Exploring Digital Strategy as a Business Management and Transformation Tool in Developing Countries: The Nigerian Experience

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Abstract

Despite valuable business opportunities and solutions that digital technologies offer, studies show that many business leaders have yet to explore the potential of digital solutions to manage and transform their businesses to capture more value. Through a semi-structured interview with business leaders and managers in Lagos, Nigeria, and content analysis, this paper explored how business leaders may leverage the potency of digital strategies to manage and transform business operations in developing nations like Nigeria to obtain more value. The result provided a distinctive insight into the dynamics around digital strategy adoption in business and the inclusive effects, evidencing that managing and transforming business operations in developing nations is achievable by adopting soft and hardware digital solutions at all levels of the business process. This paper advances the discussion on digital strategy adoption in business and recommends a paradigm shift of businesses in developing countries to a digitally evolved business construct to streamline processes, unlock new opportunities, and benefit from the potency of digital solutions. The paper underscores the government and other stakeholders' roles in driving digital strategy adoption in developing nations' businesses. The recommendation in this paper could be rewarding to influencing change in the process and management of business operations in developing nations, creating an opportunity for theoretical expansion and implementation of digital strategies for business management and transformation to achieve operational efficiency and sustainability objectives.

Keywords: digital divide, skill gap, digital strategy, digital economy, business management, transformation, sustainability

1. Introduction

With the digital era revolutionizing how businesses operate and disrupting businesses in various ways, digital technologies, with their transformative power, have become a fundamental force for change in the business construct and nation-building. Economic principles such as scarcity and diminishing returns to scale that have underpinned business and strategy over the years are no longer sacrosanct (Jain, 2023). Business leaders now seek emerging tools and strategic and more efficient ways to manage and transform their businesses to obtain more value and achieve efficiency and sustainability goals. Managing and transforming businesses with Digital Strategies (DS), a combination of technological tools and well-developed business plans to tactically drive business success (Emelogu, 2023), became prevalent in the business organization's paradigm of change and sustainability.

However, several studies (Ofosu-Ampong, 2021; United Nations, 2023; World Bank Group, 2022) support that there is a vast disparity between digital transformation happening in developed nations and DCs, which adversely impacts the business sustainability and economic prosperity of DCs. Studies described the disparity as a widening digital divide and lag in Internet use in DCs that leave DCs in the technological wake and preclude progress on the Sustainable Development Goals (United Nations, 2023). The digital divide describes the gap between individuals, households, businesses, and geographical areas with access to information and communication technologies or the Internet of Things (IoT) to improve living standards or business processes (Okoye et al., 2023). While developing countries (DCs) desire that technology evolution would help place their businesses on the radar of transformation, success, and sustainability (Matthess & Kunkel, 2020), it is widely argued whether DCs can achieve business transformation objectives and economic prosperity like developed nations given the increasing barriers to access to digital resource.

World Bank Group (2022) report affirmed that the digital divide significantly impacts firms in DCs and confines them to more rudimentary and less automated processes, which reflects in low productivity levels, less-quality jobs, and unsustainable businesses. For example, the report on achieving a digital transformation agenda in El Salvador's business ecosystem indicated that almost half of the population in El Salvador lacks internet access, resulting in lower digital services compared to their peer countries and, consequently, negatively impacting their business competitiveness, growth effort, and sustainability (World Bank Group, 2022). Data from the International Telecommunication Union (ITU) of the UN (2023) show DCs threatened by the deepening digital divide. There has been no significant change in narrowing the digital divide gap in DCs; instead, a widening gap in the key factors leaves DCs with many barriers to meaningful access to internet resources. Of note are South Sudan and Chad, where only about eight percent of the population has access to electricity (World Bank Group, 2022).

Relatedly to Nigeria, business activities form a significant part of Nigeria's economic landscape. Lagos, Nigeria, for instance, houses about 65% of Nigeria's businesses with over 2,000 manufacturing companies and 200 financial institutions, the most extensive collection of small and medium enterprises in Africa, accounts for about 90% of Nigeria's overall trade flows and is considered ICT hub of West Africa (National Bureau of Statistics. 2020; Osho & Adishi, 2019). Conversely, adopting DS in business has yet to meet expectations (Zubairu et al., 2020). Data on technology and DS adoption in Nigerian businesses revealed a digital infrastructure deficit, a suboptimal adoption rate, and a digital skill gap among many business owners and leaders to digitally manage and transform businesses (Nigerian Communication Commission, 2021; Oke et al., 2020; World Bank Group, 2019). Many business leaders have yet to explore digital solutions' value-creation potential to manage and transform their businesses to capture more value. The limitation in infrastructure caused the country's vulnerability to the digital divide and skill gap to fall further behind in digital equity and significantly impact the ability to digitally transform their businesses (Ndubuisi et al., 2021; World Bank Group, 2022).

Although some business leaders in DCs are keeping up with their DS adoption and transformation agendas, many are yet to digitally strategize their businesses to explore the value-creation potentials of digital solutions to manage and transform their businesses. Instead, they struggle to adapt and respond to technology-led ways relevant to business management and transformation (Oke et al., 2020; Vasilescu et al., 2020; World Bank Group, 2022). In effect, less innovative practices and competitiveness in the marketplace and missed value-producing opportunities to capture more value, drive business growth, and achieve sustainability goals continue to characterize the business ecosystem of most DCs (UNDP, 2021; Vasilescu et al., 2020; World Bank Group, 2022). Thus, business closure, job loss, an increase in the unemployment rate, and a decline in household income, opposite to achieve a better living standard in most DCs, remain prevalent.

While there have been studies on technology adoption in businesses, they lack strategic intervention measures (SIM) that provide a comprehensive understanding of how business leaders in DCs can harness the potency of digital solutions to manage their operations and accelerate digital business transformation (DBT) across sectors. The literature shows that DBT has taken place in developed countries through DS adoption, with no significant barriers to accessing digital resources (Ofosu-Ampong, 2021; United Nations, 2023; Vasilescu et al., 2020). However, there is a gap in the research on how DS can be used as a tool to manage and transform businesses in DCs. Existing studies (Agboola et al., 2019; Ofosu-Ampong, 2021; Okoye et al., 2023; Vasilescu et al., 2020; Wezel & Ree, 2023), among others, have provided limited information on DS as a business management and transformational tool in DCs. They focused on the scale of serving a larger population through technology adoptions in specific sectors, leveraging digital financial services to improve revenue generation and banking operations, addressing the digital divide's impact on business operations, and the economic effects of digitalization. However, there is a need for literature through academic rigor on DS adoption in the business process of many DCs, including a step-by-step framework on how to accelerate DS adoption, given the increasing barriers to DS adoption in DCs. Therefore, this study explores the SIM to accelerate DS adoption in the business transformation journey of DCs like Nigeria, considering the challenges of accessing digital resources.

The need for more research on SIM propositional to DS adoption to transform DCs' businesses hinders the knowledge-building process in business management and transformation in DCs. In a series of forums and publications, the Nigerian Minister of Communications and Digital Economy called on business leaders and other stakeholders to deepen digital transformation growth in Nigeria and the rest of Africa through DS and technology solutions (Nigerian Tribune, 2022; Punch, 2024). BusinessDay Research and Intelligence Unit and elev8 revealed that the Nigerian economy could grow and maintain a growth trend if business leaders could focus on innovative practices, product, and service delivery leveraging digital tools to reskill and improve the national workforce and transform the business process. This study was imperative to explore how business leaders and managers in DCs like Nigeria may

leverage DS to manage and transform their business operations to obtain more value and as an invitation for DCs to embrace digital business transformation with the urgency needed to progress toward achieving the Sustainable Development Goals.

Specifically, the study explored why DS adoption is necessary for the business operations of DCs, a holistic understanding of how business leaders in DCs like Nigeria may leverage the potency of DS to manage and transform their businesses, and the prospects of DS adoption in DCs' business ecosystems. The research question was: How may business leaders leverage DS to manage and transform business operations in DCs like Nigeria? The knowledge gained from this study on the potency of DS as a tool to manage and transform business operations in DCs may impact the theory and practice of business management.

