

THE NEED FOR DIGITAL TRANSFORMATION IN THE EDUCATION SECTOR IN NIGERIA (A LITERATURE REVIEW)

Abstract

Digital technologies are being utilized in higher institutions of learning but there is a gap that is yet to be filled. Today's University leaders and faculties especially in Nigeria must reimagine higher education in a digital-dominated new world. In most schools, traditional teaching equipment have become obsolete especially when private (fee paying schools) and public schools (government tuition free schools) are compared. This gap was further widened when there was a breakdown in learning in the year 2020 as a consequence of the pandemic. At the beginning of Corona virus epidemic, it became apparent that business models and traditional approaches to service delivery in the business world have to change; and the field of education is not an exception. This article thus contributes to existing discussions on the application of digital transformation within the context of education in the public sector in Nigeria by adopting a multidisciplinary focus. As the governments around the world imposed lockdowns in their respective nations in a bid to stem the spread of the Corona virus, traditional mode of education which took place in physical settings in institutions of learning, had to change as well in Nigeria. This research reviewed existing literature on digital transformation as a multidisciplinary tool for facilitating learning. The reviewed literature revealed that more needs to be done in the public educational sector if learning is to continue irrespective of environmental disruptions. Therefore, for sustainable education in Nigeria there is a need for the adoption of digital technological solutions particularly in public higher institutions of learning.

Key words:

Sustainable education, digital transformation, Corona virus, business models, innovation

Introduction

Today's University leaders and faculties must reimagine higher education in a digital-dominated new world. In the wake of technology, jobs and competencies are changing faster than people or organizations are able to adapt to (Cascio & Montealegre,2016). According to Aldowah (2019),

the basic skills required for most professional duties will change by an average of 42% by 2022 and Nigeria is lagging behind in adopting and utilizing digital innovation in the educational sector in Nigeria (Odegbesan *et al.*, 2019; Obododike, & Okekeokosisi, 2020). The direct implication of this is that a majority of graduates from public Nigerian universities will be ill-equipped to handle the challenges they will encounter in the future. Digital technologies are already being utilized in teaching and learning in higher institutions of learning in Nigeria but there is a gap that is yet to be filled (Tulinayo, 2018). The evidence of this gap was brought to light when there was a breakdown in teaching and learning in the year 2020 as a result of the pandemic (Olawaju *et al.*, 2021). This halt in learning revealed that more needs to be done in the public educational sector in Nigeria to ensure that disruptions of this nature does not negatively impact teaching and learning moving forward.

In anticipating changes of this magnitude, business organizations sought for ways to acquire the competencies they required to stay competitive especially when natural environmental challenges of this magnitude occur, and the educational sector in developing countries should not be left behind (Harvard Business Review, 2021). Public universities need to strive to create an ecosystem and use online education (eLearning) to increase student numbers and establish partnerships with other universities and educational service providers worldwide. This can only be achieved when universities continue to provide services to students even in the midst of disruptions such as that created by the pandemic. With the imposition of nationwide lockdown during the pandemic, public institutions of learning were closed, physical contact between teachers/lecturers and pupils/students stopped. As the governments around the world imposed lockdowns in their respective nations in a bid to stem the spread of the Corona virus, traditional mode of education which took place in physical settings in institutions of learning, had to change

as well in Nigeria. This presented a challenge for public institutions of learning as there was no organizational strategies in place to change from physical delivery of lectures to online delivery therefore, these institutions of learning were shut down indefinitely till further notice. For a lot of middle class and low-income earning families, this meant that their children were out of school; with no way to continue their education as institutions of learning were shut. Another direct implication of this was that children from such families were idle, most of the time and even became depressed (Olawaju *et al.*, 2021). Another disadvantage of the lockdown meant that those students who were out of school would take a longer time to graduate, some would have forgotten all that they were taught once schools resumed. With the support of digital transformation technologies, it is possible to create a unified learning ecosystem, as well as supplement your own educational programs with the best courses from other educational institutions (Kozlova & Saidakhmedova, 2021).

However, in some private institutions of learning (Baze University), there was already a strategic plan in place to make a progressive change from the traditional mode of teaching and learning to a virtual mode of teaching and learning. This calls for the introduction and adoption of newer models and methods of education in public institutions of learning to meet the requirements of the contemporary world (Mevlüt & Süleyman, 2020).

