TITLE: MSR7003R THESIS (RESEARCH WRITTEN WORK)

Topic: The Impact of Digital Transformation on Leadership Styles and Workforce Engagement in Nigeria

Abstract

This research examines the impact of digital transformation on leadership style and employee engagement in organisations in Nigeria. Data were collected using a quantitative research design, through an online survey with 162 respondents. The descriptive and inferential tests suggested that digital transformation had a limited effect on workforce engagement and leadership behaviours. Digital tools increased access to communication, but did not significantly impact employee motivation or adaptability of leadership. On the other hand, investment in digital infrastructure and effective leadership development design were found to be essential success factors in digital leadership. These results highlight the importance of human-centred digital transformation initiatives, especially amidst developing economies. The study supports the literature because by challenging assumptions about automatic leadership change through digitalization and emphasizes the importance of aligning digital initiatives with cultural and organizational realities.

Keywords: Digital transformation, leadership styles, workforce engagement, Nigeria, digital leadership, organizational change.

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Chapter One: Introduction

1.0 Background to the Study

Digital transformation has taken the centre stage in global organizational reconfiguration, redesigning practices of work environments, employee/environment relationships and outlines of effective leadership (Ghosh et al., 2022; Kuritzkes et al., 2022). The emergence and rapid development of digital technologies, such as artificial intelligence (AI), automation, cloud computing, and big data analytics, have made such modification that the business models of the past should now include more dynamic, technology-driven approaches (Kane, 2019). Businesses are also maximizing the use of digital tools to organize the entire process, make better decisions as well as increase productivity. Nevertheless, the above changes involve profound adjustment in the leadership practices to understand the changing workforce demands and organizational arrangements. The shift to flexible, technology-based structures is emerging as a feature of the modern leadership environment that values cooperation, experimentation, and dynamism (Krivokapic & Mathiassen, 2023). Similar to their counterparts in the rest of the world, Nigerian organizations are undergoing digital evolution as one way of keeping up in a digital-centered economy. The change creates the necessity to review the style of leadership and approaches to engage employees to overcome the emerging digital environment.

The role of leadership in influencing organization success and employee commitment has never been ignored. The digital age is rendering such traditional leadership paradigms, frequently defined as top-down management styles, as obsolete (Avolio et al., 2014; Yucebalkan et al., 2018). Digital transformation has also illuminated the fact that leaders should be digitally literate and have the capacity to employ flexible measures that could suit the changes in technology. Sacavém et al. (2025) noted that as organizations developed digital ecosystems, leaders will be required to do more than follow the traditional administrative models by implementing participatory leadership styles that embrace innovation and learning. The future of transformational leadership which focuses more on vision, motivation, and empowerment is highly needed in the digital age as it creates agility and responsiveness to technological change (Northouse, 1999; Ononiwu et al., 2024). Also, participative leadership will help to create a sense of participation and collaboration when implementing effective transitions to digital and securing employee's engagement over an extended period (Musaigwa & Kalitanyi, 2024).

The appreciation of the effects of digital transformation on leadership practice disseminated to Nigeria organizations should provide the key to operational efficiency and workforce productivity within a competitive digital economy.

The effect of the digital transformation on the engagement between workforces are enormous and diverse. The concept of workforce engagement or emotional commitment and dedication of employees to their job position has been altered largely with the introduction of digital workplaces (Saks, 2006; Trenerry et al., 2021). The growth of online social media, new forms of digital collaboration and results-focused employee performance monitoring systems have started to transform the way the work force relates to its workplace. The benefits of digitalization in terms of employee engagement include improved communication, efficiency levels, remote work and access, yet it is also associated with digital fatigue and work-related stress as well as reluctance to technological change (Cesário & Chambel, 2017). A large number of organizations in Nigeria, including others in the rest of the world, have had to grapple with the problem of striking the right balance between the benefits and the adverse consequences of digital tools in facilitating the effective engagement of workforce.

Improved connectivity and communication is one of the most important ways on how digital transformation shapes the engagement of the workforce. Online applications like Slack, Microsoft Teams, and enterprise resource planning (ERP) systems enable workers to work cooperatively irrespective of geographical differences to have an immediate communication and efficiency in operations (Wang et al., 2025). The tools help improve engagement of the workforce through the increased accessibility to information, collaboration and other working arrangements, such as remote work which now supports the changing work preferences of the employees. Nevertheless, aside making workplace more flexible and efficient, digitalization has the ability to to trespass between work and personal lives, and consequently, induce faster work-related stress and burnout (Adisa et al., 2024). The demands which are placed on the employees to be in touch always, answer mails outside the working hours, learn new technologies hectic pace can lead to digital fatigue which can adversely affect the engagement and overall employee satisfaction with the job.

The other key point in workforce engagement in the digital era is the leadership contribution towards leading the employees through digital transformations. Failing to

apply proper training and support over the digital adaptation processes, leaders are likely to face the technological denial among the employees and, thus, lower the overall engagement rates (Ghosh et al., 2022). In the case of the Nigerian organizations, most of which are still in the initial phase of their digital transformation, it is all about providing the employees with relevant digital skills and building a culture of lifelong learning. The role of digital leadership that consists of the bits of transformational and participative leadership is important here. Leaders can help reduce opposition to change and improve the flexibility of the workforce to adopt new digital technology by promoting a warm and welcoming digital culture (Avolio et al., 2014; Bozkus, 2023).

More so, the digital transformation is redefining the way performance of employees is tracked and appraised. Real-time employee assessment of productivity because of the integration of data-driven analytics and AI-driven performance management systems enable organizations to reap the benefits of flexibilities that can be utilized to implement efficiency and improve their operations (Sacavém et al., 2025). Nevertheless, overdependence on the digital monitoring has the potential to raise safety issues about workplace surveillance, privacy breaches and reduction in the morale of the personnel (Musaigwa & Kalitanyi, 2024). Organizations should also balance the usefulness of digital technology in the performance optimization and make employees feel trusted and valued in their occupations.

The necessity of investigating workforce engagement in digital transformation of organizations is specific to the nation of Nigeria. With the growing tendency towards digitalization of the business models of Nigerian companies to become more in-line with world trends, the problem of locating the best practices towards the optimization of leaders and employees gains high urgency. Poor digital infrastructure, poor employee training and opposition to change are some problems affecting many organizations in Nigeria which present a major challenge to effective digital transformation (Ghosh et al., 2022). This study aims to offer information on how these challenges can be overcome and how workforce resilience to digital transformation can be developed by analysing the impact of digital transformation on the workforce engagement. The research will also attempt to add to the expanding literature on digital leadership and engagement of workforce and provide useful ideas to organizations in their efforts to succeed in the digital world.

1.1 Research Aim

The aim of this study is to examine the impact of digital transformation on leadership styles and workforce engagement in Nigeria.

1.2 Research Objectives

1. To explore the relationship between digital transformation and leadership styles.

2. To investigate the impact of digitalization on workforce engagement and

3. To identify strategies for optimizing leadership effectiveness in a digitalized workplace.

1.3 Research Questions

1. What is the relationship between digital transformation and leadership styles?

2. What is the impact of digitalization on workforce engagement?

3. What are the strategies for optimizing leadership effectiveness in a digitalized workplace?

1.4 Rationale for the Study

This research was initiated by virtue of the growing need to examine the effects of digital transformation on leadership styles in Nigeria. With the adoption of digital technologies in organizations, leaders must spearhead the change process and the retention of the workforce. The research on digital leadership primarily helps understand how the leaders of developed economies practice digital leadership which cannot be used to study the digital leadership in emerging markets, such as Nigeria (Petry, 2018; de Araujo et al., 2021). This existing knowledge gap on the way digitalization is changing business leadership and work involvement in Nigeria is to be filled with research in the light of its unique economic, cultural and infrastructural peculiarities.

The leadership styles have a direct impact on the motivation of workforce and the satisfaction of their employees that are used to say that performance standards of organizations (Goleman, 2017). To meet the demands of emerging digital work environments that entail remote working and effective provision of multi-teamwork and data-led decision platforms in the contemporary workplaces, leaders require developing novel digital capabilities. Poor digital infrastructure, lack of skills and organizational resistance to changes are some of the barriers to successful execution of the digital transformation within any of the organizations in Nigeria (Omowole et. al., 2024). One

can study the experience of leadership qualities accompanying the digital amelioration of how companies can overcome the challenges as they develop the methodology of executives to enhance employee participation.

1.5 Significance of the Study

Findings of the research will be of great value because of several important features. The proposed study will enlarge the knowledge base in digital transformation by examining the impact of digital changes in the leadership style of organisations in Nigeria. The mechanism of leadership transformation which should occur upon the adoption of digital technologies must be investigated by organizations as it determines the capacity to preserve the competitive potential and organizational resilience.

The findings of the research will examine participation of workers in digital environments. Employees contribute greatly in the determination of the performance level and success of organizations with regards to their manufacturing. The study of the impacts of digital transformation on workforce engagement can allow organizations to find a winning workforce motivation approach towards the running of digital businesses (Truss et al., 2013).

Furthermore, this research will offer practical measures which contribute to optimal performance by leaders in a digital-based working environment. Leadership plans that integrate a digital transformation with human-oriented approaches have to be developed by Nigerian organizations that decide to go through the transformation. The research findings will enable this study to advise policymakers including business and HR practitioners on leadership modelling regarding innovation as well as responsiveness and digital employee welfare building in current working environments.

Additionally, this study will give a comprehensive set of economic implications that have a scope of influence to the Nigerian market. With their successful handling of digital transformation, organizations will contribute more to the economy development. The study will also produce the policies and strategies that will strengthen the digital economy of Nigeria as well as the efficiency of the workforce.

1.6 Structure of the Thesis

This thesis examines how digital transformation has changed leadership approach and employee engagement in Nigeria. The first chapter sets the background, the importance,

and purpose of the research. In the second chapter, the literature and theories are reviewed, particularly Transformational Leadership Theory and Technology Acceptance Model. Chapter Three describes the research methodology which is a quantitative approach involving a purposive and a snowball sampling. In Chapter Four, the findings are statistical and, thus, reveal patterns in leadership and engagement. Chapter Five explains the implication, links the findings to the body of research, has practical implications in the context of digital leadership, and future research in Nigeria.

