

Innovative Management Practices in The Digital Era: Building Resilience Organization

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Abstract

This study examines the accelerating pace of digital transformation has fundamentally reshaped organizational environments, compelling firms to adopt innovative management practices to remain competitive and resilient. This study explores how management innovation in the digital era contributes to the development of resilient organizations capable of withstanding and adapting to technological disruption, market volatility, and systemic uncertainty. Drawing on contemporary theories of digital leadership, dynamic capabilities, and organizational resilience, the research examines the role of data-driven decision-making, agile structures, digital culture, and technology-enabled human resource practices in enhancing organizational adaptability and sustainability. The study adopted the survey method of research design to give the respondents an equal chances of being selected. The study employed the use of regression analysis and the findings showed that the study accepted the alternative hypothesis that there is a relationship between competitiveness and customer retention. Based on the findings and conclusion, the study recommends among others that management should acknowledge the strategic importance of embracing digital innovation not merely as a technological shift, but as a transformative managerial paradigm for building resilient organizations in an increasingly complex business landscape.

Keywords: *Digital leadership, Dynamic Capabilities, and Organizational Resilience*

1. Introduction

High performance organizations are not only eager to be productive, but have seen the need for sustainability. In order to remain sustainable, organizations have to build resilience. According to Kantur (2015) organizational sustainability entails resiliency which aims at enabling adaptive decision-making and the exploration of alternative courses of action in event of turbulent situations. Duchek

(2023) admitted that organizational resilience is a strategic response by which organizations manage environmental threats and crises to ensure success and long-term enterprise continuity. Duchek(2020) asserted that organizational success involves that organizations shall build risk and resilience capacities that aid them to respond appropriately to unexpected phenomena. Building resilience in organizations have been a matter of concern to management scholars and captains of industries. Bustinzaetal. (2016) asserted that incorporating digital technological innovation in different corporations help organizations to become resilient. Mezas and Glynn (1993) added that innovations are key and entail modifying existing organizational efficiencies. Wang and Wang (2012) have acknowledge innovation as a fundamental driver for corporations that are eager to establish sustainable competitive advantages. Verganti and Shani (2016) clearly identified innovation into two dimensions, such as enhancements, and novel trajectories. Enhancements entail solutions geared to better align with prevailing value propositions, address existing challenges, whereas novel trajectory involves charting new courses.

Therefore, the application of digital technology innovations, such as block chain technology, internet of things (IOT), big data analysis, cloud computing, artificial intelligence (AI) and so on, have brought unprecedented opportunities and success for organizations. Digital technology innovation often referred to as digital transformation, is a strategic or paradigm shifts in business models. Few research has been carried out on the area of digital technology innovation, hence it is our intention to add to knowledge by assessing the impact of digital technology innovation on building organization resilience.

Problem Statement

The rapid progress of information technology and the new digital age, in line with innovation of digital

technology is fastly reshaping the business operation mode and its continuity. It is worrisome that many organizations have failed or at the point of collapsing owing to their inability to overcome adversities and environmental threats. In Nigeria for example these environmental challenges range from economic crises such as inflation, currency devaluation, financial debt risks, high cost of production, and so on, which may be attributed to removal of fuel subsidy, insecurity and floating of the Naira in Nigeria. Other environmental threats include natural disasters such Covid-19, and so on. It has been observed that most organizations that fall prey to the environmental threats were unable to build resilience, that is the ability to anticipate, cope and overcome economic crises and other environmental perturbations, while bouncing back and remain more successful. The application of digital technology innovation with the internet as the platform, can build resiliency in organizations which is measured as absorptive capacity, capacity for renewal, and capacity for appropriation. Hence the combination of new generation information and communication technologies with blockchain technology, internet of things (IOT), big data analysis, cloud computing, artificial intelligence and so on, shall influence organizational resilience in order to achieve long-term sustainability, efficient use of resources and knowledge economy (Cao, 2024).

Aim/Objectives of the Study

The aim of the study is to determine the role of digital technology innovation on building organizational resilience.

The specific objectives are:

1. To ascertain the current trends of digital transformation
2. To assess the relationship between digital technology innovation and organizational resilience

Research Questions

1. What are the emerging digital technology innovation?
2. Does digital technology innovation influence organizational resilience?