There is also a very strong relationship between education and skills and the acceptance and use of digital technologies in various spheres of life around the world (Grand-Clement, 2017). The role of education and skills in promoting innovation is therefore critical to the growth and the development of any nation. Despite the massive potential of digitalization for facilitating and boosting teaching and learning, the impact of digital technologies on education in Nigeria itself has been low (Fu, 2013). There have been massive investments in (ICT) Information and

Communication Technology in schools; however, this has not yet resulted in the transformation of educational practices. This could be as a result of the overriding focus on hardware and connectivity which has kept back equally powerful strategies for increasing teachers' ICT skills, improving teachers' professional development, reforming pedagogies and producing appropriate software and courseware. To achieve this, education needs to be oriented towards future development and not only on meeting the educational needs of the present (Fu, 2013). However, in Nigerian public universities, the potentials of digital transformation are yet to be fully embraced (Sandkuhl & Lehmann, 2017). This study explores the role of digital transformation in the strive to attain United Nations' Sustainable Development Goals (SDGs) 4 and 9, which focuses on educational development at all levels, industrial collaborations and improvements, respectively (Unterhalter, 2019).

This paper is structured in the following way, the first section is a literature review that highlights the application of digital transformation in other fields, it then goes on to explain the benefits of digital transformation, highlighting the factors that can either facilitate the change from the use of traditional approaches to teaching and learning to the adoption of virtual learning or the adoption of a hybrid teaching and learning system.

Literature Review

Digital Transformation

Digital transformation is defined as a change in how an organization employs digital technologies, to develop a new digital business model that helps to create and appropriate more value for the firm (Kane, Palmer, Philips, Kiron, & Buckley, 2015; Liu, Chen, & Chou, 2011; Schallmo Williams, & Boardman, 2017).

Digital transformation is considered as one of the mega-trends in industry (Kanya, 2020). One of the sectors with potential for digital transformation is higher education in universities and university colleges. Many private universities such as Baze university developed digitization strategies and new kinds of offerings for their traditional target groups and for new, non-traditional target groups.

As a result of this, some educational entrepreneurs have used digital resources to enter markets that were previously thought to be completely unrelated to retail, in search of further growth opportunities. Digital transformation is multidisciplinary by nature, as it involves changes in strategy, organization, information technology, supply chains and marketing. Digital transformation has been recognized as a multidisciplinary field.

According to research of Kanya (2020), Digital transformation is reshaping the way organizations emerge, operate, and develop; evidence from Baze university a private institution of learning in the Federal Capital Territory (FCT) Abuja, Nigeria revealed that digital transformation can be successfully deployed in the educational sector. The use of digital transformation strategy ensured that during the lockdown students in university were able to continue learning. There was no break in educational progression as was the case in public tertiary institutions. Digital transformation has introduced how to deliver larger value and increased market share at low fractions of traditional cost by leveraging on digital literacy and skills, digital jobs, digital infrastructure, digital platform, digital identity, digital payment systems and other digital enablers.

The findings of the research conducted by Nwachukwu *et al.* (2021) revealed that although meaningful efforts have been made by few of the private universities but the public universities are yet to fully implement digital learning. The study suggested a liberalization of the

educational sector from the bureaucratic bottleneck that has bedeviled its transformational development over the years and concluded that education as a key to national development cannot be relegated to the background but must be fully funded and adequately equipped to face the challenges of sustainable development (Nwachukwu *et al.*, 2021). Therefore, the solution to this issue is digital transformation.

Defining Digital Transformation and Putting it into Perspective

Digital transformation has become inevitable in organizations and society forcing diverse transformations to remain competitive. The activities of digital transformations have further given rise to such terms as digitisation and the digital economy (Pavlou, & Venkatraman, 2013; Westerman, Bonnet, & McAfee, 2014; Bharadwaj, Sawy, Shafique & Beh, 2017; Wade, 2017; Heavin & Power, 2018; Nwaiwu, 2018; Ejemeyovwi & Osabuohien, 2020). The entire ambience of societal and individual systems interactions and use of digital transformation is referred to as a digital economy. Put into perspective, digital economy refers to a technology-driven economic system where digital technology, such as platforms, and diverse components and applications of information technology are used to achieve economic sustenance at the individual, firm and national levels (Solis, Li, & Szymanski, 2014; Afonaso, Panfilova, & Galichkina, 2018; Domazet & Lazić, 2017; Karakara & Osabuohien, 2019, 2020).