1.7 Conclusion

This study examines the role which digital transformation plays in leadership practices and employee engagement in Nigeria. With organizations progressively embracing the use of digital technologies, there is a need to transform the leadership style to adopt an adaptive approach that will be participative and transformational to drive innovations and employee solutions.

The following chapter, the Literature Review will set up the theoretical framework of this research by analyzing existing published work and defining the gaps in the studies, thus defining the necessity of carrying out the empirical research of the Nigerian context of organizations.

Chapter Two: Literature Review

2.0 Introduction

Over the last couple of years, digital transformation has become a decisive power that redefines the structure, processes and culture of organizations all around the world. With the need to boost efficiency, flexibility, and competitiveness, convergence of digital

technologies in the corporate world has become the main factor that reshapes the management dynamics in workforce engagement and leadership. This review deeply examines the age long literature bothering on workforce engagement and leadership within the digital transformation context, points out theoretical underpinnings such as the Job Demands-Resources (JD-R) and Technological Acceptance Model (TAM) to showcase the gaps which are identifiable in developing countries.

2.1 Conceptualizing Digital Transformation

Digital transformation (DT) means an extensive incorporation of digital technologies in every aspect of an organization and it results in essential changes in the way it operates, how it creates value to customers, and business models (Vial, 2021). Nevertheless, it does not focus on simple implementation of digital tools, but it also touches on cultural, strategic and structural changes in the organization (Parra-Sánchez & Talero-Sarmiento, 2024). These transformations are not just technical modification but changes which are systematic and re-designs the manner in which organizations operate within and with the external stakeholders in the volatile, uncertain, complex and ambiguous (VUCA) world. In this analysis, the concept of digital transformation is been critically examined through the prism of its dimensions, drivers and realties of the context so that it can be fully understood within the context of emerging economies such as Nigeria.

The dynamic and iterative character of digital transformation implies its constant adjustment to new technological changes and market needs (Ahmad et al., 2022). Unlike isolated technological increment, DT requires organization to be part of learning system where it can evolve itself through responses, iteration and innovation (Westerman et al., 2014). This implies that the companies have to promote a digital mind-set across all levels on the enterprise, stimulating agility, open innovation and customer orientation. Consequently, effective DT is keenly related to digital maturity of an organization meaning how well one can make technology, people and process work as strategic rods (Kane et al., 2015).

The emergence of Artificial Intelligence (AI) is among the main factors stimulating digital evolution, transforming the processes of decision in favour of predictive analytics, automated processes and smart systems. The AI technologies both diminish operational inefficiency and deliver items that can be utilized in wider choice making both in the product development and customer relationship management (Bughin et al., 2017). As

an example, chatbots customer service based on AI solutions have an increased response rate and personalization of the service that increases overall user satisfaction and the loyalty to the brand. However, organizations have to find their way through the ethical and technical consequences concerning AI, including data privacy, algorithmic discrimination and job displacement (Acemoglu & Restrepo, 2020).

Cloud computing is another key enabler of DT which permits scalability, remote access and cost-effectiveness. It enables organizations to transfer information and operations to virtual environments thus enhancing teamwork and business resilience (Marston et al., 2011). The significance of online resilience has also been revealed during the COVID-19 pandemic which reportedly contributed to the rapid adoption of cloud use with a surge in the number of business institutions working either in a hybrid format or fully remotely (Nousopoulou et al., 2022). Other digital technologies like AI, machine learning and the Internet of Things (IoT) can also use the infrastructure of the cloud to create a merged digital ecosystem.

The third pillar of digital transformation is big data analytics which provides the ability to work with huge and complicated data sets and identify some insights and trends. Using customer behaviour, market forces design and internal activities, the organization is able to make right decision based on real time data and this makes the organization more competitive (George et al., 2014). As an example, retail predictive analytics is able to predict changes in demand, improve the level of inventory and segment marketing efforts. Nevertheless, the power of big data relies on data quality, data integration potentials and analytics skills of the organization.

Although transformation provides many opportunities, large claims surround its application especially in the developing economies such as Nigeria. The lack of a stable electricity network, stable internet connection and the price of technological infrastructure are structural problems that would be a source of great hindrance to digital adoption pace and success (Odiche & Amodu, 2024). In addition, digital divide as realized in digital illiteracy, income difference and geographical access further alienates the rural population and the lower-income groups. Such divisions only support the pre-existing disparities that do not allow equal access to the advantages of digital innovation (World Bank, 2022).

Nonetheless, digital transformation has continued to advance in Nigeria and other situations where technological advances are limited, especially with the entry of mobile gadgets. Mobile phones are now an important tool towards accessing financial services, online purchasing systems and learning libraries. The development of mobile banking and Fintechs including Flutterwave and Paystack indicates that digital platforms have the promise of financial inclusion and entrepreneurship (Achieng & Malatji, 2022). The World Bank (2022) asserts that mobile money accounts have grown tremendously in the Sub-Saharan Africa region, thereby alleviating poverty and ensuring economic inclusion of the unbanked.

On the other hand, to achieve effective digitalization in the developing world, it is necessary not only to have government policy-making efforts but also involvement in the private sector and collaboration between sectors. They should be invested in digital infrastructure, regulatory framework on cybersecurity and data protection, and public-private partnerships (Ndungu and Signe, 2020). Also, the talent gap restricts innovation and sustainable digital development and may be filled by capacity building measures to increase digital skills at all educational levels (Prokopenko et al., 2024).

Another decisive factor of success in digital transformation is leadership. It is not enough that the leaders gain a knowledge of the digital technologies but they have to be change agents who can take organizations through disruptions. Particularly, transformational leadership has been observed as efficient in fostering innovation culture, trust, learning, which are essential factors in digital success (Northouse, 2021). More adaptable, collaborative and digitally-savvy leadership styles are more appropriate to approach the non-simple realities of change (Sousa & Rocha, 2019).

In addition, digital transformation organizations need to make a priority of employee engagement and change management. It has been established that employees would be more inclined to engage in digital tools when they notice clear communication, opportunities to get training and support by the leadership (Trushkina et al., 2020). Some of the challenges likely to arise include resistance to change, fear of obsolescence and mismatch of skills, and these challenges ought to be resolved by adopting all-inclusive and transparent measures.

2.2 Leadership Styles in the Context of Digital Transformation

The styles of leadership also play a key role in determining the direction of digital change in organizations since they are directly related to the ability to adapt to the innovation, to cope with complex changes and continue to hold the organization together in the disrupted world. The fast technological change gives rise to the need of a paradigm of leadership which is adaptive, visionary and sensitive to the needs of a person and technology (Maheshwari & Yadav, 2020). Leaders need to be capable of operating through the maze of existing dynamically changing digital environments and being able to make their organizations resilient, creative and strong.

Transformational leadership has been discovered to be especially powerful within the scope of digital transformation because of its focus on motivating and empowering followers to deliver more than they are expected to (Bass & Riggio, 2006). Through this type of leadership, there is focus on vision, intellectual stimulation and individualized consideration which are the key qualities that promote a culture of embracement of technological change. Digital innovation requires transformational leaders who can create an environment in which creativity is promoted, measured risks are taken and workers think outside the box (Odai et al., 2025). As an example, the leaders who are actively embracing the introduction of new technologies, including artificial intelligence and data analytics, are more likely to lead their teams through the challenges of the digital transformation. That can be seen in the companies where transformational leaders have deployed the use of AI to customer service platforms contributing to not only a higher efficiency of business operations, but also customer satisfaction (Bughin et al., 2017).

It is however necessary to note that transformational leadership might not be adequate in every situation in an organization. Digital transformation is also facilitated by transactional leadership which entails emphasis on structured steps, expectations that are very clear and performance-oriented rewards (Burns, 1978). Although this type of leadership does not necessarily lead to innovation, at least the functioning efficiency, compliance and consistency can be guaranteed. These factors especially apply in industries with highly regulated environments or when installing digital tools are being deployed (Porfírio et al., 2021). As an example, transactional leadership is of importance in the healthcare sector when implementing standardized electronic health record system, as the protocols are to be followed to the end to prevent data leaks and guarantee

the security of patients. Thus, transactional leadership, although lacking flexibility, may be used in combination with transformational leadership to keep the environment stable when facing the technological turbulence on an individual or organizational level (Yang et al., 2025).

The shortcomings of the traditional leadership styles in the digital age have led to emergence of newer paradigms which could fit more to the requirements of digital transformation. Digital leadership is one of such new models and it is concerned with using digital technologies to realize organizational success, developing a culture that is data-driven and dealing with technological disruptions that are continuous in nature (Kane et al., 2015). It is not sufficient to have knowledge about the technology, but one must also have the strategic prowess to use such technology as a part of the organizational operations. Yucebalkan et al. (2018) describe digital leadership by their openness towards innovation, continuous learning, digital driving force to drive change and transform their organizations.

Agile leadership has also become prominent due to its level of compatibility with the team-based and iterative digital world. The focus of agile leaders lies in their capacity to make quick decisions to change, empowerment of teams and flexibility that is why organizations that use agile leaders are able to compete successfully in digital markets that operate in a highly dynamic environment (Indiarti & Lantu, 2022). Agile leadership is particularly applicable in technology and software-related industries where iterative innovation and cross-functional teamwork can key to your success. Agile leaders aspire to create a decentralized decision-making model where the team members will be autonomous and have an innovative approach.

Even though servant leadership has been traditionally regarded as more human-focused, it adheres to digital transformation especially when it comes to enhancing the well-being and engagement of employees (Peykar, 2024). Servant leaders also boost trust, morale and the supportive environment with the team members showing appreciation by looking into needs of members. The leadership approach is especially useful in alleviating the stress and uncertainty that usually follows upon a digital transformation process which goes a long way in ensuring motivation among personnel.

All these new leadership styles emphasize the necessity of transforming oneself into a hybrid leadership approach with rational vision, technological and human compassion. According to arguments put forward by Kansil & Sujuti (2024), such a hybrid model allows leaders to take advantage of both the technical and social aspects of digital transformation while promoting how organizations adapt and resist.

When it comes to emerging economies like Nigeria, culture plays an imperative role in determining the perceived success of various leadership types undergoing a digital change (Roman, 2024). Such societies as Nigeria which are hierarchical and collectivistic tend to embrace top down leadership and collectivist orientation (Hofstede, 1984). Although such cultural orientation can be helpful in developing loyalty, cohesion as well as speed of decision making it can also limit innovations and destroy individualistic behaviours. As an illustration, staff members working in such environments will not be keen on voicing new concepts/offering alternative suggestions due to fear authority/conflict.