1.1 Conceptual Framework

The digital business transformation (DBT) concept of change in the framework of why transformation, what, and how to transform business and realize the potential values in digital technologies by Wade (2015) framed this study. DBT concept focuses on change in business operations to realize the value of digital technologies using why, what, and how questions. It is considered resourceful for business leaders and managers to approach digital transformation and implement a well-defined DS in their businesses (Udovita, 2020).

1.2 Digital Strategy Defined

DS is a common factor in present-day business operations, constantly altering business conduct and interactions through technological evolutions and innovations. A comprehensive body of literature exists in different contexts on the meaning and drivers of DS and its effect on business transformation and economic progression. From the business management perspective, scholars (Becker & Schmid, 2020; Sebastian et al., 2017; Warner & Wäger, 2019) support that DS is a vision inspired by the plan to do business differently and innovatively to achieve business objectives through the adoption of relevant and accessible technologies. Bharadwaj et al. (2013) described DS as a fusion between IT and business strategies and the combination, herein termed Digital Business Strategy (DBS). DS is, therefore, a combination of technological tools and well-developed business plans to tactically manage, transform, drive business success, and achieve business sustainability objectives.

1.3 Digital Business Management and Transformation

Warner and Wäger (2019) described Digital Business Management (DBM) as the process of applying digital technologies to reinvent business models and processes for operational efficiency and Digital Business Transformation (DBT) as a continuous process of using new knowledge and technologies to effect changes in an organization's life. DBM and DBT are inevitable in today's business operations to drive business success and sustainability objectives (Warner & Wäger, 2019). Technology-led business operations and the ability of business leaders to adopt digital solutions and strategies in their business management, transformation, and sustainability plans are essential for present-day business survival (Ivančić et al., 2019).

1.4 DS Roles in Business Management and Transformation

Strategy plays a crucial role in the business management and transformation processes (Udovita, 2020). With emerging technologies, the significance of DS in business has become fundamental in business formation, management, and transformation. Business leaders now adapt to DS and AI, ML, and IoT tools to manage and transform business operations and processes to capture more value. Studies support the view that business leaders across different industries and sectors, especially in developed nations, adopt DS to achieve their business management and transformation goals. Ndubuisi et al. (2021) established a direct correlation between DS adoption in business, developing a digital economy, and achieving business transformation and sustainability objectives. Similarly, Vaska et al. (2021) established that digital transformation positively impacts value creation and fosters opportunities for businesses to remain competitive and sustainable. DS adoption in the business process enhances productivity and operational efficiency and supports organizations' and nations' endeavors to develop resilience and sustainability (Esses et al., 2021; Oskam et al., 2021).

In the view of Onwuegbuchunam et al. (2021), DS is vital in restructuring business processes and addressing the dares of using traditional-based and manual processes in business operations. Implementing a well-defined DS by business leaders to manage and transform business operations provides value-producing opportunities, competitive advantage, and sustainability in the marketplace and positively impacts business survival efforts (Nwaiwu, 2018; Schneider & Imai, 2019; Udovita, 2020). The implementation of DS in business provides the mechanism by which business leaders improve the efficiency of the business process and transform existing business models in a technology-led way for value creation (Warner & Wäger, 2019). DS in the business process pivots positive change in the business operations,

improves service delivery, and enhances economies of scale and performance efficiency to foster business sustainability (Agboola et al., 2019). DS innovates rapidly, helps products and services gain market share through technology adoption and disruption, scales faster, and places businesses on a value proposition (Wade, 2015). DS potentially reshapes every aspect of modern business (Nwaiwu, 2018; Olanrewaju & Willmott, 2013). However, despite the overwhelming values of DS in business, many business owners and leaders in DCs have yet to explore the potency of digital solutions to manage and transform their businesses to capture more value due to the digital divide and skill gap (Okoye et al., 2023; World Bank Group, 2022).

1.5 Digital Divide

The digital divide describes the gap between persons, households, businesses, and geographical areas with access to ICT services or the Internet of Things (IoT) to improve living standards or business processes (Okoye et al., 2023). The literature (Oke et al., 2020; Okoye et al., 2023; Okunola et al., 2017; Vasilescu et al., 2020) supports that a digital divide exists among DCs and has been negatively impactful on the effort of individuals and businesses to access digital resources and computing facilities to transform businesses. The report from the UNDP (2021) on the digital divide among nations affirmed that only about 60 percent of the world's population was connected online as of 2021. However, it is primarily people in developed nations, and only one in five people in less-developed countries have access to online resources. No significant change has been noticed as of 2023, as the World Bank Group (2023a) report affirmed that about one-third of the global population in January 2023 is offline, and only one in four in low-income nations use the Internet with low basic digital skills. The United Nations International Telecommunication Union (ITU) report (2023) shows that the deepening digital divide threatens DCs' business and economic prosperity. Although no particular data captures all aspects of the digital divide in DCs, the ITU report noted that the gap between DCs and developed nations regarding people using the Internet increased from 27 percent in 2011 to 30 percent in 2022.

While there is no established convention or scholarly rigor to determine "developed" or "developing" countries, the UN, through the Sustainable Development Goals' progress reports and the World Economic Situation and Prospects (WESP), classified all countries of the world into "developed," "in transition," and "developing" based on essential determinant factors (see Appendix A). The determinant factors included the country's geographical region, fundamental economic conditions, level of development measured by infrastructural development, per capita income, or gross national income established by the World Bank (United Nations' ITU, 2023). Appendix A - Table C shows an extract of the updated list of DCs as of May 2022.

Nigeria as a DC (Appendix A - Table C) is one of the countries with a high concentration of business activities among DCs, as a significant number of international trade and services pass through Lagos, Nigeria (Olajide et al., 2018). Business activities in Lagos significantly contribute to the economic progression of Nigeria as Lagos accounts for about 90% of Nigeria's overall trade flows and over 53% of employment opportunities in Nigeria (National Bureau of Statistics in Nigeria, 2020; Osho & Adishi, 2019). Although the economic variables of Lagos, Nigeria, have traction for business, the challenges in doing business in Nigeria are not uncertain. The digital divide, the digital skill gap, and the inability of some business leaders to digitally strategize their business overwhelm the ease of doing business in Nigeria and contribute to inevitable business closure (Zubairu et al., 2020).

Numerous reports (BusinessDay's Research and Intelligence Unit and elev8, 2020; World Bank Group, 2019; Zubairu et al., 2020) support that the lack of DS in the business process of most organizations in Nigeria is not disassociated with the lag in achieving business transformation and sustainability objectives. Although some business leaders in Nigeria seem to be keeping up with their DS adoption endeavors to manage and transform their businesses, a significant number are yet to make such a transition for their business survival (Zubairu et al., 2020), given the limitations that characterized DS adoption in Nigerian businesses.

1.6 DS Adoption in Nigerian Businesses

The Nigerian business sector has encountered its fair share of challenges in DS adoption. From the digital divide, limited access to funding to concerns around intellectual property infringement, digital skill shortage, and poor broadband penetration rate navigating the Nigerian technology landscape. The report on the challenges of technology penetration in Nigeria noted that the broadband penetration rate of Nigeria as of the first quarter of the year 2023 was about 39 percent, measured in terms of 3G and 4G connections (Nigerian Communication Commission, 2021; Okoye et al., 2023). Innovations like 5G network connections already in use in developed nations are still in the infancy in Nigeria. World Bank Group's (2019) study of Nigeria's digital economy and Adetunji et al. (2017) on the ICT services cluster in Nigeria support that some macroeconomic and microeconomic issues inhibit technology adoption and, by extension, DS adoption in Nigerian businesses. Adetunji et al. highlighted low human capacity development, weak

public institutions and infrastructures, and a less-than-ideal business environment as impediments to DS adoption in Nigerian businesses.

The inhibitions to DS adoption in DC businesses like Nigeria underscored the profound impact of the digital divide on the DCs' business community and the effort to manage and transform DCs' businesses digitally. As evident during the COVID-19 pandemic, the use of telecommuting work patterns was and still is the privilege of few due to limited access and the high-cost demand for internet resources and other required implements to access online facilities. The wide infrastructure gaps limit access to digital resources and negatively impact productivity and service delivery.