This involves the broad adoption of digital technologies such as e-payment gadgets, cloud computing, data analytics and artificial intelligence, to facilitate connectivity and social interactions on a global scale (Aldhaheri & Rajan, 2019; Ndulu, Joseph, & Tryphone, 2021). The United Nations Millennium declaration in 2000 aimed to reduce extreme poverty. It was focused on the United Nations records, on a significant achievement in terms of world-wide reduction in the level of poverty, improvement in basic education enrolments, women empowerment and

awareness and gender equality (Oleribe & Taylor-Robinson, 2016). However, the millennium declaration did not achieve the set goals in Nigeria due to contextual factors such as the emergence of crises like the Boko Haram insurgency, the Niger Delta crisis and other economic challenges such as corruption (Aduba, 2021; Ojimba, 2012; Olujobi, 2021a; UNICEF, 2019). Other opposing challenges included neglect from the government, and strike actions by labour unions, lack of government commitment, girl child discrimination and poverty (Adepoju & Fabiyi, 2007; Alabi, Bahah, & Alabi, 2014; Dapo-Asaju & Bamgbose, 2016).

digital transformation is viewed as the cultural, organizational and operational change of an organization, industry or ecosystem through a smart integration of digital technologies, processes and competencies across all levels and functions in a strategic way to yield improvement and advance new development (I-SCOOP, 2020). Similarly, innovation and infrastructure constitute some of the elements of the digital economy (World Bank Group, 2019; Zhu, Kraemer, & Xu, 2006). It is evident, therefore, that a digital economy built on such pillars will be robust and inclusive, and will deliver high prospects of attaining SDG 9.

Digital transformation affects the whole company and its ways of doing business (Amit & Zott, 2001) and goes beyond digitalization — the changing of simple organizational processes and tasks. It rearranges the processes to change the business logic of a firm (Li, Su, Zhang, & Mao, 2018) or its value creation process (Gölzer & Fritzsche, 2017). Therefore, digital transformation is inherently linked to strategic changes in the business model as a result of the implementation of digital technologies (Sebastian et al., 2017). In sum, digital transformation is a company-wide phenomenon with broad organizational implications in which, most notably, the core business model of the firm is subject to change through the use of digital technology (Agarwal *et al.*, 2010; Iansiti & Lakhani, 2014; Li, in press) Internally, organizations need to develop agile

structures with low levels of hierarchy, and internalize IT and analytical functional skills within the firm and identifying the optimal forms of organizational structures that allow firms to succeed in executing their digital transformation strategies. For example, which organizational structure enhance firms' digital agility? And, more broadly, what organizational structures are most effective for firms that transform digitally?

Benefits of Digital Transformation Strategy in Public Higher Institutions of Learning

Some of the benefits of digital transformation to the Nigerian Educational System include but not limited to;

1. Digital Transformation (DT) is a radical rethinking of how an organization uses technology, people and processes to fundamentally change business performance (Berman, 2012 & Westerman, 2016).
2. Clark (2018) sees technology as the enabler of DT, driven by four goals: Enhance competitiveness, improve profitability, better customer experience, and achieve greater agility across the enterprise value chain.
3. Digital Transformation in HEIs brings numerous benefits, such as cost savings from reduced administration time, improves data, Information and knowledge control, improve teachers-students communications and relations, increased contents quality and access, increased in enrolments and access, etc. The benefits of DT in HEIs are achieved as a result of leveraging on emergent technologies such as cloud computing, big data and learning analytics, artificial intelligence, digital identity, etc., which has helped in improving service and operational excellence.

The transition from a traditional approach to the delivery of learning to a digital one can only be possible when the following are in place. The rapid advancement of digital technologies has fundamentally changed the competitive dynamics of industries. To cope with an increasingly unstable environment and to fully leverage the opportunities opened by new technologies, organizations need to transform their businesses. Digital transformation initiatives are prevalent throughout industries, yet often experience failure due to inert organizational cultures preventing change (Hartl & Hess, 2017). Digital technologies also present new opportunities for growth of businesses. However, integrating and exploiting the opportunities originating from digital technologies remains a major challenge for businesses, especially firms in industrial-age industries, and calls for more research (Yoo *et al.* 2010).

1. The belief by senior level management that service and operational excellence in the university can only be achieved by leveraging on a digital transformation ecosystem.
2. The belief that the vision and mission of the university can only be achieved through the crossbreeding of technology, people and process in a higher education institution to improve educational outcomes.
3. The translation of the university vision into an actionable point by leveraging on digital technologies.