In order to go through these cultural dynamisms, leaders of developing economies have to reconcile traditional beliefs with new leadership philosophies. This will entail encouraging participation in the decision-making process, encouraging psychological safety at work and allowing employees to own the digital initiatives. In this respect, culturally intelligent leadership is crucial because this kind of leadership considers the necessity to adjust the leadership styles to their cultural environments (Rockstuhl et al., 2011). Combining cultural understanding and strategic digital vision, leaders will be able to establish a favourable environment in which the digital transformation will occur.

Besides, structural issues that are typical of developing economies including lack of digital infrastructure, erratic power source and poor digital literacy, add further problems to digital transformation leadership (Udegbunam et al., 2023). It is not only a promotion of technologies by leaders that is important but also the promotion of capacity-building programs and digital inclusion policies. As an example, mobile technology has become one of the main drivers of digital inclusion in Nigeria and leaders are able to use this issue to induce a great change in such areas as financial services and healthcare (World Bank, 2022).

2.3 Workforce Engagement in the Digital Era

Workforce engagement during digital modernity is a complex concept that has tremendous impacts on organizational performance especially where a high rate of technological transformation occurs. Engagement can be described as the emotional, cognitive, and behavioural state of connection between workers, their job, and organization (Pandey & Sushil, 2023). It is becoming widely acknowledged that engagement is a powerful tool that drives productivity, innovation and employee retention. Kahn (1990) engineered the concept of engagement through establishing its three fundamental dimensions that measure the degree of engagement namely: emotional attachment, cognitive alignment and behavioural involvement. Emotional attachment denotes enthusiasm and commitment of workers to their job, cognitive alignment denotes awareness and acceptance of organizational goals while behavioural engagement is defined as proactive behaviour and initiative with regard to work related activities. These interdependent elements help in providing a comprehensive type of involvement that does not only improve the overall performance of an individual, but also binds organizations together and makes them more adjustable.

Digital transformation has been the aspect that has transformed the engagements within the workforce. Enhancement of communication and cooperation within geographically distant workgroups is one of the major roles of digital technologies. Microsoft Teams, Slack and Zoom are such tools that enable people to communicate in real-time which benefits employees because they are in touch with each other, exchange and share new information and work on projects no matter where they are (Leonard, 2021). They create an atmosphere where everyone feels welcome and can work within the framework of the organization even where the employee is working remotely or in a hybrid system. According to Saks (2006), mechanisms that facilitate effective engagement such as regular meaningful communication, feedback on an employee's performance are all highly improved using digital resources. The use of technologies such as performance dashboards, analytics applications are useful in this aspect to offer real-time values so that employees can keep track of their performance and align their efforts with organizational performance. This opens a culture of accountability, independence and constant improvement which are the key ideals of contemporary engagement models.

Nevertheless, despite all the benefits associated with digital tools, they come with potential risks which need to be maneuvered by the organizations. This makes information overload and digital fatigue possible which reduces the positive effect of greater connectivity due to the vast number of platforms (Tarafdar et al., 2019). Whenever the employees are bombarded with messages, updates and video conferencing, their mental resource might get exhausted causing work disengagement, stress and work dissatisfaction. Moreover, some of the messages communicated through the digital environment are impersonalized while this aspect can degrade the feeling of community and shared purpose that is crucial in the long-run engagement. Therefore, organizations should formulate ways of regulating their digital efficiency and human connection by using communication norms, enhancing digital wellness and offline interactions between people whenever necessary (Leonardi, 2020).

In rising economies, the issues related to using digital workforce are even stronger because of infrastructural and socio-economic limitations. The problem of digital literacy is also severe and numerous employees do not have the needed competencies to use new technologies properly (Chetty et al., 2018). It is not rare that this skills gap is compromised by the lack of access to quality internet, especially in weak or low-density locations. Socio-economics lead to uneven access to digital tools, effectively continuing the unequal rates of engagement at the work and professional growth potential (Assefa et al., 2021). Additionally, a lack of resistance towards acceptance of change is not a unique challenge in the traditional industries where the idea of a digital transformation can cause the feeling of threats to employment. Automation and redundancy fear may add anxiety and minimize the desire in the employees to accept new technologies and approaches (Brougham & Haar, 2018).

There is a need to deal with these obstacles comprehensively by laying equal emphasis on the development of infrastructure and investing in human capital. Emerging economies organizations can establish digital equity by providing training opportunities that are accessible and relevant to the target group so as to uplift digital literacy. Naujokaitiene et al. (2015) take into account the issue of inclusive practices in digital transformation and state that the specially designed training and support keys can contribute to enhanced employee confidence and engagement greatly. Moreover, including employees in the process of deciding whether to implement and adopt digital

tools decreases resistance to change. Democratizing digital transformation means that it makes use of collective intelligence and creativity of the workforce.

The second possibility of improving engagement is the development of the culture of innovation and experimentation. Online platforms may also act as ideation and knowledge-sharing enablers where employees can advance process enhancements and/or strategic initiatives. Tapping into them encourage the value of employee contributions reasserting workers effort into the organization. Bakker and Demerouti (2008) emphasize the importance of such job resources without excluding autonomy, social support and performance feedback which can keep the engagement going and can also be enhanced via smart management of the digital technologies.

Furthermore, digital transformation will facilitate establishing more flexible working conditions in organizations which is also associated with a greater degree of engagement. Such flexibility in work like flexible hours and remote work offers improved work-life balance to the employees and results in the increase in satisfaction and commitment (Gajendran & Harrison, 2007). Nevertheless, to obtain all of these benefits, organizations should clarify their expectations, conduct constant communication and supply permitting technologies so that teleworking personnel stay related to the organizational culture (Choudhury et al., 2021; Odai et al., 2025).

2.4 The Interplay between Leadership Styles and Workforce Engagement

The interactive nature of leadership types and employee engagement is becoming a key source of organizational success, especially in the wake of massive changes that digital transformation has presented (Zhu et al., 2022). With rapid innovation and changing expectations on the part of employees taking centre-stage in the modern work place, leadership assumes a key role in employee engagement processes through the influence of organizational culture, the development of employee motivation and coordinating individual activities with larger scale strategies. Not only do leaders shape the environment of the work, but also they become agents of change through which they can lead their teams through times of uncertainty and creativity by acting with vision, empathy, and resilience (Porfrio et al., 2021).

Transformational leadership has been largely recognized as among the best styles in boosting the engagement of the workforce during digital transformation. This

transformational leadership is based on inspiration, intellectual stimulation and much personal attention to individuals which helps leaders to bond with their team and create the culture of a common goal and personal development (Bass & Riggio, 2006). By formulating powerful visions about the future, innovative thinking, individual contribution recognition, transformational leaders increase emotional, cognitive and behavioural engagement in all the employees. This style ensures the psychological safety and motivation of the employees to adopt change and excel under uncertainty needed in disrupted environment with digital technologies introduced in it (Qiao et al., 2024).

When transforming organizations through digital means, it becomes especially important that the leadership style reflects the same change in needs among the workforce. Employees need not only leadership strategies but also guidance and empowerment to work with new forms of technology and technological paradigm. Transformation leadership is adaptive in nature and could be developed to inculcate creativity, autonomy, and resiliency factors, which are needed in digital readiness. . Leaders with coaching orientation, those who provide frequent feedback and those who have open communication channels have a better chance to assist employees cope with the stress and ambiguity of technological change (Palmucci et al., 2025). This facilitating style makes the workers feel that they are respected and they are heard which strengthens identification and engagement to organizational goals.

At the same time, the rise of digital leadership can be viewed as a transformation of the conventional concept of leadership, focusing on the role of technological skill, strategic flexibility and digital perspective (Kane, 2019). Digital leaders focus on digital fluency of their teams making data-informed decisions engraved and creating a culture of learning and innovation. On the contrary, unlike traditional leadership approaches, digital leadership has brought competencies needed to succeed in this industrial revolution to the forefront. Digital leaders contribute to the creation of such an environment by empowering the employees through the acquisition of digital skills and allowing experimentation, thus ensuring that engagement is both the outcome and the creator of change (Indiarti & Lantu, 2022).

Empirical studies have also been used to prove the correlation between leadership and workforce engagement in the area of digital transformation. Specifically, Okongo (2024) indicate that there is indeed a positive correlation between the transformational or

digital leadership and the increased employee engagement and performance. These leaders do not only show the sight and technological prowess to transform, but also use the digital space to facilitate better communication, collaboration and inclusivity. There is a strategic use of these tools that can strengthen the trust, transparency and connectedness in the teams which leads to a more engaged and aligned workforce (Alneyadi et al., 2019).

Interestingly, though transformational and digital leadership take centre stage when it comes to engagement, transactional leadership based on structure, rewards and compliance requirements, remain relevant, especially in highly regulated industries or functions where practices require a procedural strictness approach (Khan et al., 2018). Transactional leadership helps to engage the employees through clarifying what is expected of them, accountability measure and rewards which can be very effective during a period of transition or in a routine work. Moreover, transactional leadership could stabilize the situation where employees could become overwhelmed by the swiftness of the change that accompanies the transformational leadership emphasis on vision (Suifan & Al-Janini, 2017). The best possible leadership approach thus can be a mixed model combining the motivation of transformational leadership and efficiency of transactional activities.

Contextual issues also apply to leadership in countries whose economies are in their early stages of development such as Nigeria who have to deal with infrastructural shortages, poor access to digital platforms and socio-economic division. These facts require culturally sensitive leadership practice in which the principles of global leadership are localized. Studies have indicated that the Nigerian organizations tend to be hierarchical and collectivist in nature and this could result in corporate leadership and organizational employee reaction (Hofstede, 1984). The leaders in transformational and digital contexts should thus enter cultural expectations very delicately and uphold inclusivity and empowerment without disregarding the traditional understanding of authority and group cohesion (Roman, 2024).

Besides, leaders in such environments can best spur participation to welcome digital inclusion and development of capability. Resistance can be alleviated through investing in workforce training, the digital literacy of the employees and democratizing technology access to make employees feel more comfortable using it. Through combining visionary

motive leaders and pragmatic assistance, managers can encourage their workforce in uniting efforts, also in situations with limited resources (Chetty et al., 2018).