Although technology adoption in businesses in Nigeria needs more sufficiency and underserves significant segments of the population (Adetunji et al., 2017), Nigeria has witnessed progress in some aspects. Many business leaders are adopting DS for their business operations. The Nigerian government is making efforts through campaigns and private sector participation to provide digital infrastructures for a digital switchover across the states to reduce the digital divide in Nigeria and foster business growth (Nigerian Communications Commission, 2021). The Digital Nigeria (DN) program, which focuses on translating Nigeria into a digital economy with the collaborative effort of some private enterprises, has been resourceful in propelling Nigeria to a digitally empowered society through infrastructural reforms (World Bank, 2019). Local success stories have built Nigeria's reputation as the ICT hub of West Africa. For example, Andela, a tech start-up firm in Lagos, Nigeria, attracted $24 million in funding from the Chan Zuckerberg Initiative, and Lidya raised $1.25 million for its Fintech solutions (Adetunji et al., 2017), which has been resourceful in the digital architectural building in Lagos, Nigeria. However, a lot is still required. Providing dependable digital infrastructures and ICT services to enhance uninterrupted real-time business operations in Nigeria still needs to be improved (Okoye et al., 2023).

Digital infrastructures, as referred to in this study, are state-of-the-art in the framework of business digitization and transformation. They are inclusions in digital business transformation endeavors and are in the frame of social, human, technical, and institutional infrastructures (Adetunji et al., 2017). The human infrastructure includes the human element - teams, leaders, and other stakeholders in the business digitization process. The social infrastructure is the social media linkages (business websites, LinkedIn, Instagram, and other platforms) inclined to enhance customer experiences, satisfaction, and business value. Institutional infrastructures are firms' or governments' mechanisms, such as adequate power supply, broadband networks, and other facilities supporting ICT services. The technical infrastructures are the ICT implements, systems architectures, or components (smartphones, computers, repositories, and other tools) that can facilitate digital interconnectivity and interactions in business processes and operations. Repositories include relational database servers and storage and backup facilities. The inadequacy of these infrastructural implements elevates the inhibition of DS adoption in business ecosystems of DCs. It continues to raise concerns about how business leaders may leverage the potency of DS to manage and transform business operations in DCs.

2. Research Methodology

The research method is a qualitative exploratory approach. The literature review was used to identify and critically analyze relevant studies on DS adoption in business to provide a roadmap for its implementation. The literature review comprises peer-reviewed professional and academic literature related to the study's phenomena. Data collection was through purposefully sampling participants in semi-structured interviews, reflective field notes, and document reviews. The study was conducted in Lagos, Nigeria, given the enriching profile of Lagos as the central business district of Nigeria, the ICT hub of West Africa, and potentially one of the most significant ICT markets in Africa (National Bureau of Statistics. 2020; World Bank Group, 2022).

The study's population included business leaders and managers in Lagos, Nigeria, with a sample of 20 participants and about 4 participants from each selected sector. The interview participants were from the ICT, financial services, e-commerce, manufacturing, and education sectors. The criteria included those who have been in operation for at least five years, transitioned from manual to digital processes in their business operations, included software and hardware technologies for process improvement and architectural building, and successfully implemented DS to manage and transform their businesses. I referred to the prospective participants' published reports and annual returns to review the profile and the CEO's note on strategies deployed to determine those that met the inclusion criteria.

The selected participants included CEOs and managers of the sampled firms. Five of the participants were CEOs, and 15 were managers. The interviews explored the participants' perspectives on why, what, and how to leverage the potency of DS to manage and transform business operations in DCs and the prospects of adopting DS in DCs' business ecosystems. The document review included supporting documents on digital strategy adoption, and the field notes are the reflective notes taken during the interview.

3. Results and Discussion

The data analysis was through content analysis, given the need to generate codes inductively from research participants' responses. Data from the selected participants for the interview were sorted according to the sectors. A generic taxonomy of P1 to P20 was used to describe the participants to ensure the confidentiality of the data collected. Codes, categories, and themes were developed to interpret the data and to discuss the findings. The coding was according to the text lines and emergence narratives. Figure 1 illustrates the coding process from transcribed data to the emergence of themes, while Appendix B shows the excerpts from participants' responses, the codes, and categories.

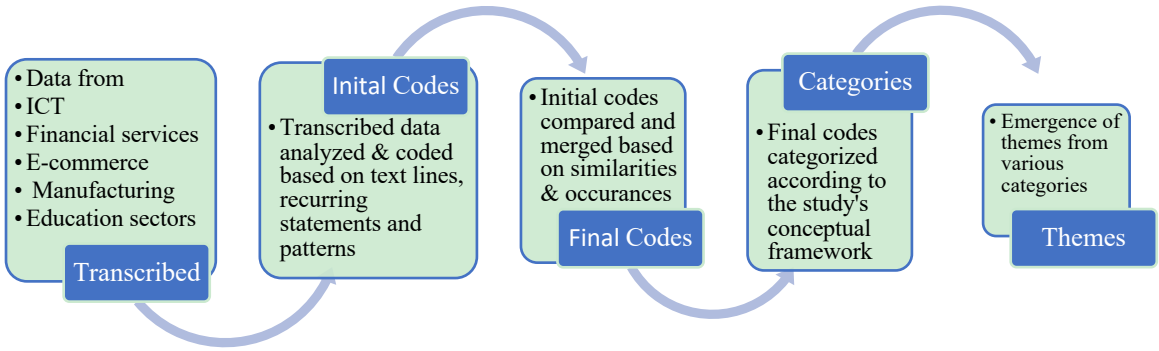


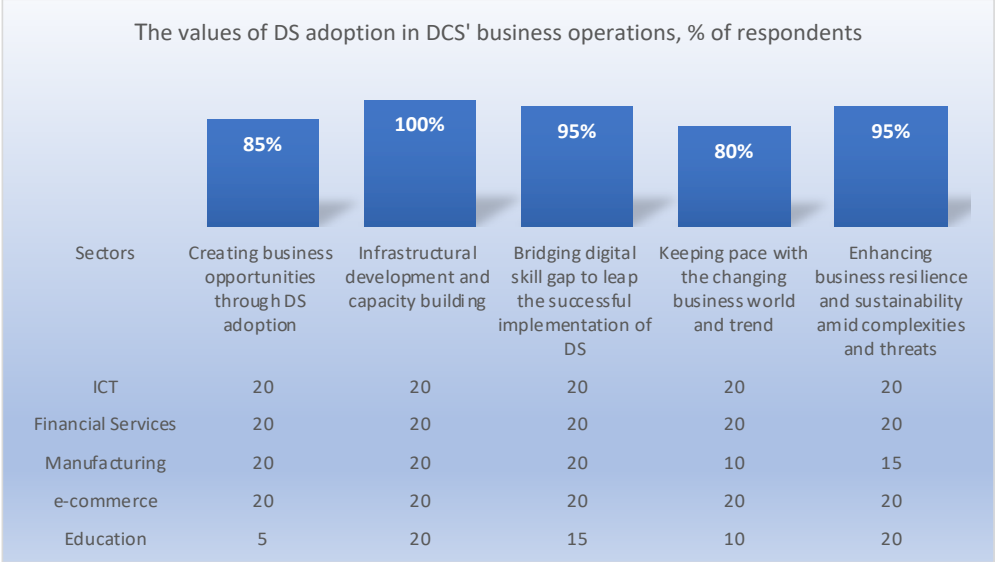
Figure 1. Coding Process from Data to Themes Formation

Note. This diagram illustrates the process of moving inductively from transcribed data to theme formation.

The data analysis, in line with the study's conceptual framework, resulted in seven themes: (a) the value of DS adoption in DC businesses; (b) the potency of DS to manage and transform DCs' businesses; (c) concerns about DS adoption in DC businesses; (d) what to transform to implement DS in DCs' businesses; (e) Implementing DS in DCs' businesses; (f) the prospect of DS implementation in DCs' business ecosystem; and (g) strategic intervention measures supportive to DS adoption in DCs' businesses. The result provided a distinctive insight into the dynamics around DS adoption in business and the inclusive effects.

3.1 The Value of DS Adoption in DCs' Businesses

The value of DS adoption in DCs' businesses explains the why of DS adoption in DCs' businesses. The result exhibited the inclusive values of DS in business through the adoption of technology-based solutions in managing and transforming businesses. The participants shared that DS adoption in their business process has been resourceful in optimizing internal and external processes. They stressed that DS adoption in their business enhanced customer experience and satisfaction, which, in effect, increased the operational scope, revenue, profit, and chances of business sustainability. As shown in Figure 2, new business opportunities, infrastructural development, capacity building, bridging the digital skill gap, keeping pace with the changing business world, and business resilience and sustainability are the inclusive values of DS adoption indicated by the participants.



