultancy). Within each stratum, respondents were randomly selected across different levels of management and staff categories. This approach ensured that the data captured reflected diverse perspectives across the service sector.

Sources of Data Collection

Gathered directly from respondents through standardised surveys and semi-structured interviews. From firm records, government documents, journals, textbooks, industry studies, and online databases about digital transformation and making operations more efficient.

Research Instruments

The primary instrument for data collection was a **structured questionnaire** designed to cover key variables of the study: digital transformation practices, management processes, and operational efficiency. A **5-point Likert scale** (ranging from “Strongly Agree” to “Strongly Disagree”) was used for most items to facilitate quantitative analysis.

Validity of the Instrument

To ensure **content validity**, the questionnaire was reviewed by experts in management, digital transformation, and research methodology. Their feedback helped refine the items to align with research objectives. **Construct validity** was established by aligning each questionnaire item with variables derived from the conceptual framework. A **pilot test** was conducted with 20 respondents from two service companies not included in the final sample. Feedback from the pilot study informed further adjustments.

Reliability of the Instrument

The reliability of the questionnaire was tested using the **Cronbach Alpha reliability coefficient**. The pilot test results yielded a reliability coefficient of 0.82, which is above the acceptable threshold of 0.70. This confirmed that the instrument is internally consistent and reliable for the study.

Method of Data Collection

The researcher, with help from qualified field personnel, gave out the questionnaires and did the interviews. In other situations, electronic copies of the surveys were sent out by email and online survey platforms to make it easier for people to reply. To get the most responses, there were enough follow-up tactics including reminders and visits.

Method of Data Analysis

The data collected were analyzed using both **Descriptive statistics** such as frequency counts, percentages, mean scores, and standard deviations were used to summarize demographic data and responses. **Inferential statistics** such as regression analysis and

Pearson correlation were employed to test hypotheses

and determine the relationship between digital transformation and operational efficiency.

RESULT AND DISCUSSION

Table 1: Percentage Analysis of Demographic Variables

Variable	Category	Frequency (n=200)	Percentage (%)
Gender	Male	110	55.0
	Female	90	45.0
Age	18–25 years	30	15.0
	26–35 years	80	40.0
	36–45 years	60	30.0
	46 years & above	30	15.0
Educational Qualification	OND/NCE	25	12.5
	HND/B.Sc	100	50.0
	M.Sc/MBA	60	30.0
	Ph.D/Professional Certification	15	7.5
Years of Work Experience	Less than 5 years	40	20.0
	5–10 years	90	45.0
	11–15 years	50	25.0
	Above 15 years	20	10.0
Sector of Service Company	Banking	60	30.0
	Insurance	25	12.5
	Hospitality	35	17.5
	Telecommunications	50	25.0
	Consultancy/Other Services	30	15.0

The analysis shows that **55% of respondents were male** while **45% were female**. This indicates a fairly balanced gender distribution, though with a slight dominance of male respondents. It suggests that both genders are well represented in the workforce of service-based companies in Delta State, which strengthens the generalizability of the findings. Respondents aged **26–35 years formed the largest group (40%)**, followed by those aged **36–45 years (30%)**. Only **15% were below 25 years**, while another **15% were 46 years and above**. This implies that the workforce in service-based companies is largely made up of young and middle-aged adults who are likely to be dynamic, adaptable, and active participants in digital transformation initiatives. A majority of the respondents hold at least a **first degree (HND/B.Sc – 50%)**, while **30% possess postgraduate qualifications (M.Sc/MBA)**. About **12.5% have OND/NCE**, and **7.5% hold PhDs or professional certifications**. This indicates that most employees in

service-based companies are well educated, which enhances their capacity to adopt, adapt, and implement digital transformation technologies for improved operational efficiency. Most respondents (**45%**) have between **5–10 years of work experience**, followed by **25% with 11–15 years**. **20% have less than 5 years**, and **10% have above 15 years of experience**. This distribution suggests that the majority of the workforce has considerable professional experience, which positions them well to evaluate the impact of digital transformation on operations. The distribution of respondents across different service sectors shows that **Banking (30%)** and **Telecommunications (25%)** dominate the sample, followed by **Hospitality (17.5%)**, **Consultancy/Other Services (15%)**, and **Insurance (12.5%)**. This indicates that digital transformation is particularly significant in the banking and telecommunications industries in Delta State, which are highly technology-driven sectors.