2.5 Theoretical Frameworks

The incorporation of such theoretical frameworks as the Job Demands-Resources (JD-R) model, Transformational Leadership Theory and Technology Acceptance Model (TAM) offers a multifaceted framework in which responses to workforce engagement and engagement through the digital transformation lens can be analysed. Frameworks provide novel perspectives on the issues and possibilities of the digital age especially of emergent economies, such as Nigeria.

2.5.1 Job Demands-Resources (JD-R) Model

JD-R model was created by Bakker and Demerouti (2007), according to which each occupation possesses its unique risk factors that lead to job stress and can be divided into job demands and job resources. Job demands are those physical, psychological, social or organizational features of the job that demand effort to be unrelenting and therefore, they have direct physiological and psychological costs. Job resources, on the other hand, refer to those features that facilitate work objectives, minimize job demand as well as trigger personal development and growth.

Digital transformation also makes jobs more demanding because it presents new technologies, changes working processes and conditions while it requires fast up-skilling. All these factors may pose a greater cognitive load, uncertainty and pressure to adapt to their employees which may result in burnouts when this is not properly addressed (Bakker & Demerouti, 2007). Nevertheless, benefits of digital transformation in the context of job resources also can lead to decreasing autonomy and becoming more efficient due to the acquisition of advanced tools, better communication networks and access to real-time information.

Leadership is significant in balancing such demands and resources. Good leaders will be able to counter the negative impacts of greater job demands thus offering support, effective communication and chances of improving on their skills. As an example, leaders supportive of a psychological-safety climate allow workers to raise issues and ask for help thus increasing involvement in their jobs and limiting burnout (Schaufeli & Bakker, 2004).

2.5.2 Transformational Leadership Theory

Transformational leadership introduced by Bass (1985) focuses on the leadership side of inspirational and motivational approach of the employees in exceeding their expectations by transforming attitudes and beliefs of its employees. Four elements define this type of leadership, namely idealized influence, inspirational motivation, intellectual stimulation and individualized consideration.

Transformational leaders are essential in taking organizations through change in the setting of digital transformation. They express a strong vision of the future, they promote innovations and they offer individual support to those employees who have to face new technologies. Northouse (1999) backs the idea that transformational leaders would ease the process of embracing technological change and thus easier transition would be seen and employees would become more competent in digital skills.

However, as transformational leadership does not dwell on technical competencies of digital leadership, it also focuses on the human element of change. Digital leadership, as Kane (2019) propose, requires a combination of conventional leadership competencies and digital literacy in order to guide a virtual team and use technology to make a positive contribution to organizational success.

2.5.4 Integrative Perspective

JD-R model, Transformational Leadership Theory, and TAM presented together provide the comprehensive picture of workforce engagement in the process of digital transformation. The JD-R model puts importance on job demand and resource balance whereby it is essential to have support systems. Transformational Leadership Theory highlights the importance of transformational and encouraging leaders that can help drive change. TAM offers a gap in the parameters affecting the adoption of technologies by an individual.

In a country like Nigeria where poor infrastructural base has usually served to impede the process of digital transformation, this integrative method deserves special relevance in as far as adoption rate is of concern. The leaders should not only rally their groups, but also make sure that technological changes are place appropriate and accessible. With the consideration of the human and technical elements of digital transformation, organizations could ensure a more active and sustainable workforce.

In general, although job demands and resources, leadership styles and technology acceptance play some important roles in determining workforce engagement in the digital transformation process, their interaction is pivotal. The usage of an integrative approach allowing to include JD-R model, Transformational Leadership Theory, and TAM will help organizations find their way through the issue of change. The process can be highly regarded in the issue of an emerging economy, specifically where context is a major determinant of the achievement of a digital project. Effective leader plus the favourable arrangements of the organization and user fronted technology implementations are imperative features within the construction of an enthusiastic and alterable worker base in the cyber age.

2.5.3 Technology Acceptance Model (TAM)

The Technology Acceptance Model being a product of Davis (1989) centres on the acceptance of technology by the users as premised in perceived essence and usefulness. These perceptions according to TAM, impacts on the attitude of users towards technology which impacts on the behavioural intention and actual usage.

TAM can be exploited by the leaders because the new technologies should be easy to use and obviously useful in the activities of the employees. By offering a multi-faceted training course and showing the practical benefits of technology, it is possible to increase the figures of perceived usefulness and ease of use which positively influence acceptance and involvement (Udegbunam et al., 2023).

Nevertheless, TAM has been criticized to be narrow in terms of its relevance to the external forces that are instrumental in the development of organizational structures as well as socio-economic environment and such is the case in the third world countries like Nigeria. Wang et al. (2025) further postulate that secondary factors like constraints in infrastructure and the cultural thinking towards technology have a serious impact in adoption and propose TAM to be generalized with some extended analyses.

2.6 Gaps in the Study

Digital transformation and leadership are interacting in this dynamic scope of workforce engagement, so current studies are sensitive and largely concentrated on developed countries (Cesario & Chambel, 2017; Baptista et al., 2020; de Araujo et al., 2021), which leaves a considerable gap in the scenario of developing nations like Nigeria. Whereas eco-systems of developed countries tend to profit due to high infrastructural levels, digital

literacy rates and an established technological environment, such factors cannot be compared to Nigeria where infrastructural constraints, expensive access to digital resources, poor internet quality and low digital skills exposure become significant transformation obstacles (Owusu-Ansah et al., 2024). Irrespective of these challenges, the Nigerian organizations are undertaking digital activities and therefore, research on how the leadership styles are being modified to suit the relative local restrictions and workforce competencies is more needed.

Moreover, owing to a specific socio-cultural context in Nigeria which is founded on hierarchical power distance, collectivism and socio-economic inequality, both leadership practice and employee engagement are different in the country to the Western experience. Most empirical studies look at the impacts of the said cultural and structural dimensions on digital change management or even the sustainability of engagement strategies in a transformed condition. Little research is also available on how transformational and digital leadership can be indigenized to suit the realities of the Nigerian organizations.

One more layer of complication and possibility is brought in by emerging technologies and artificial intelligence at the forefront. AI tools can facilitate decision-making, automate management tasks and offer personal engagement approaches. Nevertheless, little literature exists in investigating the ethical and effective ways through which leaders in Nigeria can incorporate AI into their leadership side to boost workforce engagement. These research will address such research gaps and provide culturally informed, evidence-based approaches to digital development in Nigeria.

2.7 Conclusion

The reviewed body of literature highlights the fact that leadership, workforce engagement & digital transformation have a complex, but equally important overlap. It goes without saying that leadership styles, especially transformational and digital leadership, are critical to determining the response of employees towards the demands and opportunities of the changing technology. Leadership theories can illustrate the effects of supporting or undermining the changes brought by digital transformation relating to the framework of job demands-resources (JD-R) model and the Technology Acceptance Model (TAM) theories.

Chapter Three: Methodology

3.0 Introduction

Through this chapter, the researcher describes the methodological approach to be used in studying the effect of digital transformation on leadership and workforce engagement in Nigerian organizations. In order to do this, the chapter will start by describing the philosophy of research selected that is positivism and explain the deductive method of testing the hypothesis. It goes ahead to elaborate on the research design which explains

why quantitative, cross-sectional strategy design is most appropriate in gathering quantifiable data at one moment.

3.1 Research Philosophy

When undertaking a research, the philosophical stance taken by the researcher is important in defining the research design, assumptions regarding the reality and also in decisions about the methods to be used. Philosophical approaches normally touch on three dimensions: the ontology (how reality works), epistemology (of that which one seeks to know) and axiology (the role of values in research). Some of the prevailing research paradigms fall under positivism, interpretivism, critical realism, and pragmatism where each has a different way of viewing the research problem.

Positivism, employed in this research work, is based on the view that the reality is an external and objective and may be measured with the help of empirical observation and rational thinking (Creswell, 2014). Positivists state that knowledge can be derived using systematic and value-free inquiry and it is this knowledge which can be used to discover laws or generalisations which can be used to explain human behaviour. The paradigm correlates with quantitative research to a great extent as it focuses on analyses using statistics and structured measures.

Interpretivism on the other hand supposes that reality is socially constructed and subjective and that the detailed insight into the meanings that people attribute to their encounters should be promoted. This philosophy is especially appropriate in the study of the complex, context-sensitive phenomena which are usually explored through the qualitative methods, like interviews and participant observation (Saunders et al., 2019). As much as it is insightful in terms of its ability to identify the nuances about human behavior, interpretivism cannot be used to benefit generalization and the impartial metric measurement that forms the root of this research.

Critical realism stands amidst positivism and interpretivism. It also accepts that though a real world exists outside our perception, our perception of that world is subjected to the social, cultural and historical backgrounds (Bhaskar, 2013). The paradigm supports the researcher to seek beyond what can be observed to understand the underlying structures and mechanisms that shape the observed phenomena. Although the critical realism provides an additional depth, its application usually necessitates mixed-methods

investigation and stratified inquiry which are not of relevance to this research simple-investigation emphasis on quantification.

Pragmatism supports flexibility in methodology including qualitative and quantitative methods as long as the study problem involves either one or both approaches (Tashakkori & Teddlie, 2010). Rather popular in applied study, pragmatism has not a certain consistent ontological or epistemological position which can undermine philosophical integrity. It is eclectic to a maximally interdisciplinary or exploring study.

Since the focus of the current research is the connection between digital leadership and the engagement of the workforce based on such quantitative variables as the styles of leadership and the indices of employee engagement, positivism is the philosophical option that best suits this research. The purpose of the study is not to recognize perceptions of the individual but rather create definite patterns and correlations between constructs through measurable data. Consequently, a positivist philosophy allows the researcher to stay objective, use an ordered measurement tool (e.g., survey) and use statistical analyses to prove or disapprove theoretical ideas.

3.2 Research Approach

The research approach is the term that describes the rationale of logics that relate theory and empirical evidence. They include deductive, inductive, and abductive reasoning as the main ones. Each provides a different route to the development of theory into data interpretation.

One of those, which was applied in the present study, is a deductive approach, or as it is sometimes called, top-down approach, the building blocks of which constitute the existing theories or conceptual models which are used to set up hypotheses or objectives. The hypotheses are subsequently subjected to empirical data, collection, and analysis which is usually quantitative in nature (Robson & McCartan, 2016). Deduction goes from broad to the specific, whereby the researcher confirm constructs of knowledge in fresh environments. Within this research, theories that can be used to justify a certain, testable relationships will include transformational leadership theory (Bass, 1985), Job Demands-Resources (JD-R) theory (Bakker & Demerouti, 2007) and Technology Acceptance Model (TAM) (Davis, 1989).