Sectors	Creating business opportunities through DS adoption	Infrastructural development and capacity building	Bridging digital skill gap to leap the successful implementation of DS	Keeping pace with the changing business world and trend	Enhancing business resilience and sustainability amid complexities and threats
ICT	20	20	20	20	20
Financial Services	20	20	20	20	20
Manufacturing	20	20	20	10	15
e-commerce	20	20	20	20	20
Education	5	20	15	10	20

Figure 2. Participants' responses to the values of DS adoption in DCs' Businesses

Source: Author

Note: Each sector makes up 20% of the study's participants, and 20% of responses from each sector depict all participants from the sector. The percentage not shown represents those who did not comment or hold different views.

3.1.1 Creating New Business Opportunities

The business world constantly evolves with new opportunities and challenges to capture business values. The participants expressed that adopting DS and technology-based solutions in their operations created new business opportunities. About 85% of the participants (see Figure 2) emphasized that DS adoption helped remodel their business and fostered new business opportunities through international collaboration, expansion, and diversification. As P12 stated, "Adapting to DS was instrumental to our business expansion and diversifications." Others recalled that DS adoption helped their businesses form international alliances and collaborations that fostered new business opportunities and competitiveness in the global market (see Appendix B). Conversely, 15% believed that the inclusive value of DS adoption in the business process is relative depending on the business model, need, and outcome. DS implementation through adopting emerging technologies in the business process opened up new and sustainable opportunities for the sampled organizations. It provided opportunities for DC organizations to reposition their businesses for new opportunities, growth, and sustainability.

3.1.2 Infrastructural Development and Capacity Building

The findings confirmed a digital infrastructure deficit in DCs. All participants emphasized that infrastructural deficits and limited access to dependable internet resources have impacted digital skill acquisition and created a gap between individuals, businesses, and efforts to access ICT and computing facilities. The participants affirmed that the consideration to adopt DS launched them into investment in digital infrastructures, architectures, and capacity-building initiatives that enabled them access to network components, applications, repositories, and other internet resources with which they were able to circumvent DS adoption constraints, structure business operations, provide services, and improve business performance. In effect, it helped reduce the digital divide in their business construct. Investment in evolving and relevant digital architectures and capacity building fosters progressive efforts to reduce the digital divide and encourages DS adoption in DCs' business management and transformation.

3.1.3 Bridging Digital Skill Gap

Digital skill acquisition is one of the critical factors in DS adoption in business. All the participants acknowledged that the digital skill gap adversely impacted DS adoption in their businesses. They emphasized that DS adoption promoted their digital skill acquisition to meet work demands, readiness for the digital future, and positive changes in the overall value chain of their business. About 95% of the participants asserted that digital skill upgrades and engagement of digitally inclined leaders and teams leaped the successful implementation of DS in their organization. They highlighted

operational efficiency, timely service deliverables, and improved performance as the inclusive value of bridging the digital skill gap in their DS implementation journey.

3.1.4 Keeping Pace with the Evolving Business World

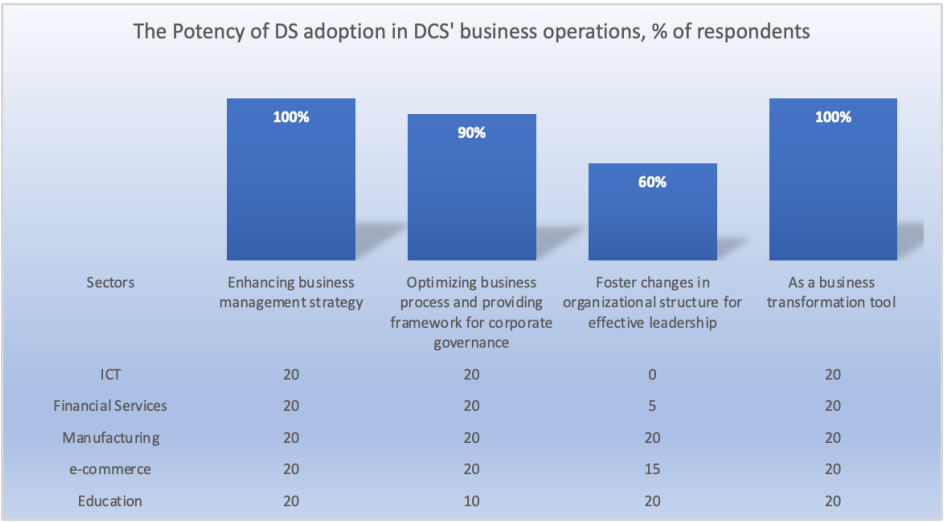
Digital transformation drives business transition and shifts from an existing fit to a new and improved fit (Wade, 2015). The participants affirmed that DS adoption was resourceful in helping their business transition from its existing fit to a new and improved fit. As shown in Figure 2, about 80% of the participants attested that DS adoption helped them reposition their business for growth and keep up with technological advancement and trends, digital shifts, and changes in the business world to capture more value. With technology evolving faster, business leaders in DCs can align digital skills and vision that are revolutionized with technology evolutions through DS to reimagine and reinvent the business process and competencies to keep up with the changing business world. Keeping up with the changing business world was noted as an inclusive value of DS adoption in DCs' businesses.

3.1.5 Business Resilience and Sustainability

One of the main goals of most businesses is to continue active business and remain resilient and sustainable. About 95% of the participants, as shown in Figure 2, agreed that DS adoption enhanced their resiliency and the ability to scale thoroughly and remain sustainable amid complexities and threats. The ICT, financial service, e-commerce, and education sectors' participants pointed out that, as with every other business sector, nation, and human endeavor, the COVID-19 pandemic impacted businesses in Nigeria and presented the need for a strategic approach to business survival. For the digitally strategized businesses in Nigeria, customers' expectations and sustainable services were met through virtual work patterns, online learning, and service provision, which stimulated business continuity and survival. The participants considered DS an enabler of agility and resilience to survive and remain sustainable amid complexities. DS adoption supports business leaders in being innovative and resilient in pioneering change management and business transformation pivotal to business continuity and sustainability.

3.2 The Potency of DS to Manage and Transform DCs' Businesses

The potency of DS adoption in business also describes the why of DS related to its effectiveness in managing and transforming business operations. The participants shared that DS adoption helps strengthen the business management strategy, optimize the business processes, and transform the critical areas of the business. Figure 3 shows participants' responses to the potency of DS adoption in their business operations.



Sectors	Enhancing business management strategy	Optimizing business process and providing framework for corporate governance	Foster changes in organizational structure for effective leadership	As a business transformation tool
ICT	20	20	0	20
Financial Services	20	20	5	20
Manufacturing	20	20	20	20
e-commerce	20	20	15	20
Education	20	10	20	20

Figure 3. Participants' responses to the potency of DS adoption in DCs' businesses

Source: Author

Note: The percentage of responses not shown represents those that did not comment or hold different views.

3.2.1 Enhancing Business Management Strategy

Business management grasp is constantly evolving, and business leaders now adopt digital tools such as AI, ML, and IoT to strengthen their business management strategy. All the participants (100%), as shown in Figure 3, attested that adapting to DS enhances business management abilities. The participants affirmed that adapting to the DS provided them with scalable digital solutions and tools that supported the strategic management of their businesses and provided a framework for inclusive corporate governance and a modernized approach to their business management. About 75% admitted that adopting DS improved their business's data exchange process, management, communication, and planning. Then, 25% stated that including DS in their business helped them minimize operational costs, connect and manage the workforce more creatively, and positively impact their business value chain. The findings collaborated with the findings of Hess et al. (2016) that successful business management lies in business leaders' skills, strategy, and ability to understand and implement a dynamic approach to business processes.