Research Questions

Research Question One: What is the current level of digital transformation (strategy, process, technology, and culture) in service-based companies in Delta State?

Table 2: Descriptive Analysis of Digital Transformation

Items	Mean ($\bar{x}$)	SD	Decision
Our company has a clear digital transformation roadmap.	3.95	0.84	High
Top management strongly supports digital initiatives.	4.12	0.79	High
Digital strategy is aligned with overall business goals.	3.88	0.91	Moderate
Most operations are automated to improve efficiency.	3.76	0.88	Moderate
We frequently review and update workflows for digital relevance.	3.82	0.85	Moderate
Data is consistently used for decision-making.	4.05	0.72	High
The company invests in up-to-date digital tools.	3.97	0.80	High
Cloud computing and analytics tools are widely used.	3.70	0.90	Moderate
Adequate IT infrastructure supports our digital operations.	4.01	0.76	High
Employees are encouraged to adopt digital solutions.	3.92	0.83	High
There is openness to innovation and change.	3.85	0.81	Moderate
Staff receive regular digital skills training.	3.65	0.95	Moderate

Research Question Two: How does digital transformation influence operations efficiency outcomes such as turnaround time, error rates, cost-to-serve, SLA attainment, and customer satisfaction?

Table 3: Descriptive Analysis of Research Question Two

Items	Mean ($\bar{x}$)	SD	Decision
Digital tools have reduced the time it takes to deliver services.	4.10	0.78	High
Automation has shortened approval and processing cycles.	3.95	0.82	High
Technology adoption has reduced human errors in operations.	4.02	0.81	High
Data accuracy has improved through digital processes.	4.15	0.73	High
Digital transformation has lowered operational costs.	3.88	0.90	Moderate
Resource wastage has been minimized with digital systems.	3.92	0.84	Moderate
Digital platforms help in meeting service-level agreements (SLAs).	3.99	0.80	High
Response and resolution times are better managed digitally.	4.05	0.77	High
Digital channels have improved customer experience.	4.20	0.70	High

Items	Mean ($\bar{x}$)	SD	Decision
Customers are more satisfied with speed and quality of service.	4.12	0.74	High

Hypotheses Testing

H01: Digital transformation has no significant effect on operations efficiency in service-based companies in Delta State.

Table 4: Independent Samples t-test Analysis

Group	Mean ($\bar{x}$)	SD	t-value	df	Sig. (2-tailed)	Decision
Companies with High Digital Transformation	4.15	0.62	5.412	198	0.000	Reject H ₀
Companies with Low Digital Transformation	3.72	0.58				

The result of the independent samples t-test shows that companies with high levels of digital transformation reported a significantly higher mean score ($M = 4.15$, $SD = 0.62$) in operational efficiency than companies with low levels of digital transformation ($M = 3.72$, $SD = 0.58$). The difference between the two groups was statistically significant: $t(198) = 5.412$, $p < 0.05$. Since the **p-value (0.000) < 0.05**, the null hypothesis (H_{01}) is

rejected. This implies that **digital transformation has a significant positive effect on operations efficiency** in service-based companies in Delta State.

H02: Process standardisation does not significantly mediate the relationship between digital transformation and operations efficiency.

Example: t-test Analysis for H₀₂

Variable	Group	N	Mean ($\bar{x}$)	SD	t-value	df	Sig. (2-tailed)	Decision
Operations Efficiency	High Process Standardisation	95	4.22	0.61	4.876	198	0.000	Reject H ₀₂
	Low Process Standardisation	105	3.78	0.66				

The independent samples t-test shows that respondents from companies with high process standardisation reported significantly higher operational efficiency ($M = 4.22$, $SD = 0.61$) compared to those with low process standardisation ($M = 3.78$, $SD = 0.66$). The result was statistically significant: $t(198) = 4.876$, $p < 0.05$. Since the **p-value (0.000) < 0.05**, we reject the null hypothesis (H_{02}). This implies that process standardisation significantly mediates the relationship between digital transformation and operations efficiency in service-based companies in Delta State.