Conversely, an inductive method is the opposite which starts with observations or data gathering where patterns and trends come about and thus new theories are developed. This is also common in qualitative study, where contemplation, context and keen exploration requires importance as opposed to generalization. Induction is appropriate where the field of study has been under-theorized or where one is aiming at building theory. Although useful in an explorative study, it does not reflect the aims of the present study that has to do with justifying a theory on basis of statistical data.

A third option involves having an abductive approach which is sometimes termed as a combination of both deduction and induction. The process of abduction starts with shocking or perplexing observations that cannot be attributed to the currently established theories which cause the researcher to switch over and over between data and theory in order to formulate the maximally available explanation (Dubois & Gadde, 2002). It is widely applied in case studies and grounded theory studies in which a new theoretical formulation appears as the study progresses. The abductive method, however, sometimes lacks the predictable order more likely to result in hypothesis testing and quantification, although it can be very effective in the production of new insight.

Deductive method is therefore best suited in this study because of a number of reasons. To begin with, the study will be designed to establish the findings on a relatively new setting, i.e., Nigerian bodies that are being transformed into digital ones which is why deduction will be appropriate. Secondly, the research variables being studied such as leadership styles, the degree of engagement, digital readiness are measurable and based on a previous literature, thus it is possible to formulate certain objectives. Thirdly, the deductive reasoning underpins the administration of a structured online survey as well as the analysis of statistical data using two methods to increase the reliability and generalizability of findings.

Besides, the deductive method is consistent with the positivist philosophy which supports the objectivity, measurement and empirical validation of the research. This study is not intended to find out the way individual participants view digital leadership instead, create generalizable correlations between the digital styles of leadership and the engagement of the workforce within the organizations in Nigeria.

To sum up, positivist paradigm and deductive reasoning present a coherent and logically consistent premise of the study. They advocate an orderly research approach that would generate statistically significant information on how leadership helps bring about engagement within a digitally transforming organizational setup. Although other philosophies and methods could provide useful feedback, they do not conform to the peculiarities of the objectives, context, and range of the current study.

3.3 Research Design

Selection of research design is core to determining the direction, validity and reliability of any empirical research. In this study, a quantitative cross-sectional research design is embraced. It is worth briefly analysing the key research design types, that is, qualitative, longitudinal, experimental and mixed methods, to be able to thoroughly review their applicability and challenges in the framework of the given research.

Qualitative research designs are normally applied to study multiple aspects of meanings, experiences and perceptions that a researcher may want to explore in-depth. Subjective judgment is highly impractical in this approach psychologically and the method usually concentrates on small and non-random groups. Although qualitative research is important during identification of underlying themes or formulation of theories (Creswell, 2014), it does not hold the potential to statistically test the theory or generalise the results to a bigger population. In the current research where some of the attributes to be measured include leadership styles and employee engagement through the adoption of the standardized scales, then the qualitative design would especially be ill-fit since it would lack the objectivity and the expected replicability.

The techniques that study the changes and causal relationship with a certain level of strength are longitudinal designs where the data is collected in the course of time (Saunders et al., 2019). Nonetheless, the longitudinal study is resource-consuming and time-consuming which makes them inapplicable to the scope and length of time in this current research. Instead, experimental designs concern taking independent variables and using them to note the causes on dependent variables. Even though this type of design provides a high internal validity, the aspect of strict design and unnatural settings commonly used in the construction of the design do not reflect real circumstances, especially in terms of organizational research (Bryman, 2016). This research is not

showing an intention to manipulate leadership styles or sets on the ground but observes and quantifies details that are manifest.

The mixed-methods research that is based on the combination of both quantitative and qualitative research methodologies deliver an in-depth view of the phenomena including not only statistical data but also the surrounding context. Although this design has the potential to achieve more interpretive potential, it requires more resources and complexity in its methods. In a research that is more inclined towards determining predetermined variables based on hypothesis testing, mixed methods can be quite unnecessary and out of the scope.

In consideration of this fact, the most suitable research design in this study is a quantitative and cross-sectional research design. Quantitative research is helpful in that it allows a researcher to measure variables objectively and serve statistical analysis which is crucial when it comes to hypothesis testing which would be put in place by the theories like the transformational leadership technique and the Job Demands-Resources (JD-R) model (Bakker & Demerouti, 2007; Bass, 1985). Specifically, a cross-sectional design reflects gathering data at one specific time so that the researcher could capture a snapshot of the attitudes, behaviours or relationships at the moment (Creswell, 2014). This is a useful method and very effective in occasions seeking to capture relations and trends in a given period.

Additionally, cross-sectional design increases generalizability of results particularly when coupled with proper sampling methods and a substantial number of the sampling population. It will fit well to this research goal of being able to learn how the various leadership styles impact on level of employee participation in the digitalization process of organizations in Nigeria where immediate information in real time is more important than data over a period of time. The structured surveys employed by the study will allow generating results that can be trusted and reproduced which are statistically analysable and will add theoretical and practical insights.

3.4 Data Collection Method

Selecting an appropriate data collection method is vital to ensuring the validity, reliability, and efficiency of research outcomes. In this study, data was collected using an online survey administered through Google Forms. However, before justifying this

choice, it is important to critically assess alternative data collection methods such as face-to-face interviews, telephone surveys, focus groups, and mailed questionnaires.

Face-to-face interviews are commonly used in qualitative and mixed-method studies due to their ability to elicit rich, in-depth responses. They allow for probing, clarification, and observation of non-verbal cues (Creswell, 2014). However, interviews are time-consuming, expensive, and often impractical for studies involving large sample sizes. For this research, which seeks numerical data from 200 respondents, face-to-face interviews would not offer the efficiency and scalability required.

Telephone surveys, while more cost-effective and quicker than face-to-face interviews, still pose limitations in terms of geographic reach and respondent availability. Additionally, phone surveys often lead to low response rates, and their effectiveness can be influenced by network issues or respondent fatigue (Saunders et al., 2019). Focus groups are effective for collecting opinions and fostering interactive discussions but are unsuitable for large samples and objective measurement of predefined variables, as required in this study.

Quantitative data used to be standardized by the use of mailed questionnaires to collect data especially in the developed contexts. Nevertheless, they are fast becoming outdated especially in most developing areas because of their lack of reliability through the postal system, lack of returns and increased cost (Bryman, 2016). These drawbacks make them unsuitable in studies that time conscious such as this one.

With these constraints, online surveys, especially those conducted with the help of Google Forms have great benefits. They are also cheap to conduct, simple to implement and enable the practitioner to obtain data in a wide geographical spread without straining too much logistics. At the Nigerian scene, the availability is boosted by enhanced internet penetration and the use of smartphones by the working professionals. Moreover, surveys through internet allow fast collection and analysis of data which also helps in developing cross-sectional study design and quantitative methods in the study (Evans & Mathur, 2005). Another aspect as noted by online formats is that it is anonymous. Hence, honest answers will be given so the result will be reliable as well.

3.5 Population, Sampling Technique, and Sample Size

The population, sampling method and the size of the sample, these factors are of primary importance in quantitative studies that seek to obtain statistically significant and generalizable findings. The target population in this study includes employees in the Nigerian organizations that are going through digital change especially, small and medium enterprises (SMEs). Such workers are chosen on the basis of their direct contact violating the leadership practices and workforce involvement under the conditions of technologically changing environment within organizations. This narrow focus will see the company focus on the businesses that have undergone digital transformation being one that is not widespread in all businesses and business sizes in Nigeria, thus making such a subset of firms worth studying. Narrowing the sample will make the data reliable because it is relevant and contextualized (Creswell, 2014).

In order to access this population, the research uses a mix of the purposive and the snowball sampling methods. Purposive sampling also describes a selection strategy that helps find such participants whose inclusion into the study is determined by particular inclusion criteria, e.g., working or having experience in organizations that are transforming to be digital or focusing on leadership practices involving digital change. The approach will make sure that the study collects information about those people who have a specialized knowledge and expertise on the matter that is relevant to the aims of study (Etikan et al., 2016). This is supplemented with the use of snowball sampling where the initial respondents recommend others with the same characteristics, thereby extending the scope of the survey to a group of relevant respondents. In such contexts as Nigeria where organizational access can be limited because of gatekeeping, low digital penetration or due to issues with data sensitivity is especially useful (Naderifar et al., 2017).

This study will select participants showing a total sample size of 200. This figure can be explained by the quantitative character of the research where the higher the sample, the more statistical power there will be, the narrower the margin of error will be and the more it will be possible to generalize the results (Saunders et al., 2019). A sample size of this size is usually sufficient to draw any relevant statistical tests in relation to cross-sectional studies like t-tests, regression test or a correlation test. Although it is not a comprehensive sample of all the workforce in Nigeria, the purposive and snowball

sampling approach used to select the participants is specific to the research purpose or question because credible and applicable data on the connection between leadership styles and employee engagement during the digital transformation is achieved.

3.6 Data Analysis

The Statistical Package for the Social Sciences (SPSS) is a famous software application in quantitative research through which data analysis in this study was performed. The SPSS is known to handle large amounts of data and run intricate statistical operations in a very quick manner and this feature makes it very suitable when it comes to data analysis, especially when it is collected on a group of 200 respondents in sample size. It has a friendly interface and inbuilt tools to do a descriptive analysis as well as inferential analysis which is necessary in interpretation of patterns and testing hypotheses using empirical data (Pallant, 2020).

Mean, frequency and standard deviation are descriptive statistics also used to summarily present the demographic data on the participants, their level of engagement and their perception on the leadership styles. These actions play a pivotal role in determining overall trend and distribution of the data. An example was that the numbers and percentages were used to measure the number of participants who had high levels of engagement whereas the means and standard deviations provided an idea on the central tendency of the responses to the survey questions and the dispersion of the measurement (Field, 2024).

Correlation and regression analysis are the type of inferential statistics relied on to study the relationships between variables. Correlation analysis enabled the researcher to gauge the extent and the direction relationship between leadership styles and workforce engagement. The regression analysis also made possible the exploration of predictive relationships, considering the level of influence leadership practices has on substituted engagement outcomes in digital transformation. It is this reason that these methods are very well suited to a deductive method of research because they can be utilized to generalize the results to larger populations (Bryman & Bell, 2015).