3.2.2 Optimizing Business Process

The potency of DS included optimizing the business process and making a positive impact on the overall governance of the business. About 90% of the participants (see Figure 3) attested that DS helped optimize their business process and enhanced their operational efficiency and structural expansions. As stated by participants in the manufacturing sector, the automation of their business processes has helped meet their production demands and customers' expectations related to real-time operational efficiency and addressing the structural challenges associated with timely resolution of problems to improve service delivery. The finding collaborated with the assertion of Tijan et al. (2021) that businesses can leapfrog by adopting DS to optimize service delivery. Big data and AI were identified as resourceful in managing the back office to improve resource utilization, optimize staff performance, and meet customers' needs. The participants asserted that DS exposed them to rethinking and renewing their business process, customer relationships, and integrated AI capability in managing and solving business problems. For example, participants from the financial service sector pointed out that the use of AI tools such as Ziva, Leo, Tamada, Rafiki, and Humanoid provided solutions to in-person customer service and delays associated with customer problems resolutions in terms of guiding customers to perform financial transactions and enjoy real-time customer services. Transactions and real-time problem resolutions are conveniently achieved at a faster speed and turnaround time.

The exploration extended to understanding the changes in the organizational structure resulting from DS adoption in the business process. About 40% of the participants stated that no significant changes happened as their organizations were well-positioned for digital transformation. Then, 60% (see Figure 3) attested to the expansion in their organization's structure, stating that they created new departments and roles like IT manager, chief digital officer, social media managers, and digital process support officers for effective leadership and management. DS adoption changed the organizational structure to expand departments and create new roles for effective leadership and business management. Organizational structures that considered the flexibilities of DS were seen as suitable for managing businesses and implementing digital transformation agendas.

DS adoption fostered the effective use of technology tools and solutions to manage the workforce and reduce transaction costs in the business value chain, helping engage teams creatively, as well as data management, business communication, information processing, planning, and cost optimization. DS adoption was seen as fundamental in addressing the challenges of using manual data management systems in business processes and operations for timely problem resolution and providing scalable digital solutions that support immediate data analysis for decision-making and strategic business management. DS adoption in business management can impact every aspect of DCs' business operation to obtain more value and help mitigate the risk of losing access to significant business opportunities. Figure 4 illustrates how DS adoption in business management can impact every aspect of DC's businesses to obtain more value.

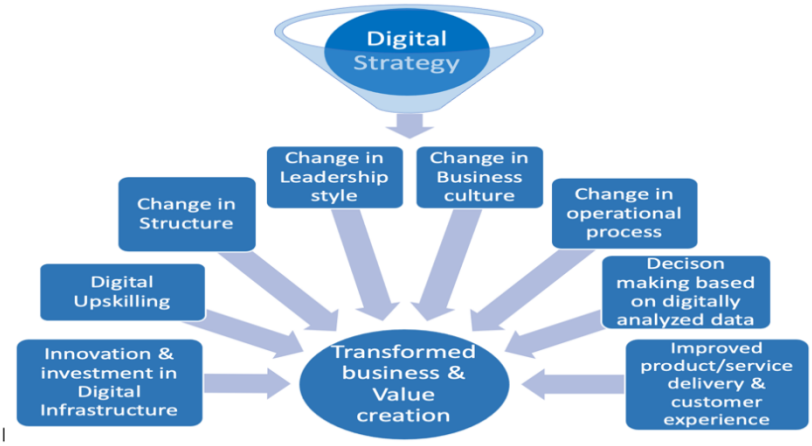


Figure 4. How DS Adoption Impacts Every Aspect of DC Businesses to Obtain More Value

From the illustration in Figure 4, the adoption of DS tunnels to influencing innovation and investment in digital infrastructures, digital upskilling, change in business structure, leadership style, business culture, operational process, enhancing data analysis, decision-making process, and improved services delivery and customers' experience, all of which foster business transformation and value creation. Operational efficiency, timely service deliverables, and customer satisfaction were the inclusive values of DS adoption in the business process and translated to transformed business and value creation.

3.2.3 DS as a Business Transformation Tool

The participants' views on the potency of DS in leading to innovative changes and transformation in the way DC businesses operate were explored. The participants emphasized DS as an innovative tool in their business transformation journey. All the participants (see Figure 3) stressed that DS adoption influenced significant changes in business operations, resulting in a transformation in their business construct. Accordingly, 70% of the participants believe that DS adoption altered their business process through business process re-engineering and modernization, streamlined operations, and created a self-sustaining work process and operational efficiency. P16 buttressed that adapting to DS provided their business with many innovative practices that helped create a self-sustaining work process and the ability to achieve operational efficiency (see Appendix B). Twenty percent indicated that DS helped them automate their workflow and improved customers' experience and service delivery. Then, 10% pointed out that DS helped remodel their business, streamline operations, and enhance information sharing and collaboration among stakeholders.

Transformation in the marketing style and brand promotion was also identified as one of the potencies of DS adoption. The participants highlighted that adapting to online or e-marketing and services was resourceful in creating awareness, customer spread, and market penetration. Participants from the financial services, manufacturing, and e-commerce sectors affirmed that DS adoption in service provision offered measurable ways to track performance and efficiency in their service delivery, opened up efficient and timely communication channels with the customers, improved customer relationships, brand recognition, and made it easier for customers to find them as fit-for-purpose organizations for business transactions. It was noted that using tech tools and social media platforms (SMPs) such as Twitter, Instagram, YouTube, Linkedin, WeChat, and WhatsApp was resourceful in their market penetration endeavors; they boasted their marketing gig and customer spread.

Although digital tools and platforms threaten business operations and existence related to the safety of data (Sebastian et al., 2017), valuable opportunities abound. DC businesses could adapt their operations to online patterns, leveraging the innovative prowess of digital technologies and SMPs to improve business performance and achieve revenue growth and sustainability objectives. It is evident from the findings and as emphasized by Tunç and Aslan (2020) that the evolution of digital technologies alters business conduct and interactions, broadens the scope of business changes, and places businesses on the radar of digital transformation. Business leaders leveraged soft and hardware digital solutions, digitally skilled teams, culture, and structure adaptable to implementing digital transformation agendas to rethink, renew, and optimize the business processes and transform the critical areas of the business for better service delivery. DS adoption was seen as propelling the effective management, transformation, and sustainability of DC

businesses. Given the overwhelming values, DS adoption is considered unavoidable in business in this digital age.

While almost all the participants acknowledged DS adoption as being resourceful in their business management and transformation journey with its inclusive values, 15% of the participants, mainly those in the educational sector (see Figure 2), think differently. They argued that the inclusive value of DS adoption in the business process is relative depending on the business model, need, and outcome. The point was that some learners in educational institutions feel that DS in the learning process slows down their learning progression, as many do not relate better with learning through digital options, online platforms, or e-learning tools. Instead, they prefer in-person and physical classroom composition. In effect, less innovative practices and less-value outcomes continue to impact DS adoption in the educational sector, leaving leaders concerned about digitalizing their business (learning) process.

3.3 Concerns About DS Adoption in DCs' Businesses

Despite the overwhelming value of DS adoption in business, transiting to it leads to several concerns, which speak to the inquiry of what needs to change or what should be transformed. Participants expressed concerns such as cyber threats, data insecurity, and other possible outcomes of DS adoption. The participants argued that some business leaders are reluctant to trust DS, given that digital tools and solutions could fail to deliver as presumed. The findings collaborated with the report of Chakravorti et al. (2021) that poor regulatory framework, infrastructural deficit, and possible outcomes of technology adoption increase the risk and fear of data insecurity, which feeds people's perception negatively of technology adoption in businesses. The findings showed no possible protection to ward off cyberattacks and data insecurity. However, it can only be managed and adversely impact the decision to implement DS in business operations. The participants also emphasized perception, leadership style, culture, attitude, and cost effect as other concerns. In the view of the participants, cost, perception, and skepticism deter some business leaders from engaging in DS adoption.

P15 and P18 pointed out poor investment in digital infrastructures and costs related to acquiring the required digital resources as a big challenge their organization faced while driving DS implementation. The participants also expressed that leadership style significantly impacts the implementation of the DS adoption agenda, given that some business leaders focus more on revenue drive and profit maximization with a low appetite for DS adoption, and some are unwilling to adapt to change. This recognizes that aside from the digital divide and skill gap, other factors such as perception, leadership style, culture, attitude, data insecurity, and funding challenges impede the ability to leverage DS to manage and transform business in DCs. However, despite the concerns, DC businesses have considerable value that they can extract from adopting DS in their business operations. By adapting to DS, DCs would benefit from the effects of technology-based solutions and transformational values to improve business operations.