Discussion

21st century skills are considered in three main dimensions. These are basic literacy, competencies and character traits. In our century, which is the age of technology, one of the most important topics in terms of basic literacy is technological and digital literacy. The main platform for creativity, communication and collaboration within the competencies has also been the technological field. In terms of character traits and values, technology addiction and use outside

of its purpose have become one of the serious problems. Considering the fact that technology shapes the basic goals in many dimensions of education, it is inevitable to use it in teaching activities, that is, in the transfer dimension. The use of technology in teaching from preschool to basic education, from secondary education to higher education has become a necessity and often a necessity beyond need. Therefore, technology should be used in teaching and learning processes in universities as a requirement and characteristic of modern higher education (Selwyn, 2016).

Digital transformation and resultant business model of innovation have fundamentally altered consumers' expectations and behaviour, putting immense pressure on traditional firms, and disrupting numerous markets. three stages of digital transformation were identified and they are- digitization, digitalization, and digital transformation. Verhoef *et al.* (2019) argued that digital transformation requires specific organizational structures (Verhoef *et al.* 2019). At the company level, many traditional firms have been surpassed by innovative fast-growing digital entrants, and suffered as a result of this.

To fully leverage the benefits of new digital technologies, the implementation of IT needs to be accompanied by organizational transformation. Otherwise, the benefits from IT deployment remain marginal if only superimposed on existing organizational conditions (Venkatraman 1994). Digital transformation therefore exceeds the mere digitalization of products and services by the use of digital technologies (Hess *et al.* 2016). To enable business improvements, holistic changes are required. Firms need to transform and digitalize their entire business models and the accompanying existing organizational conditions, such as structures, processes and culture (Fitzgerald *et al.* 2014; Venkatraman 1994). Organizational culture can also be the source of

inertia that prevents change, the role of organizational culture in facilitating digital transformation in higher institution of learning.

Digital technologies radically increase the speed of innovation, disruption and competitive dynamics of a firms' environment (Downes & Nunes 2013; Porter & Heppelmann 2014; Westerman *et al.* 2011). To cope with the rapidly changing environmental conditions and the increased pace of these changes due to technology innovation, organizations need to fundamentally transform and restructure their organizations in order to survive in a disrupted environment (Downes & Nunes 2013; Porter & Heppelmann 2014). Digital transformation therefore exceeds the mere digitalization of products and services and companies need to redefine their industries and value propositions (Porter & Heppelmann 2014). Thus, we define digital transformation as the IT-enabled change in organizations through digitalization of products, services, core processes, customer touch points and business models (Fichman *et al.* 2014; Hess *et al.* 2016).

In order to accomplish such fundamental business transformations, organizations formulate digital transformation strategies, establish digitalization initiatives and implement IT in order to survive disruption and to seize emerging opportunities opened up by new technologies (Bharadwaj *et al.* 2013; Downes & Nunes 2013; Hess *et al.* 2016). Scholars from various disciplines and research fields agree that culture essentially impacts the success of business transformations, or as Philip & McKeown (2004) put it: "business transformation is about bringing radical changes in organizational culture in terms of structure, processes and above all, people's attitudes, beliefs and behaviors. Following Venkatraman (1994)'s proposition, that organizational and cultural transformation is essential to fully exploit the benefits from new IT

deployment, the establishment of a digital mindset and a change of culture is therefore considered essential for successful digital transformation (Fitzgerald *et al.* 2014).

Culture has surprisingly only played a minor role in digital transformation research. Taking a closer look at research on digital transformation, most articles only briefly touch upon culture within their actual research topic and lack a clear definition of and approach to culture (Hartle & Hess, 2017).

Recommendation

In order to provide managerial guidance for digital transformation, stakeholders in the educational sector must increase their understanding of how firms can gain a sustainable competitive advantage by building on specific resources, which strategies they should adopt to win, and how the firm's internal organization structure must change to support these strategies (Verhoef, *et al.* 2019).

In the digital transformation process, managers must first create a vision to generate and managed accordingly for an effective learning environment. According to another result, it is possible that school shareholders are involved in this transformation process by letting them access the place and time by supporting content and infrastructure which is technologically appropriate. It is recommended that educational administrators and program specialists be ready for this transformation and have the qualities to manage this transformation (Balyer & Öz, 2018).

The 21st century is characterized by a rapid change in the development of information and

The results of this study propose an organizational culture emphasizing flexibility in order to support digital transformation. Flexibility and agility were found to be key managerial challenges in digital transformation (Piccinini *et al.* 2015) and are considered essential virtues for an

organization to successfully master digital transformation that requires the constant adaptation to an increasingly unstable environment. Transformation processes can be supported by the organization's culture of agility that could facilitate restructuring or the adoption of new management concepts (Kane *et al.* 2016; Hartle & Hess, 2017).

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