3.8 Ethical Considerations

The most important factor of any research on human participants is the ethical consideration especially when the study has a survey method of data collection as done in this research. The research followed institutional research ethics that were provided by York St John University and the research was designed and carried out in such a way that respects the rights, dignity and well-being of the participants. Where ethical approval was obtained, it was done via the relevant university ethics committee before the data were collected, which is an indication that the author would like to be transparent and responsible in their research activities (Bryman & Bell, 2015).

The informed consent was one of the ethical measures that were applied. The participants have obtained a clear and full picture of the purpose of the research, strategies, possible risks, and benefits. The foregoing information was incorporated in the introductory part of the online survey form (through Google Forms) and the respondent was expected to acknowledge their free willingness to take part in the study by selecting an assent check box before getting started. That is congruent with the principle of autonomy and informed choice as described in the ethical code of British Psychological Society (BPS, 2018).

The variables of confidentiality and anonymity were observed in the research process. None of the personally identifiable details were requested and the answers given by the participants were always kept safely and accessible to everyone but the researcher. The factors to be identified included the anonymising of data at the point of analysis and presentation in order to rule out attribution to individual members. Data encryption and the protection of access by a password in the use of online survey tools were also achieved, as suggested by the General Data Protection Regulation (GDPR) guidance (EU, 2016).

It was all voluntary and the respondents were informed that they could withdraw at any time without any implication. This liberty diminished the likelihood of intimidation and this was more so considering that the research was conducted through snowball sampling and this mode of sampling may at times provide peer pressure. Overall, the research design was guided by stiff ethical standards which makes certain that the integrity of the study and the participants' well-being is guaranteed.

3.9 Limitations of the Methodology

Although the selected approach offers interesting information about the correlation between digital transformation, leadership and employees engagement, it still has its drawbacks. The first is the cross-sectional research design. This design limits the capacity to make causal conclusions concerning the variables of interest because data were measured at a single-point in time. One can observe statistical relationships, however, the precedence within series of events cannot be determined, i.e., the results can only indicate some association, but not the cause and the effect (Bryman, 2016).

The other methodological issue is based on the fact that non-probability methods of sampling were used in the research purposive and snowball. Although such methods will be efficient to recruit the participants with particular knowledge and experience concerning the topic, it brings potential biases. This is specifically true with snowball sampling because the sample may become homogeneous with people referring to other characters in their professional or social circles (Naderifar et al., 2017). This can weaken the overall representativeness of the sample and allow the narrowing of the general results.

To counter such limitations, attempts were made to include diversity in the sample by ensuring that the snowball process began with diverse organizational landscape, industries and geographical locations in Nigeria. Also, a relatively large sample size (n=200) contributed to the increased plausibility of statistical analyses and gave a wider understanding of the subgroups. Though such measures do not allow completely reducing the limitations, they minimize them and achieve better reliability of the study results and their relevance.

3.10 Conclusion

This chapter has given a clear picture of the methodological decisions that have been made in conducting the study concerning effect of digital transformation on leadership and employee engagement in Nigeria. The research was premised on a positivist philosophy and deductive method and tried to research on observable phenomena objectively through testing of pre-determined theories like the Job Demands-Resources (JD-R) model and the transformational leadership theory. This choice in design (quantitative, cross-sectional) allowed obtaining all the data in a numerical form at one time, so it was possible to generalize and analyse the data based on statistics.

Chapter Four: Analysis and Interpretation of Findings

4.0. Introduction

This chapter presents the analysis and interpretation of the data. Participants were presented with online questionnaire through Google form. A total of 162 participants completed the online questionnaire. The collated data was analysed using descriptive statistics and inferential statistics. Specifically, the demographic statistics of the participants was displayed graphically with the frequencies provided. Afterwards, summary statistics (mean and standard deviation was estimated for the variables measured on Likert scale. The mean value was now compared to a hypothesised value of 3 (the middle point of the scale i.e. midpoint of 1-5). Average values that are significantly greater than 3 denotes agreement while average values that are significantly less than 3 denotes disagreement. Average values that are not significantly different from 3 denotes that majority of participants are neutral or that the proportion of participants that agree and disagree are close, whichever of the two interpretation is correct is further determined by graphs showing frequency distribution.

4.1. Demographic Statistics

Fig 4.1 – Fig 4.8 presents the distribution of participant's demographic information. Fig 4.1 revealed that participants between 25 and 34 years as they constitute 76.73% of the population. 14.47% of the participants are 35-54 years, 8.18% of the participants are between 18 and 24 years while 0.63% of the participants are between 45 and 54 years. The age distribution reflect a youthful sample which is ideal for this study's focus on digitalisation as young employees are more likely to understand issues relating with digitilisation in their organisations.

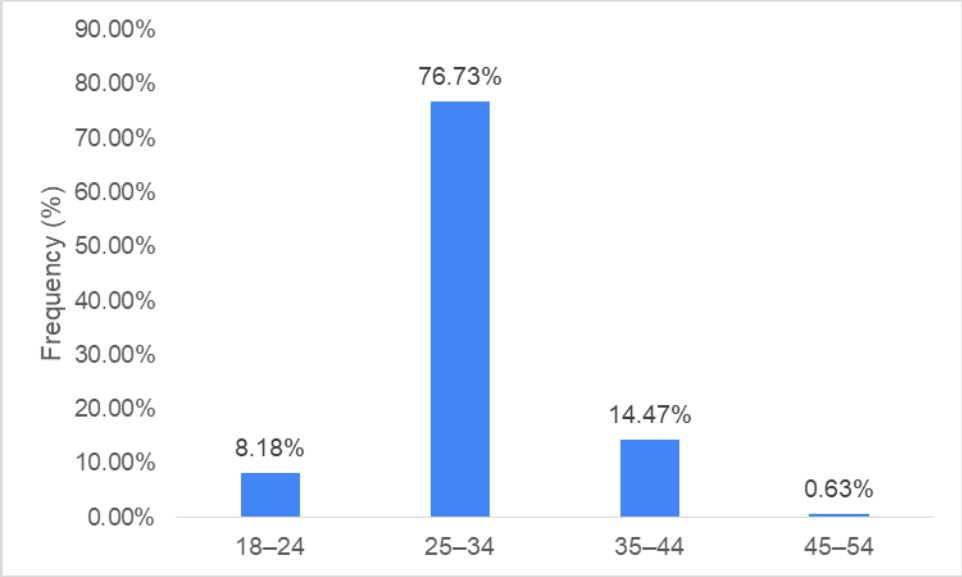

Fig 4.1: Distribution of Participants' Age

Fig 4.2 presents the distribution of participant's gender. The result revealed that the sample is dominated by female gender with 78.26% of the participants identifying as female while 21.74% of the participants are male. This disproportionate distribution is not expected to affect the findings because the topic of this study is not gender-sensitive.

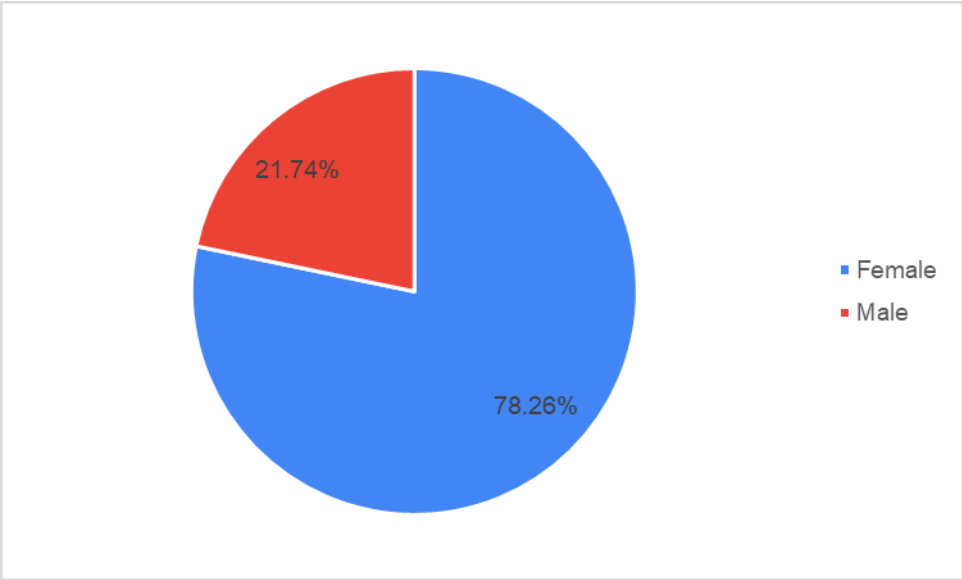

Fig 4.2: Distribution of Participant's Gender

Fig 4.3 revealed the distribution of participants' educational qualification. The result revealed that majority of the participants possess Bachelor's Degree with 63.58% of the participants falling into this category. 12.35% of participants have Master's degree while 1.85% have Doctorate degrees as higher educational qualification. On the other hand,

19.14% of participants have Diploma while 3.09% have high school as highest educational qualification.

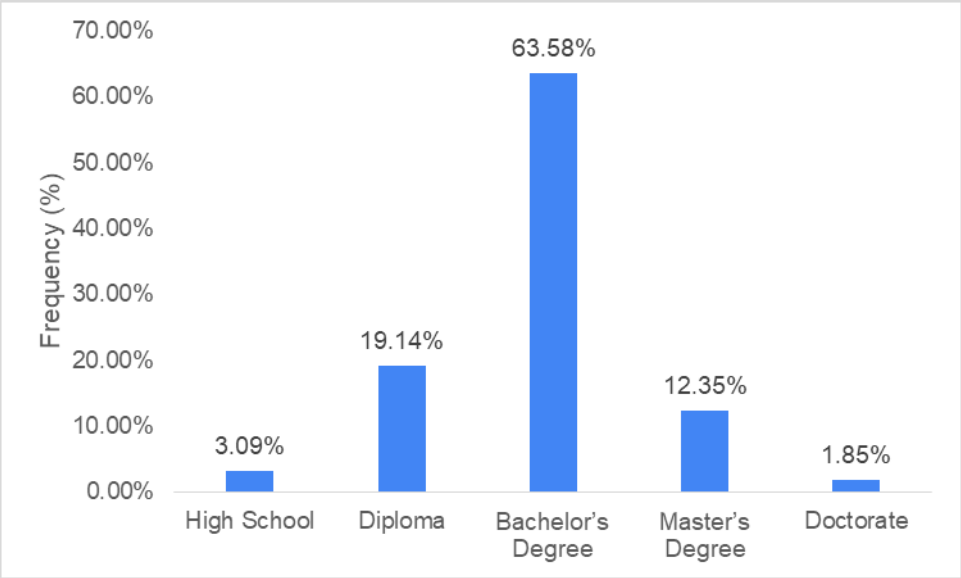

Fig 4.3: Distribution of Participant's Educational Qualification

Participants were asked how long they have been working in their organisation and the response is displayed in fig 4.4. 66.05% of participants have been working in their organisation for 1-3 years while 26.54% have been working for 4-6 year and 0.62% each have been working in their organisation have been working for 10 years and more than 10 years respectively.