Literature Review

The extant literature on the previous studies shall be based on theoretical review, conceptual review, and empirical review to aid the researcher to answer the research questions and arrive on the conclusions and recommendations of the study.

Theoretical Review

There are many theories that can be used to discuss digital technology innovation for building organizational resilience, such as modernization theory (MT), Creative Destruction Theory (CDT), Innovation Diffusion Theory (IDT), Technology Acceptance Theory (TAM), Organizational Capability Theory (OCT), and Technological Determinism Theory (TDT), among others. However, the most appropriate theory that underpinned the study, is technological determinism theory (TDT).

Technological Determinism Theory (TDT)

The technological determinism theory assumes that the level of technology of a given society affects how the society operates (Wyatt, 2023). Therefore, organizational progress is influenced by technological innovation. Technological determinists interpret technology in general and communication technologies in particular as the basis of society in the past, present and even the future (Chandler, 2014). This theory is based on the following tenets.

- i. Technological development influences social change and progress
- ii. Technology has an uncompromising power to drive human interaction and social change
- iii. Social progress is related to innovation in technology
- iv. The notion of progress is centralized around the idea that social problems can be solved by technological advancement and which makes society to move to next level.
- v. Emerging technologies bring transformation shifts in society.

This theory explains how emerging trends in technology can play crucial role towards achieving resilience and sustainable development of

organizations. The effective utilization of emerging technology shall guarantee capacity building and organizational sustainability.

Conceptual Review

The following concepts or variables shall be reviewed on the study; Digital technology innovation; organization resilience with its measures as absorptive capacity, capacity for renewal; capacity for appropriation.

Current Trends of Digital Technology Innovation

Itu (2024) has identified that every year a specific emerging technology, and its impact on development, is presented to the society. The series of technological transformation are intended to promote the wide scale deployment of emerging technology to contribute to the achievement of the sustainable development goals (SDGs). Cao (2023) viewed digital technology innovation as having two major features compared with traditional physical technology innovation: firstly, digitalization underscores the innovation of products, processes and management methods through digital technological means, which is often, applying computer technology and network communication technology. Secondly, it implies new tools and new methods. Digital technology innovation involves new tools, methods and means, unlike traditional physical technology innovation which aimed at achieving a certain function in organization. He continued that digital technology innovation can be attained through automation, intelligence, networking, and other means, which can be realized in the production process of an organization. Technically, digital technology innovation involves the digital transformation of existing technologies to improve or enhance production efficiency and product quality (Enhancement Aspect). Also, digital technology innovation can be seen as developing new tools and methods (Novelty Aspect) to meet changing market demands and customer expectations. In addition, it can create wholly novel products and services, and open up new business areas and market spaces through marketing (Cao, 2023). The current trends of digital technology innovation is deep and widespread, touching almost

every detail of business operations. The emerging digital technology innovation includes: Blockchain technology, big data analytics, internet of things (IOT), Artificial Intelligence, Machine Learning, Deep Learning, Natural Language Processing, Immersive Technology, Robotics, Nanotechnology, Cloud Computing, 5G Network, Biotechnology, AI TRISM, Telemedicine, Information and Communication Technology.

- Information and Communication Technology: Information and Communication Technology (ICT) can be described as an umbrella term that connotes all the devices and equipment that aids to connect and to store data. It is majorly classified into four main categories thus: Computing and information technology, broadcasting, Telecommunications and Internet.
- Blockchain Technology: Yoo (2017) defined blockchain as a distributed ledger technology that allows stakeholders in a network to exchange various transactional data between themselves. He continued that, this distributed database installed a regularly growing list of information records in a decentralized manner, forming blocks that are protected against tampering and adjustments of records. According to Duan, et al (2020) common aspects of blockchain technology used throughout industry are “trust”, “data security”, “traceability”, “smart contract”, “decentralization” and “immutability”. Considering those features of blockchain technology, previous authors have claimed that blockchain technology will transform businesses and enhance the integration of economic and legal processes in the digital world. Blockchain technology is widely applied in diverse industrial sectors, thus. Logistics or supply chain, insurance, travel, healthcare, e-commerce, banking and so on (Crosby et al. 2026).
- Big Data Analytics: Sun et al. (2018) argued that the exponential rise of digital technologies did trigger a substantial surge in the amount of data generated across different platforms, such as online shopping, social media, and different digital tools, hence Big Data offers businesses extraordinary opportunities to gain insights into their internal processes, customer behaviours,

and the wider market landscape. According to Barbosetal. (2024) firms adopting Big Data can convert large datasets into practical intelligence, making them to refine business strategies, enhance marketing effectiveness, boost competitiveness, and improve overall performance.