3.4 What to Transform to Accelerate DS Implementation in the DC Businesses

Studies (Westerman et al., 2014; Wade, 2015) emphasize commitment to investment in digital architects, infrastructures, team reskilling, process improvement, and customer experience as essential in the DS implementation agenda, given that businesses mostly feel the inclusive effects of digital transformation in these critical areas. However, from the participants' responses, as shown in Appendix B and illustrated in Figure 4, DC businesses may need transformation in the aspects of digital infrastructural development, architectural and human capacity building, the regulatory framework, perception, leadership style, culture, attitude, business process and practice, decision-making process, and customer experience which present insight into how business leaders in DCs may leverage the potency of DS for inclusive business management and transformation to obtain more value.

3.4.1 Digital Infrastructure and Architecture

The participants emphasized the need for transformation in digital infrastructure and architectures supportive of DS adoption in DCs' businesses, given that innovations like 5G network connections already in use in developed nations are still in the infancy in most DCs. P6 highlighted that replacing underperforming digital implements with innovative ones was instrumental to their smooth transition to DS implementation. The participants believed that innovations like the 5G network, Zoom, Google Meet, Microsoft Teams, GoToMeeting, Digi-Tell, and others at the time of this study offer on-hand digital collaborative networks and platforms for business operation, interaction, and facilitation of the digital business process. However, the participants buttress the need to orchestrate the transition from offshore capacities for data repositories to reliable local capacity building for data-based solutions and computing facilities, which may be cost-effective for the digital transformation agenda.

3.4.2 Leadership Style

The participants believed leadership style is essential in any business digitalization or transformation agenda. They expressed that DS adoption in business processes entails business leaders interacting with teams, customers, partners,

and suppliers in a digitally inclined way to promote innovative practices and models that foster a digitally enabled environment for business operations. P5 stated that business leaders must be inclined to adopt a digital vision, strategy, and direction in their approach (see Appendix B). It is evident from the findings that business leaders who are digital savvy with critical thought to ascertain where the digital value lies and what structure, approach, and systems would deliver the maximum value is essential in DCs' business management and transformation drive. Digitally savvy leaders connected more creatively with teams, made decisions based on digitally analyzed data, and improved information flow and business performance (Emelogu, 2023).

3.4.3 Attitude, Mindset, and Culture

The result revealed the need for reorientation and change in attitude, mindset, and perception as pivotal to successfully implementing DS in business. The participants pointed out mindset, attitude, and culture as critical to the adaptive functioning of the people within the DS success pursuit construct, given that a positive mindset beseeches positive results. Business leaders who fail to adapt to the changing business culture birthed by new technologies lag in the drive for digital transformation (Goerzig & Bauernhansl, 2018). Adapting to a culture that accelerates emerging digital innovation is necessary. Business leaders must see DS adoption as a protocol to change the existing business practices and approach to renew business processes and customer experience (Vaska, 2021; Westerman et al., 2014). Conceptualizing a digital approach and mindset to business processes and practices is pivotal to navigating the DS implementation process and achieving transformation objectives in DCs. With the right attitude, culture, and practice, digital leaders can maximize the teams' productivity and the potency of DS in business management and transformation drive.

3.5 Implementing DS in DCs' Businesses

What to transform in DCs' businesses provides a roadmap for implementing DS in DCs. The participants emphasized digitalizing the business process and leveraging the potency of emerging technologies as vital in the DS implementation journey. Accordingly, about 95% (see Figure 2) asserted that digital skill upgrades and engagement of digitally inclined teams and leaders leaped the successful implementation of DS in their organization. Others recalled that making investment decisions that replaced old and underperforming digital implements was instrumental to the successful implementation of DS in their business. The participants highlighted the approach to DS implementation in DCs' businesses to include business leaders' engagement in exploring and assessing DS implementation requirements and the value in the business. They stressed that business leaders need to define the strategy to implement digital business models and a digitalization strategy that affects all business areas and develop the right digital capabilities and technological architecture to navigate the dynamics of DS implementation and deliver business values.

From the findings, it is evident that adapting the entire business process and value chain to technology implements and architects and ensuring digital inclusiveness at all levels of business operations are pivotal to DS implementation in DC businesses. The process includes defining the right digital solutions, building technical support and digitally enabled systems to facilitate operational excellence, and adopting digital platforms that enable rapid innovative changes and responsiveness to new market opportunities and values. Business leaders must approach DS implementation by having a well-defined strategy and implementation plans fundamental to process improvement and repositioning the business for growth and sustainability through technology adoption. These key areas suggest where and how DC businesses can start their DS implementation journey to improve the chances of successfully implementing DS in DC businesses.

3.6 Prospects of DS Implementation in DC Businesses

The prospect of DS implementation in DC businesses relates to understanding the outlook of DS adoption in the management and transformation of DC businesses. Meeting future work demands and readiness for the digital future were identified in the study as potential prospects of adopting DS in DCs businesses as P9 and P17 emphasized that DS adoption propels the meeting of the future work demands, enhances the business competitive edge, and propels business readiness for the digital future. Another DS adoption prospect is achieving inclusive business management and transformation across DC business sectors. The participants affirmed that DS inclusion in the business process beseeches inclusive business management and transformation, helps set the sustainable direction for the organization, repositions the business for growth, and keeps pace with the evolving business world to meet the future of work demands and business sustainability agenda.

The literature review and the study result evidenced a vast disparity between digital transformation in developed nations and DCs, adversely impacting the business sustainability and economic prosperity of DCs, leaving DCs in the technological wake, and precluding progress on the Sustainable Development Goals. Another prospect of DS adoption in DCs, as highlighted by the participants, includes that, with DS adoption propelling digital infrastructural

development, digital capacity building, and transformation in DCs' businesses, the influx of residents from rural and digitally underserved areas to urban and digitally powered areas to work and live may reduce. Residents in distant and remote areas can enjoy working from their base with little exposure to societal ills and costs associated with commuting to work or living where digital infrastructures exist. As P7 stated, "With our digital solutions, you can bank safely and from anywhere and at any time" (see Appendix B). People can access business opportunities, interact, and transact business from anywhere by leveraging digital solutions, performing their duties optimally, and achieving business continuity, stable jobs, steady income, and better planning and living standards. In effect, it enhances a positive social impact and progress toward attaining sustainable development goals.

Boasting the economic function, socioeconomic opportunities—job creation, and economic progression of DCs' is another prospect identified of DS adoption in the DCs' business management as P14 noted that DS adoption helped reposition their business for growth and, in effect, economic progression. For instance, the founding of Digital Bangladesh in 2008 increased Bangladesh's access to online resources from 3% of its people to 70% as of 2021, resulting in a GDP growth of 6% (United Nations, 2021). DS implementation in DC businesses could boast business and economic functions, foster business sustainability, and, in effect, increase income and government revenue through tax generation for socioeconomic progression and a rise in GDP.

DS adoption in DC businesses could help improve living and business operating conditions. The result revealed that many people in DCs are still overwhelmed by little or no exposure to online resources and unawareness. The study findings support the idea that with DS implementation that beseech digital infrastructural development, people can explore online resources to be better informed and improve living and business operating conditions. As pointed out by the participants, those in healthcare services, for example, may leverage innovation and technologies to improve access to medical consultations, reduce medical errors, and offer better services. Access to online resources could help people be better informed about preventable diseases. Mobile data and digital tools could help identify disease infection patterns and hotspots that may help the government and other stakeholders in eradication endeavors. Continuous advancement in service delivery and business operating conditions in DC could be an offshoot of DS adoption in DC's businesses. DS implementation in DC businesses could propel efficiency in business function, awareness, change in business operating conditions, and economies of scale to foster efficient service delivery, business sustainability, and economic progression and positively impact living standards.

3.7 Strategic Intervention Measures Supportive of DS Adoption in DCs' Businesses

Interventive measures to propel DS implementation are essential frontiers for action to inspire DS inclusiveness in DC businesses and a road map to accelerating DS fruition in DCs' business management and transformation. The findings revealed the need for internal interventions by DCs' business leaders and external intervention by the government and other stakeholders.