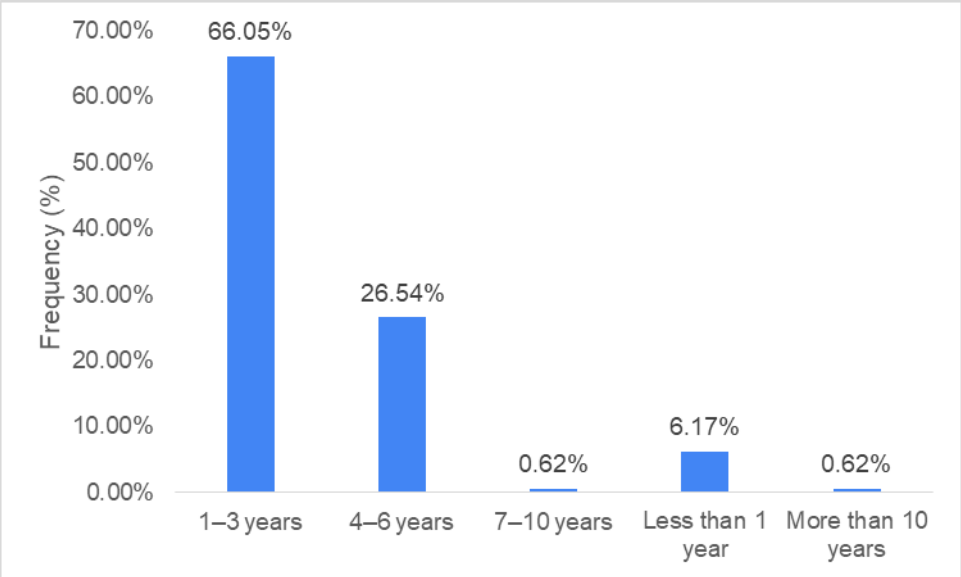

Fig 4.4. Distribution of Working Experience

Fig 4.5 presents the distribution of participant's current job level. 53.46% of participants are mid-level employees while 30.82% are senior-level employees. 13.21% are entry-level while 2.52% are executive. This distribution reflects that the sample has sufficiently experienced employees to provide meaningful insights.

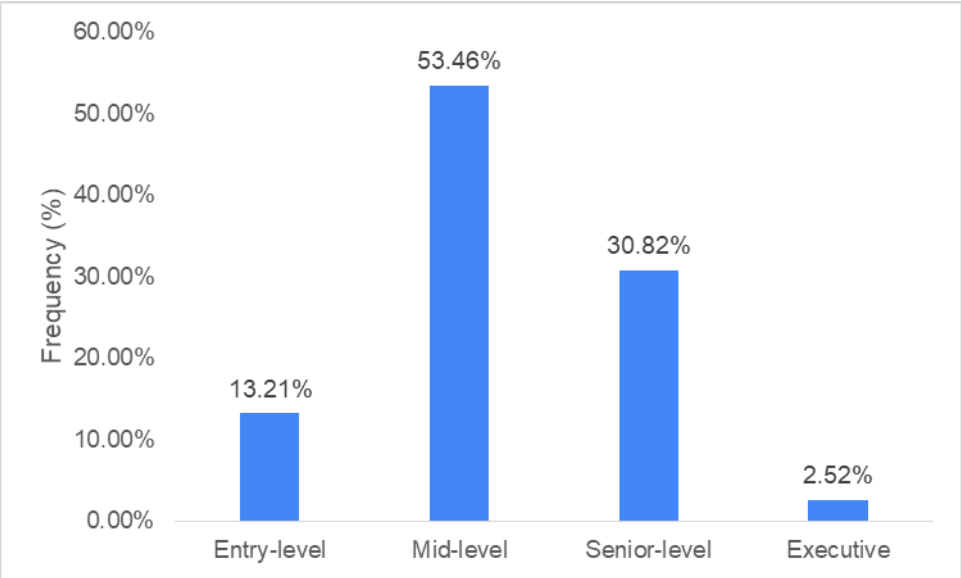

Fig 4.5: Distribution of Participant's Educational Level

Fig 4.6 presents the distribution of sectors where participants' organisation operate. 45.68% of participants work in the private sector while 49.38% of the participants are operating in the public sector and 4.94% works in organisations that operate in 4.94%. The proportional representation of public and private sector ensures that the result can be applied to both sectors.

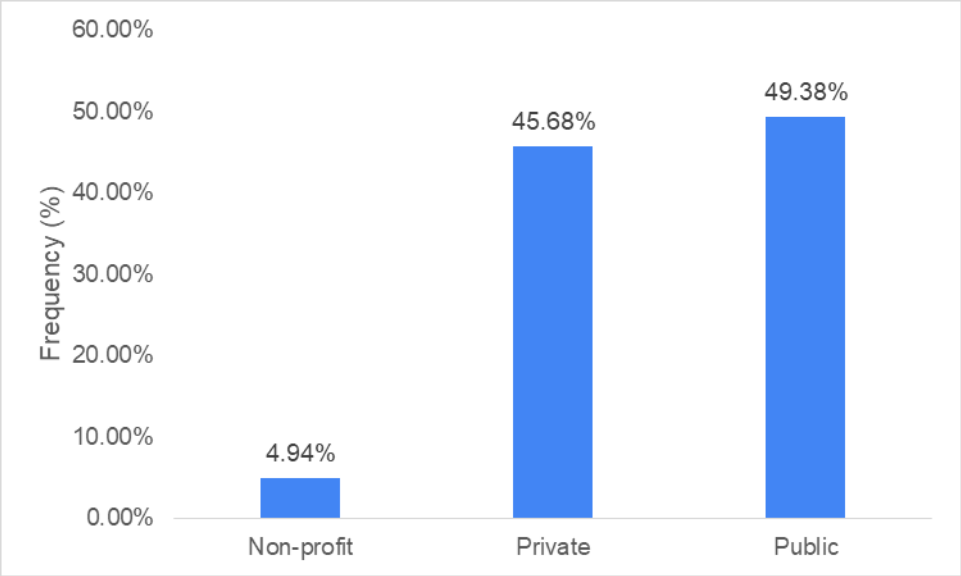

Fig 4.6: Distribution of Sector

Participants were asked about the size of their organisation. Majority of the participants work in organisation that have between 50-199 employees (85.63%) while 10.63% work in organisation that have 200-499 employees. 3.75% of the organisations have fewer than 50 employees.

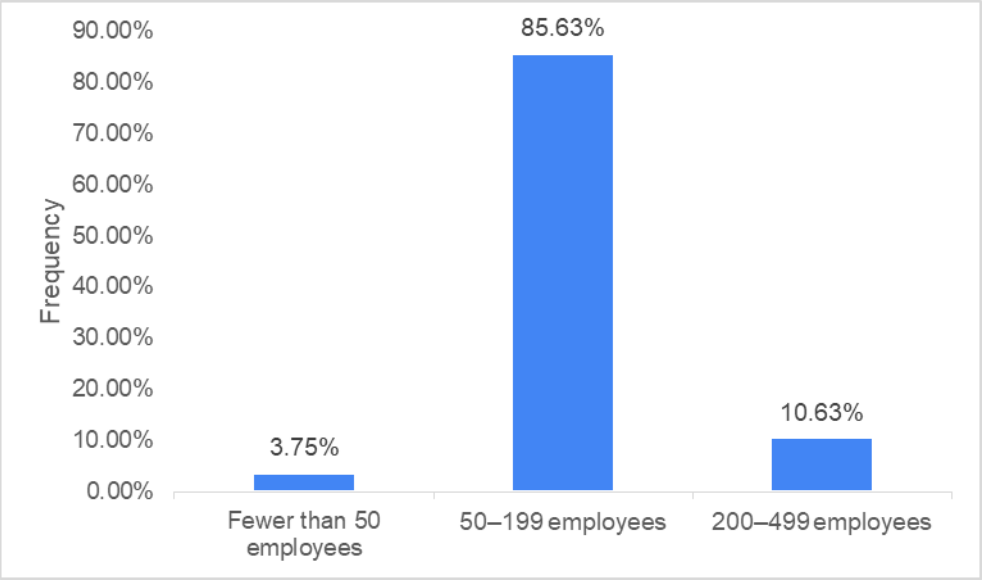

Fig 4.7: Distribution of Organisation Size

Fig 4.8 presents the region where the businesses are located. The result showed that 31.48% of the participants operates in the North West while 25.93% operate in the North East. Regions like South West (8.02%) and North Central (4.32%) have relatively lower representation.