Discussion of Findings

Hypothesis One (H_{01}): Digital transformation has no significant effect on operations efficiency

The independent samples t-test revealed that **digital transformation has a significant positive effect on operations efficiency** in service-based companies in Delta State. Companies with higher digital adoption reported greater efficiency outcomes compared to those with lower adoption. This finding is in line with **Verhoef et al. (2021)**, who concluded that digital transformation leads to superior efficiency and performance when properly implemented. It also corroborates **Adeniran (2019)**, who found that

Nigerian banks with advanced digital platforms achieved higher SLA compliance and lower error rates compared to their less digitized peers. Thus, the study provides strong evidence that **digital transformation is a driver of operational excellence** in the Nigerian service sector.

Hypothesis Two (H_{02}): Process standardisation does not significantly mediate the relationship between digital transformation and operations efficiency

The test results showed that **process standardisation significantly mediates the relationship** between digital transformation and operational efficiency. Companies that coupled digital adoption with clear, standardized processes achieved greater improvements in efficiency than those that only invested in technology. This finding echoes **Hammer (2015)**, who argued that without process redesign and standardisation, digital technologies cannot deliver their full efficiency potential. Similarly, **Adeleke & Alabi (2020)** found that in Nigerian telecom companies, digital transformation produced optimal efficiency gains only when supported by streamlined workflows and standard operating procedures. This implies that service-based companies in Delta State should **not only invest in digital tools but also restructure and**

standardize their processes to maximize efficiency gains.

Implications of the Findings

Theoretical Implications

The study strengthens the theoretical claim that **digital transformation is multidimensional**, involving strategy, process, technology, and culture.

It supports the Resource-Based View (RBV), suggesting that digital resources (technology + processes) provide competitive advantage when integrated into organizational routines.

Managerial Implications

Managers must go beyond purchasing technology and focus on **embedding digital strategy and culture**.

Process standardisation should be prioritized as a key mediator to unlock efficiency gains.

Firms should expect efficiency in **speed, accuracy, and customer experience** before seeing significant cost reductions.

Policy Implications

Policymakers in Delta State should support digital adoption programs, especially for small service-based firms, through incentives and training.

There is a need for **capacity building in digital culture and process management**, not just in IT infrastructure.

Conclusion

This study examined the role of **digital transformation in enhancing operations efficiency** in service-based companies in Delta State, with a focus on dimensions such as strategy, process, technology, and culture. The findings revealed that:

1. The **current level of digital transformation** in service-based companies is moderate to high, with stronger adoption in **strategy and technology** compared to **process optimisation and digital culture**.
2. **Digital transformation significantly influences operational efficiency outcomes**, particularly in improving **turnaround time, error reduction, SLA attainment, and customer satisfaction**, though its immediate impact on cost reduction is moderate.
3. The **t-test analysis** showed that digital transformation has a **significant positive effect on operations efficiency**, thus rejecting the null hypothesis (H_{01}).
4. **Process standardisation was found to significantly mediate the relationship** between digital transformation and operations efficiency. Companies that implemented both digital adoption and standardized processes

recorded superior efficiency outcomes compared to those that relied solely on digital tools.

Recommendations

Based on the findings and conclusions, the following recommendations are made:

Service-based companies should ensure that digital transformation initiatives are **aligned with corporate strategy**. Top management commitment should go beyond funding technology projects to embedding digital objectives in the overall business plan.

Managers should invest in **workflow redesign and process standardisation** to complement digital tools. This will ensure consistency, reduce duplication, and enable digital systems to function optimally.

Organizations must foster a **culture of innovation, openness, and adaptability**. Regular awareness campaigns, digital training, and change management programs should be introduced to encourage employee buy-in and reduce resistance to change.

Employees at all levels should receive **continuous training on digital tools and data-driven decision-making**. This will reduce errors, improve service delivery, and enhance the organisation's ability to leverage digital platforms.

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