- Internet of Things (IOT): Internet of things devices – 14.0 requires effective integration between workers, machines, products, and consumers to provide benefits for firms and to increase competitiveness in terms of reduce manufacturing costs, shorter lead times, and high product quality (Tiwari, 2021).

According to Kittipanya-ngam and Tan (2020) digitalization enables faster data collecting, analysis, and decision making, potentially leading to more adaptive procedures and optimized workflows. Devas et al. (2018), the IOT can be used as a strategy to increase partners' capacity for integration to enhance supply chain performance. Internet of Things (IOT) integration optimizes supply chains, enhances operational efficiency, and leads to competitive advantages by converting data into strategic insight.

Organizational Resilience

Duchek et al (2020) identify organizational resilience as the enterprise capability to anticipate potential challenges, attend effectively to unexpected phenomena and learn from these events, leading to a dynamic capability designed to facilitate organizational change. Hamel and Valikangas (2004) stress that studies have shown that resilient organizations have the ability to adapt to market forces and more likely to respond to such changes of the business environment. Wildavsky (1988) adduce that resilience is the capacity to align with unanticipated adversities after they have become manifest, learning to bounce back as a going concern. According to Luthans (2002), organizational resilience is the ability of an organization to “bounce back” from adversity, uncertainty, conflict, and failure. In the case of Cumming et al (2005), resiliency refers to the capacity to effectively undertake tasks and return to a steady state after

major perturbation or stress by considering the before and during of the organizational activities. Walker et al (2004) see organizational resilience as the capacity of an organizational system to absorb disturbance and reorganize by undergoing change so as to still remain essentially the same function, structure, identity and feedback. Lengnick-Hall and Beck (2005) define organizational resilience as the ability of an organization to adapt rapidly and sustain main functions in the light of uncertainty, complexity and dynamic environmental change. Amann and Jaussaud (2012) added that resilience describes how an organization acts when confronted with unexpected and powerful events that have the propensity to threaten its long-term sustainability. Koronis and Ponies (2018) suggested that organizational resilience is the ability to recognize and adapt to unexpected change, with the ability to absorb and adapt to crises and change. Lengnick-Hall et al (201) argued that organizational resilience is an enterprise's ability to effectively absorb, develop situation-specific responses to, and ultimately engage in transformative activities to capitalize on disruptive surprise that potentially threaten organizational success. Martin and Sunley (2015) identified three dimensions of resilience as “bounce back” from shocks, “ability to absorb” shocks, and positive “adaptability” in anticipation of, or in response to, shocks. Fletcher and Sarkar (2013) see resilience as a dynamic process involving the capacity to learn and adapt in a positive manner, wherein actors and systems have the capability to cope with and withstand significant adversity. McManus et al (2008) characterized organizational resilience as a function of an organization's recognition of the overall situations, its management of critical vulnerabilities and its capability to adapt to a complex, dynamic and interdependent environment. Tongblad and Oudhuis (2017) identify resilience as the ability to use its technical, economic and social resources in a manner to develop long-term skills and competencies, in an efficient, reliable and flexible situation, and in a way it could control challenges and exploit opportunities. According to Annarelli and Nonino (2016) who added that resilience is the ability to confront disruptions and unexpected phenomena in advance, thanks to