3.7.1 Internal Interventions

The internal interventions by the business leaders speak to the measures business leaders or organizations need to take internally to see DS implementation to fruition. The findings show that the digital divide results in limited access to internet resources and information, low productivity, performance inefficiency, missed value-producing opportunities, and economic inequality. The findings attest that not having the needed digital architecture, leadership, structure, requisite skill, and digitally enabled systems for DS implementation hampers DS implementation initiatives in organizations. The participants emphasized the need for internal intervention by the business leaders. Such intervention may include training and retraining of the workforce, making digital literacy part of employee engagement and retention conditions, innovation and responsiveness to digital transformation demands and new market opportunities, and redefining individuals' tasks and roles to align with the business's digital transformation objectives. The participants also emphasized having a sustainable digital direction, adapting to evolving digital technologies and solutions, and having well-thought-out DS implementation plans tailored towards driving DS inclusiveness in all aspects of the business process. These key areas suggest where and how DC business leaders can start their DS implementation journey internally to improve their chances of successfully adopting DS in their business process.

3.7.2 External Interventions

The digital divide and skill gap are critical factors identified as impediments to digital fruition in DCs' businesses. Other significant factors included funding, interventive policies, and regulatory frameworks (see Appendix B).

Bridging the Digital Divide. The findings support that bridging the digital divide is critical to DS implementation realism and sustainability. The findings confirmed that the need for low-cost institutions to support digital skill development daunts digital skill acquisition and impedes DS implementation in DCs. The participants emphasized

interventive investment in infrastructural development and local capacity building as essential to narrowing the digital divide in DCs. Such intervention may include investment to provide a fiber optics network for internet connections, improve the broadband penetration rate, and achieve the National Emergency Electricity Plan in Nigeria and other DCs such as Chad, with only about 6.7% of the population having access to electricity, South Sudan (7.7%), and 10% in Burundi (World Bank Group, 2022). The intervention may extend to improving national digital awareness, as P13 emphasized that all business stakeholders should embrace change in perception, thought, and operational processes that are adaptive to the digital era. It will mean the government and other stakeholders' interventions and commitments to initiatives that will foster digital awareness to narrow the digital skill gap potency and drive DS implementation. Bridging the digital divide requires critical intervention by all stakeholders and an inclusive approach pivotal to closing the infrastructural inequality in DCs.

Funding. Limited access to funds to finance infrastructural development was identified as a challenge to the DS implementation drive, and the World Bank Group (2023b) report indicated that achieving universal broadband access will require over US$400 billion by the year 2030. Although DC businesses with DS managerial and funding capabilities were able to circumvent DS adoption constraints, the participants emphasized the need for the government, international community, or bodies to intervein by providing grants or zero-interest finances for programs and investments that will help diminish digital infrastructural and skill deficiency in DCs. Interventive funding for inclusive access to online resources in DCs is imperative.

Interventive Policies and Regulatory Frameworks. Businesses are increasingly exposed to cyber threats and attacks due to the intensive use of new technologies. The findings on concerns about DS adoption in DCs' showed no possible protection to ward off cyberattacks completely; instead, to seek a way to manage the negative externalities of technology evolution and adoption in business. Appropriate policies and regulatory frameworks supportive of data security and anti-cyberattacks to encourage an appetite for DS adoption in DC businesses were considered needful interventions by the government. As P11 emphasized, policies and regulations should be made to promote a conducive and competitive climate for business operations, foreign investment, and DS traction in DC businesses. Such policies, as highlighted, may include offering tax credits to private firms to encourage investments in digital infrastructures. Strong policies and enforcement procedures should be in place to boost DS adoption in DCs' businesses.

4. Conclusion and Recommendation

The study explored DS as a tool to manage and transform business operations in DCs, with Nigeria as the focus. The widening gap in the factors that leave DCs with many barriers to meaningful access to internet resources underscored an extreme landscape for DC businesses and the need for transformation. The literature review and the findings of the study provided a distinctive insight into the dynamics around DS adoption in DC businesses and how business leaders in DCs may leverage the potency of DS for inclusive management and transformation of their businesses to obtain more value. DCs' business leaders could leverage the potency of digital solutions to build digital capabilities, rethink and renew their business processes and customer experience, and manage and transform their businesses from the existing fit to a new and improved fit. In retort to the research question, managing and transforming business operations in DCs like Nigeria is achievable by adapting to digital technologies and relevant solutions at all levels of the business process across all sectors. The transformative impact of DS adoption in businesses attests that DS adoption in DC businesses holds the promise for far-reaching and sustained solutions to navigating the challenges inherent in DC's business landscape to foster business and economic progression. DS adoption in DC business holds much potential for business, economic, and social rejuvenation. DC business leaders must leverage technology evolutions to articulate DS to manage and transform DCs' businesses to capture emerging business value. However, the transformative power of DS comes with some substantial risks and concerns that significantly impact DS adoption in DC businesses.

Concerns about requisite infrastructures to drive DS implementation, skill gap, safety of data, cost effect, attitude, need for policies and regulatory frameworks, and possible DS adoption outcomes that undermine DS adoption in DCs' businesses were prevalent and need to be addressed. Thus, this study recommends the following:

1. DC business leaders should consider DS a tool to manage and transform their businesses, respond to necessary changes caused by technological evolution, and capture business values.
2. The government and other stakeholders should continue making investment decisions and commitments to narrow the digital divide and inspire business leaders to explore the potency of DS and technology solutions to manage and transform their businesses. Such commitment may include providing dependable digital infrastructures in digitally to enhance uninterrupted real-time business operations and government-owned institutions or centers for digital upskilling across geopolitical zones to enable rapid innovation and

responsiveness to digital transformation demands and new market opportunities.

3. One of the study's key findings is funding constraints to drive the digital transformation agenda. The government and DC business stakeholders need to make policies and commitments that may lower the prohibitive cost of DS implementation. Without a dedicated effort to finance digital infrastructural development, the lack of funding and underlying infrastructural concerns in DCs will continue to inhibit DS adoption endeavors.
4. The findings echoed the need for a comprehensive regulatory framework that will guide business practice and function to eliminate unhandsome practices; black economy- economic activities and practices derived outside rules and regulations guiding business practice and increase transparency, safety, and trust in business transactions. Strict intervention and support by the government and other stakeholders through policy frameworks inclined to diminish the risks of DS adoption in DCs' business ecosystem is recommended.
5. The study revealed a state of backwardness, overwhelming digital infrastructure deficit, and unawareness in some DCs. Proper sensitization is imperative to foster individuals' awareness of using digital solutions in business operations and living patterns. Integrating tools like AI, big data analytics, and blockchain technologies in DCs' business constructs to digitally shape business activities and decision-making processes is recommended. For instance, those in the agriculture business could use analytical data from seeds and remote sensing to decide how and what to grow to transform agriculture and forestry systems to combat climate change and its impacts. DCs must prioritize education to improve people's digital abilities and create efficient safety nets to support DS adoption in DCs.
6. This study's scope was limited to perspectives from business leaders and managers in Lagos, Nigeria, excluding other stakeholders, cities, and countries. While this may be acknowledged as the study's limitations, further studies to include the exclusions and consider a quantitative method to replicate the study in a similar or different setting are recommended for a broader understanding of the dynamics around DS adoption in DCs' businesses

DS adoption in DCs' businesses, as recommended in this paper, could be rewarding for influencing change in the process and management of business operations in DCs, impacting both the theory and practice of business management and acting as a decision-support tool for business management and transformation to achieve operational efficiency and business sustainability.

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Appendix A. List of Developed, in Transition, and Developing Countries as of May 2022

Table A
Developed economies

Europe			Other countries	Major developed economies (G7)
European Union	New EU member States	Other Europe		
EU-15	Bulgaria	Iceland	Australia	Canada
Austria	Croatia	Norway	Canada	Japan
Belgium	Cyprus	Switzerland	Japan	France
Denmark	Czech Republic		New Zealand	Germany
Finland	Estonia		United States	Italy
France	Hungary			United Kingdom
Germany	Latvia			United States
Greece	Lithuania			
Ireland	Malta			
Italy	Poland			
Luxembourg	Romania			
Netherlands	Slovakia			
Portugal	Slovenia			
Spain				
Sweden				
United Kingdom				

Table B
Economies in transition

South-Eastern Europe	Commonwealth of Independent States and Georgia[a]	
Albania	Armenia	Republic of Moldova
Bosnia and Herzegovina	Azerbaijan	Russian Federation
Montenegro	Belarus	Tajikistan
Serbia	Georgia[a]	Turkmenistan
The former Yugoslav Republic of Macedonia	Kazakhstan	Ukraine
	Kyrgyzstan	Uzbekistan

a Georgia officially left the Commonwealth of Independent States on 18 August 2009. However, its performance is discussed in the context of this group of countries for reasons of geographic proximity and similarities in economic structure.