strategic awareness and related operational management of internal and external environmental shocks. McManus et al (2008) identified three resilience management process or dimensions, such as; building situational awareness; managing keystone vulnerabilities; enhancing adaptive capacity. Situational awareness entails comprehending the entire operating environment, including crisis triggers, available resources, and minimum operating requirement. It also requires to understanding stakeholder's expectations, obligations, and limitations both internally and externally. Keystone Vulnerabilities refer to critical components that, if lost or impaired, could have a significant impact on the entire system. These vulnerabilities require careful management during crisis situations. Adaptive capacity refers to organization's culture and dynamic which enables timely and appropriate decision-making in both day-to-day operations and crisis. It involves leadership structures, information management, knowledge acquisition and retention, as well as the organization's creativity and flexibility. Gallopini (2006) in other hand, pointed out the conceptual connections between vulnerability, resilience and adaptive capacity. Resilience is looked at a subset of a system's capacity to respond. The capacity to respond refers to a system's ability to adapt to perturbations, mitigate their effects, seize available opportunities, and handle the consequences of any system transformations, while vulnerability is the overarching concept, which is the capacity to preserve these structure of a system. In other hand resilience and adaptive capacity are considered conceptual subsets, hence resilience refers to the capacity to recover from perturbations. Duchek (2020) found three stages of Resilience Process as; Anticipation; Coping; Adaptation. He pointed out that resilient organizations do not only address past and present situations but also future challenges. Anticipation entails detecting critical development and potential threats, comprising observation, identification, and proactive preparation for unexpected phenomena. Coping as a process of resilience requires accepting problems and promptly developing and implementing solutions through creative problem-solving mechanism. This includes

idea generation, formal and informal coordination. Adaptation requires adjusting to critical situations and leveraging change for organizational advancement, such as reflection and learning, which requires organizations to incorporate crisis insights into their knowledge base. Generally, anticipation establishes a foundation, coping underscores real-time responses, and adaptation ensures long-term learning and organizational progress. Addressing the facilitators of organizational resilience, Dubbe et al. (2018) emphasized that organizations are required to develop resilience capacity that makes them to effectively deal with unexpected events, recover from crises, and even promote future success. Studies have connected various resources and capabilities such as information sharing, innovation, leadership, resourcefulness, financial resources, social capital, technology orientation, collaboration and many tangible and intangible resources and capabilities to organization resilience. Hence Weick and Sutcliffe (2007) identified three dimensions of organizational resilience thus; absorptive capacity; capacity for renewal; and capacity for appropriation.

Absorptive Capacity

Absorptive capacity which can be referred to as strategic intelligence, is an enterprise's capacity to assimilate and use valuable information from the external environment, mainly during times of unrest and emergency, to guarantee its continued existence. During a crisis, it is necessary that an enterprise has the capability to recognize and address the limitations imposed by its environment to secure its longevity (Azzeddine, 2024). According to Germain (2024) absorptive capacity assumes that the firm can cope with shocks, and prevent collapse, which involves not only the presence of resources but also a motive for continuity among managers. Cohen and Levinthal (1990) admitted that absorptive capacity is the ability of an enterprise to recognize the value of new, external information, assimilate it, and apply it to commercial purposes. Belkhdja (2022) argued that the employees' ability to internally distribute their knowledge is important, as it allows other employees to gain the knowledge and facilitate the development of new innovations. Feser (2022) asserted that absorptive capacity achieved through

external knowledge base, can be enhanced through intermediaries such as government, universities, society and even coopetition alliances. Zahra and George (2002) added knowledge transformation is a dimension of absorptive capacity, therefore, absorptive capacity is a set of firm routines and processes by which organizations acquire, assimilate, transform, and exploit knowledge to produce a dynamic capability. They continued, the absorptive capacity process begins with the “acquisition”, that is, capability of a firm to identify and acquire relevant external knowledge; “The assimilation”, that is, capability which includes processes and routines that are needed to analyze, interpret, and understand the new knowledge; “The transformation”, that is, capability which involves developing and refining routines to add to the new external knowledge with the existing knowledge; “The exploitation”, that is, capability which is necessary to integrate the external knowledge into existing processes to arrive at commercial or valued output. These processes are characterized into potential absorptive capacity which composed of acquisition and assimilation capabilities, and realized absorptive capacity which consists of transformation and exploitation capabilities. Balle et al. (2020) concluded that the transition from potential absorptive capacity to realized absorptive capacity is enhanced through social integration mechanisms that constitute networks or coordinators within the firm for knowledge sharing. Absorptive capacity can be linked to a specific manifestation of dynamic capabilities that involve organizational ability to integrate build, and reconfigure internal and external competences to weather rapidly changing environments (Schilke et al., 2018).

Capacity for Renewal

Miller (1983) argued that the capacity for renewal is a resilience method in which the organization intends either to develop new activities, rethink existing ones, or experiment with new methods of doing things. He continued that this capacity aligns with work on the entrepreneurial orientation of the company. Schmitt et al. (2018) focused on strategic renewal of a firm resilience, which identifies firm’s strategy reformulation, reorganization, and

organizational change, revolving to new combinations of resources, hence it is looked upon as dynamic management process for modifying or replacing enterprise’s business models to solve emerging environmental opportunities and risks, for longevity and success. Hughes and Mustafa (2017) argued that achieving strategic renewal goals revolve on effective management of the strategic flexibility and knowledge management practices of the firm. According to Shimizu and Hitt (2004), flexible organizations are willing to identify the weak signals in their environment, and knowing the potential of future business models in a flexible manner, by meeting new customers’ demands, defining new markets, or reversing ineffective strategic decisions. Hussinki et al. (2017) defined knowledge management as a set of activities, initiatives, and strategies that firms apply to generate, store, transfer, and use knowledge within and between organizations. Kianto (2011) emphasized that coordinating the different functions of knowledge management practices will enable firm’s strategic renewal goals through the identification of the relevant information to be focused and prioritize its investments and effort for firm survival. Roberts and Stockport (2009) concluded that knowledge management is a standpoint facto that underpins the fulfilment of a firm’s strategic renewal goals through the enhancement of the availability of the right knowledge, both minimizing mistakes in decision-making and aiding a flexible response to opportunities or threats that are experienced by the organization.

Capacity for Appropriation

Christianson et al. (2009) identified the capacity for appropriation as resilience method that prompts the firm to learn lessons from the shocks it has encountered in order to weather from them and learn for itself. Thorne (2000) argued that capacity for appropriation connotes taking advantage of failures underscores recognizing their contribution to learning rather than neglecting them. Capacity for appropriation can be categorized into three components, thus: resource inventory; creating resource bundles; leveraging resource bundles. Capacity for appropriation is the firms; ability to

effectively integrate and deploy resource bundles, which increases the difficulty of competitors in imitating or developing effective substitutes for these resource bundles, and leading to firm success and long-term sustainability. Lei et al. (1996) assert that manager should regularly upgrade resources through the evaluation, selection, and sometimes shedding of resources, which often involves learning in order to revitalize or even build new resources. Therefore, a manager must employ an appropriate time horizon and have an adequate knowledge about the resources. Dreux (1990) argued that family businesses provide an effective structure to appropriate financial capital because they often have a longer time horizon, and do not have to respond to inappropriate short-term goals imposed by the capital market. Kang (2000) added that family firms' utilization of patient capital creates a better environment for more creative strategies.

Barney and Arikan (2001) argued that the process of configuring and leveraging resources to appropriate rents is creative and entrepreneurial. Hence the process of configuring and leveraging resources requires substantial firm-specific tacit knowledge that is ordinarily embedded in human capital. Amit and Zott (2001) stressed that leveraging resources and capabilities involves the integration of entrepreneurial and strategic management perspectives to develop and implement an effective enterprise model thus: efficiency, complementarities, novelty, and lock-in. Efficiency entails minimizing costs; maximizing complementarities between products and services, between technologies applied, and between activities; novelty entails the importance of innovation (in all types of market); the business model should be designed to achieve lock-in, by building high switching costs for customers (e.g. loyalty programs, trust, customization), and developing positive networks. Capacity for appropriation involves the ability of family firm-managers to diversify their patient and survivability capital to other much needed products or services to reduce dependence on a single product line especially during economic crises. It also entails the ability of family firm managers to leverage their social capital to access new markets, needful partnerships

and enhanced internal resources to remain sustainable amidst economic crises. And the capacity of family firm managers to leverage or seize the opportunity of firm's reputation to gain more market shares and contracts. Shimizy and Kochhar (2001) found that human capital has direct and indirect (interactions strategy) influence on firm success. Brush and Artz (1999) found that firm-specific resources and capabilities utilized by the industry influenced success and affected sustainable competitive advantage.