Table C
Developing economies by region[a]

Africa		Asia	Latin America and the Caribbean
North Africa	Southern Africa	East Asia	Caribbean
Algeria	Angola	Brunei Darussalam	Barbados
Egypt	Botswana	China	Cuba
Libya[b]	Lesotho	Hong Kong SAR[c]	Dominican Republic
Mauritania	Malawi	Indonesia	Guyana
Morocco	Mauritius	Malaysia	Haiti
Sudan	Mozambique	Myanmar	Jamaica
Tunisia	Namibia	Papua New Guinea	Trinidad and Tobago
Central Africa	South Africa	Philippines	Mexico and Central America
Cameroon	Zambia	Republic of Korea	Costa Rica
Central African Republic	Zimbabwe	Singapore	El Salvador
Chad	West Africa	Taiwan Province of China	Guatemala
Congo	Benin	Thailand	Honduras
Equatorial Guinea	Burkina Faso	Viet Nam	Mexico
Gabon	Cabo Verde	South Asia	Nicaragua
Sao Tome and Prinicipe	Côte d'Ivoire	Bangladesh	Panama
East Africa	Gambia	India	South America
Burundi	Ghana	Iran (Islamic Republic of)	Argentina
Comoros	Guinea	Nepal	Bolivia (Plurinational State of)
Democratic Republic of the Congo	Guinea-Bissau	Pakistan	Brazil
Djibouti	Liberia	Sri Lanka	Chile
Eritrea	Mali	Western Asia	Colombia
Ethiopia	Niger	Bahrain	Ecuador
Kenya	Nigeria	Iraq	Paraguay
Madagascar	Senegal	Israel	Peru
Rwanda	Sierra Leone	Jordan	Uruguay
Somalia	Togo	Kuwait	Venezuela (Bolivarian Republic of)
Uganda		Lebanon	
United Republic of Tanzania		Oman	
		Qatar	
		Saudi Arabia	
		Syrian Arab Repuplic	
		Turkey	
		United Arab Emirates	
		Yemen	

a Economies systematically monitored by the Global Economic Monitoring Unit of DPAD.
b The name of the Libyan Arab Jamahiriya was officially changed to Libya on 16 September 2011.
c Special Administrative Region of China.

Appendix B. Excerpts from Participants' Responses, Codes, and Categories

Ps	Interview Excerpts	Codes	Categories
P14	It fostered positive changes in our business value chain	Values of DS adoption. DS relevance and benefits.	The why of DS in DCs' business
P11	DS pivots change and operational efficiency		
P12	Was instrumental to our business expansion and diversification		
P3	DS fosters digital skill acquisition and business success		
P9	Helps in meeting the future work demands		
P17	Digital strategy enhanced our business competitive edge and readiness for the digital future		
P6	Helped in the formation of international partnerships and alliances		
P12	DS adoption launched us into investment in digital infrastructures and capacity-building	Capacity building reduced digital divide, business transition, resilience, and sustainability	The why of DS in DCs' business.
P9	DS adoption helped reduced digital divide in our business, access global opportunities, and enhanced our business continuity		
P18	DS adoption fosters agility and resilience for business survival		
P1	Helped our business transit from its existing fit to an improved fit Helped reposition our business for growth and sustainability		
P8	Digital strategy has been instrumental to our successful business operation and management.	The potency of DS, a management tool, a framework for better business plan and leadership, business restructuring, data analysis, decision making, resource utilization, corporate governance	The why of DS as a business management tool
P2	A digital strategy helps develop a framework for inclusive corporate governance in our organization.		
P11	We leverage DS to rethink and renew our business processes and customer experience and restructure our business, which has greatly improved our business management.		
P5	Digital strategy has been instrumental in our organization's achieving a holistic management strategy and resource utilization that is pivotal to our business survival in this digital age.		
P19	DS adoption improved our cost optimization effort, time management, data analysis, and decision-making process and to track performance and efficiency in their service delivery.		
P12, P14	It provided us with scalable digital solutions that were supportive of strategic management and helped address the challenges of the manual process, business communication, and planning.		
P5	Digital strategies helped our organization to create a self-sustaining work process to achieve operational efficiency.	The potency of DS, self-sustaining work process, operational efficiency, remodeled business, innovation, collaboration, improved customer experience, and sustainable business relationship.	The why of DS as a business transformation tool
P7	With our digital solutions, you can bank safely from anywhere and at any time.		
P16	It provides many innovative practices that lead to business process re-engineering and operational efficiency.		
P20	Digital strategies have remodeled our business, streamlined our operations, and enhanced our digital skills, information sharing, and stakeholder collaborations.		
P8	The DS helped in automating our workflow and process		
P2	Digital strategy helps to strategically enhance a broader range of sustainable business relationships and improve customer experience and the business value chain.		
P15, 18	Poor digital infrastructures and cost implication of digital resources acquisition.	DS adoption concerns - cyber threats, data insecurity, cost effect perception, poor infrastructure, leadership style, culture, attitude,	What needs to change?
P1,7	Digital skill gap		
P2, 9	Low appetite for DS adoption among some business leaders		
P6	Cyber threat and safety of data		
P14	Poor mindset and practice.		
P5, 4	Unwilling to adapt to change and digitally-enabled systems.		
P12	Need for low-cost institutions to support digital skill development.		

P5	Business leaders need to be inclined to adopt a digital vision, strategy, and direction in their approach.	Leadership style, mindset, business culture, practice, unproductive digital implements, policy framework. funding ethos	What to transform in DCs' businesses
P9	Data security concerns and need for data protection.		
P18	Funding habit for the required digital resources and solutions.		
P15	Irregularities in business operations and practices		
P2	Poor investment in digital infrastructures.		
P13	Change in mindset, business operating model, and practice		
P6	Replacing old digital implements with innovative ones.		
P3	Provision of high bandwidth and technological architects supportive of digital transformation agendas.	Supportive measures for DS adoption, understanding digital technology roles in business, training, making changes, provision of digital platforms, solutions,	How to transform DCs' businesses
P4	Train and engage digitally skilled personnel, make required structural changes, and provide digital solutions and platforms for business processes and interaction.		
P17	Investment in infrastructures of the mind, skills committed to business digitization, and online or e-marketing and services		
P10	Understanding the role of digital technologies and their influence on existing business models and processes.		
P1	Business leaders should be clear about how DS will create added value in the business.	Internal intervention measures, clear vision and defined digital goals, and technology adoption. Business process re-engineering, investment in digital capacity building, leadership, team, culture, and systems.	
P7	Provision of digitally-enabled systems and business environment.		
P19	Adapting the entire business value chain to DS implements and digital requirements.		
P3	Automated the information flow system and ensured digital inclusiveness at all levels of the business operations.		
P10	Investment in local capacity building and digital architectures than dependent on offshore capacities for data-based needs.		
P2	Building digital architects that enable rapid innovation and responsiveness to new market opportunities		
P17	Bridging digital divide	External intervention measures, adaptive changes to digital-era demands, supportive policies, capacity building, funding, and digitally inclined standards of operation and practice	How to transform DCs' businesses
P15	Investment in local capacity building and digital architectures than dependent on offshore capacities for data-based solutions.		
P13	All stakeholders are to embrace change in perception and operational processes that are adaptive to the digital era.		
P11	The government should ensure policies and regulations that support infrastructural development.		
P3	Provision of government-owned institutions or centers for digital upskilling and architects that enable rapid innovation and responsiveness to new market opportunities.		
P1	Setting a sustainable digital direction for the organization.	Digital direction, adapting to evolving digital solutions, business process, growth, planning, business management	Prospect of DS adoption
P17	To keep pace with the changing business environment.		
P18	Adapting to evolving digital technologies.		
P14	Reposition the business and the economy for growth		
P9	Drive the business to meet future work digital needs		
P7	Have well-thought-out implementation plans and strategies tailored toward DS adoption in business		
P5	Access to information and inclusive business management.		