Empirical Review

The empirical studies discuss the relationships between digital technology innovation and organizational resiliencies. Awad and Martin-Rojas (2024) investigated the influence of digital technologies on augmenting the resilience of small and medium-size enterprises (SMEs) in the Andalusia region of Spain. The research design was a field survey, with a sample size of 376 small and medium-sized enterprises selected through purposive sampling to arrive at valid sample of 259 respondents. The study used regression analysis to analyse the hypotheses. The findings revealed that digital technologies enhance SMEs' learning capacity and stimulate innovation (absorptive capacity and capacity to renewal) respectively. Also, digital technologies improve firms' adaptability, increased flexibility, which enable SMEs to respond adapting to market fluctuations and capitalize on emerging opportunities (capacity for appropriation). Markman and Venzin (2014) asserted that organizational resilience can be built through various organizational dynamic resources such as structure, practices, cognition and behaviour, enhanced by digital transformation, hence organizational resilience is the ability of organizations to anticipate, prepare for, respond to, adapt to, and recover from unexpected changes and perturbations. Vogus and Sutcliffe (2007) added that the knowledge generated through education is a contributor to firm resilience. Ma et al. (2018) asserted that a firm's ability to think, learn, and grow from disruption is related to its resilience. Liu et al. (2011) admitted that digital technologies aid to enhance competitive advantages by leveraging existing firm resources and developing

new capabilities. Wessel et al. (2021) argued that digital technologies relate to organizational change, leading to a change in value creation and consumption patterns. Galinde-Martin et al. (2019) added that integrating digital technologies into business processes, especially during COVID-19. Pandemic era, as a result of business continuity and loss reduction, that technological devices are introduced, such as corporate websites, electronic applications and social media (eg. Instagram, Facebook, WhatsApp) assist to advertise products and services online. Ulas (2019) also added that digital technologies which aided the use of video conferencing, e-learning and e-commerce and marketing have generated a strong response from firms' capacity for renewal. Diaz-Chao et al. (2015) asserted that digital technologies are driving changes in the business environment by creating new opportunities and innovative initiatives, which contribute to the development of supply chains, knowledge transfer, and the enhancement of operational efficiencies.

Conclusions/Recommendations

Generally, digital technologies open opportunities to create new industries, deliver new services, expand existing production systems, create incomes, reduce environmental degradation, and very importantly build organizational resilience. It is evidenced from the extant literature reviewed that the application of digital technologies such as blockchain technology, internet of things (IOT), big data analytics, artificial intelligence (AI) and so on, have enhanced organizational efficiency in terms of transparency, security, optimizing supply chain operations, better resource allocation and improved financial performance. Therefore, based on the extant literature, the study concluded that: Digital technology innovation can enhance organizational learning or absorptive capacity, which will lead to organizational performance and continuity. Also, digital technology innovation can enhance adaptive capacity or capacity for renewal, which will lead to innovation and organizational sustainability. Finally, digital technology innovation can enhance organizational capacity for appropriation, which will lead to leveraging on opportunities and optimum

resource allocation for better performance and sustainable organisations. However, amidst the promise of digital technological innovation, one must also confront the inherent risks and challenges it poses to society. For example, the rise of automation and robotics threatens to disrupt traditional employment models and exacerbate income inequality. Also, the proliferation of digital technologies has given rise to new forms of cyber threats and privacy concerns.

Recommendations.

In line with the study conclusions, the following recommendations are made:

1. Management should embrace the digital age, and adopt digital technology innovation such as blockchain technology, which will bring about transparency, security and supply chain management, especially in manufacturing industry. This in essence will build capacity for appropriation, mitigating business risks and challenges.
2. Management should improve the entrepreneurial will on the adoption and implementation of digital technology innovation such as Internet of Things (IOT), artificial intelligence, and big data analytics, which will bring about better knowledge acquisition and utilization for adaptive capacity or absorptive capacity, which will lead to organizational efficiency and continuity.
3. Management should put more effort in adopting and implementing digital technologies which bring about innovation and opportunity to meet customer demands and market trends. Such digital technologies enhance capacity for renewal, which will lead to competitive advantage and organizational sustainability.

Contribution to Knowledge

The study has added to literature of knowledge by discovering that building organizational resilience whereby organizations will be well equipped to surmount all adversities, and grow stronger, these shall be achieved through robust adoption of digital technologies that have positive significant on

absorptive capacity, capacity for renewal, and capacity for appropriation, all inclusive of building resilience in organization.

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