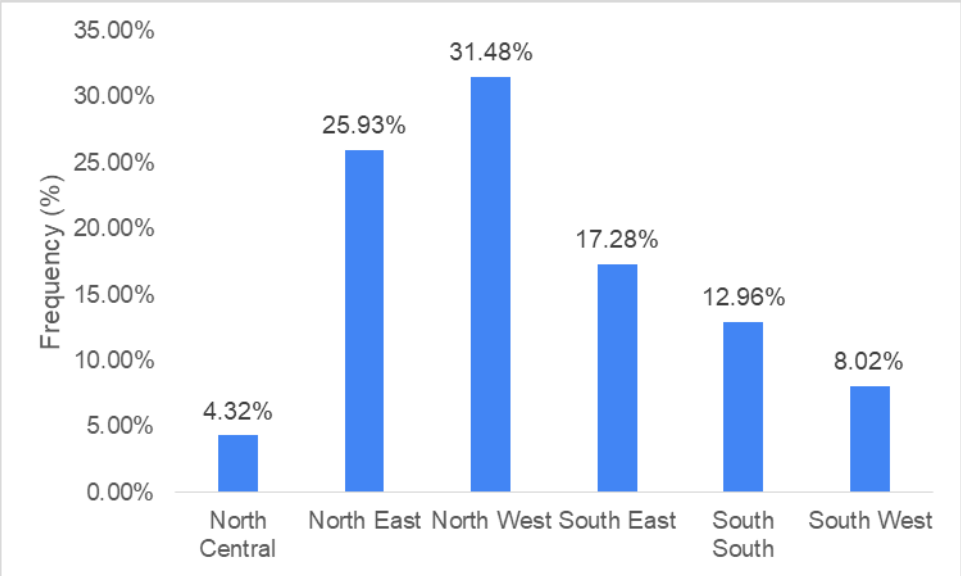

Fig 4.8: Distribution of Participants Region

4.2. Digital Transformation

Fig 4.9-4.14 presents distribution of response on the level of digital literacy and transformation in the participants' organisations. Fig 4.9 revealed that when participants were asked if their organisation has implemented digital transformation initiatives in the past 5 years. 69.2% of the participants answered in the affirmative while 30.38% stated that their organisation has not has implemented digital transformation initiatives in the past 5 years. This finding revealed that majority of the firm has implemented digital initiatives in the past five years.

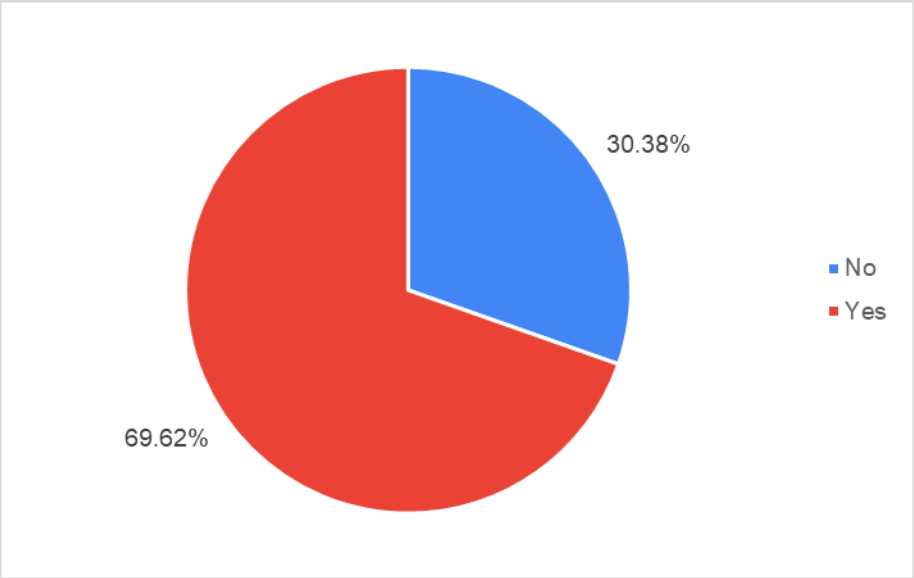

Fig 4.9: Distribution of Response on "Has your organization implemented digital transformation initiatives in the past 5 years?"

Participants were asked to rate their literacy skills and the distribution of response is shown in fig 4.10. 55.97% of participants of the participants rate their digital literacy skills as moderate while 35.85% rated their skills as low. Also, 4.4% rated their skill as high. This implies that majority of the participants has low to moderate digital literacy skills.

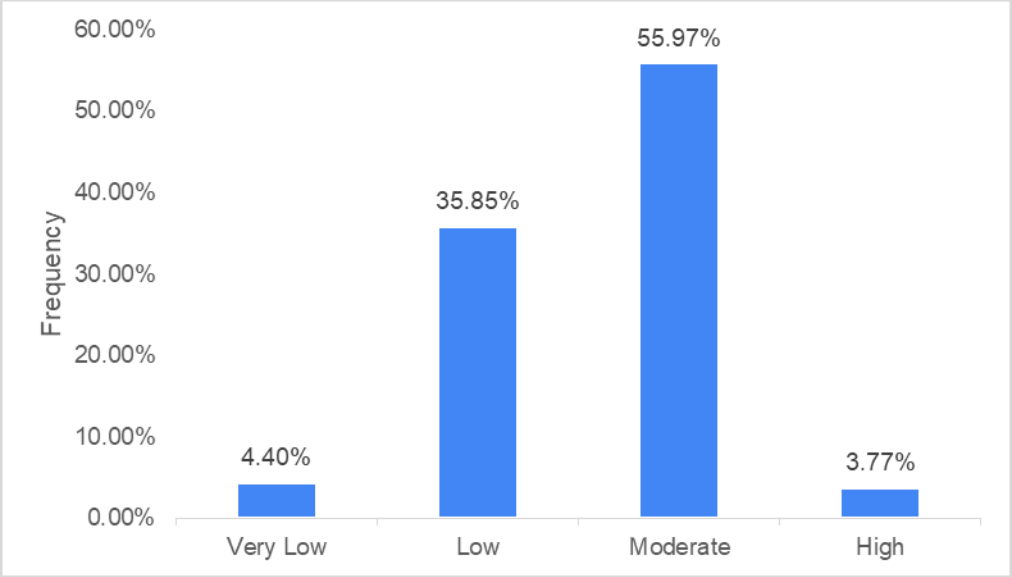

Fig 4.10: Distribution of Response on "How would you rate your digital literacy?"

Participants were further asked if they have received any formal training in digital tools or technologies in their current role. 75.78% affirmed to have received formal training in digital tools or technologies while 23.60% have not received and 0.62% are not sure. The large proportion of participants that have received formal training implies organisations takes digital literacy of their employees as important but close to one quarter of the participants that have not received training highlights the need for more effort towards training their employees in digital literacy.

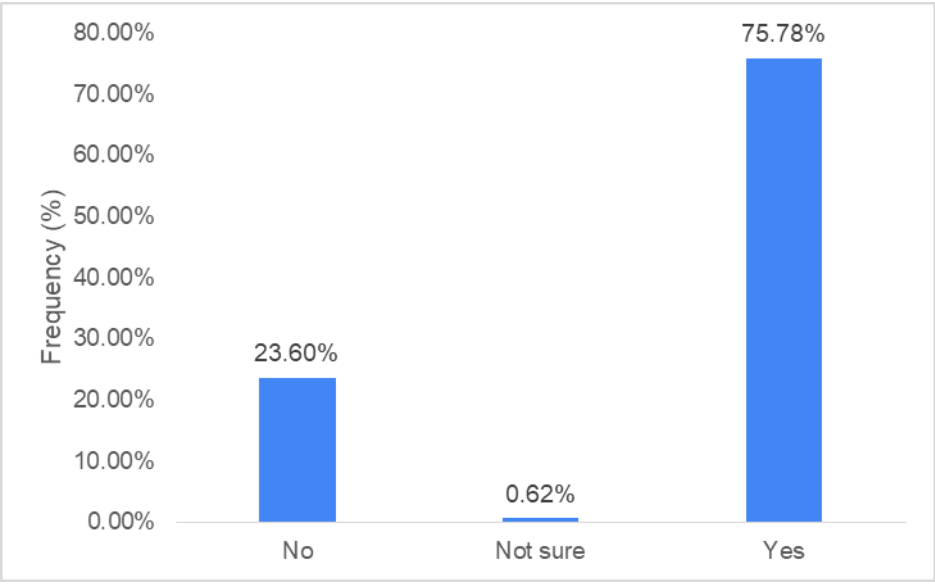

Fig 4.11: Distribution of Response on "Have you received any formal training in digital tools or technologies in your current role?"

Fig 4.12 revealed that when participants were asked how often do you use digital tools in their daily work. The result revealed that 63.75% of participants occasionally use digital tools while 19.38% rarely use digital tools in their daily work and 16.25% frequently use digital tools in their daily work. The result revealed that digital tools are moderately applied in day-to-day activities.

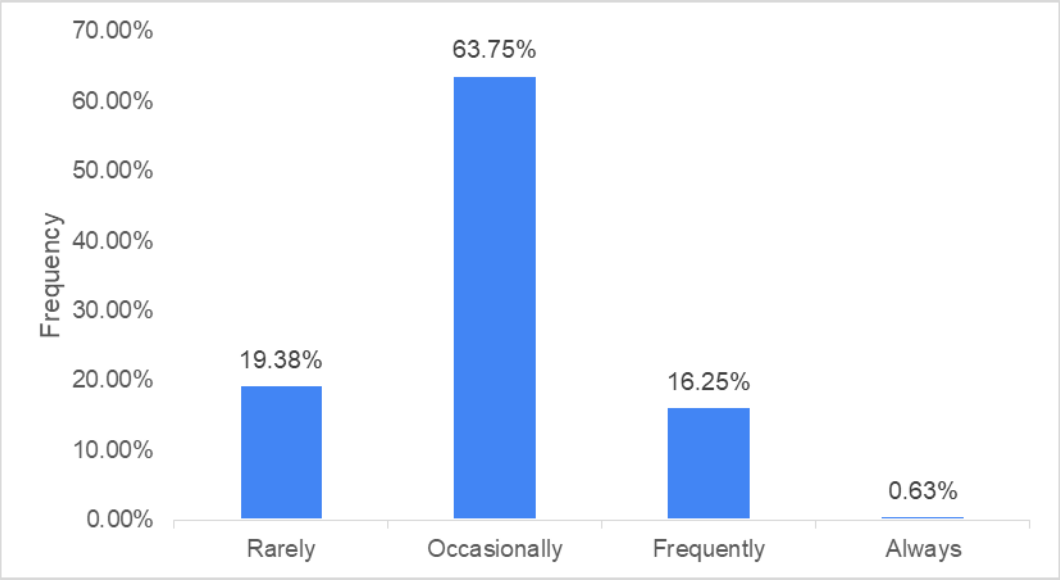

Fig 4.12: Distribution of Response on "How often do you use digital tools in your daily work?"

Fig 4.13 revealed that majority of participants supervise or manage other employees in their organization (83.75%) while 16.25% of participants do not supervise or manage other employees in their organisation..

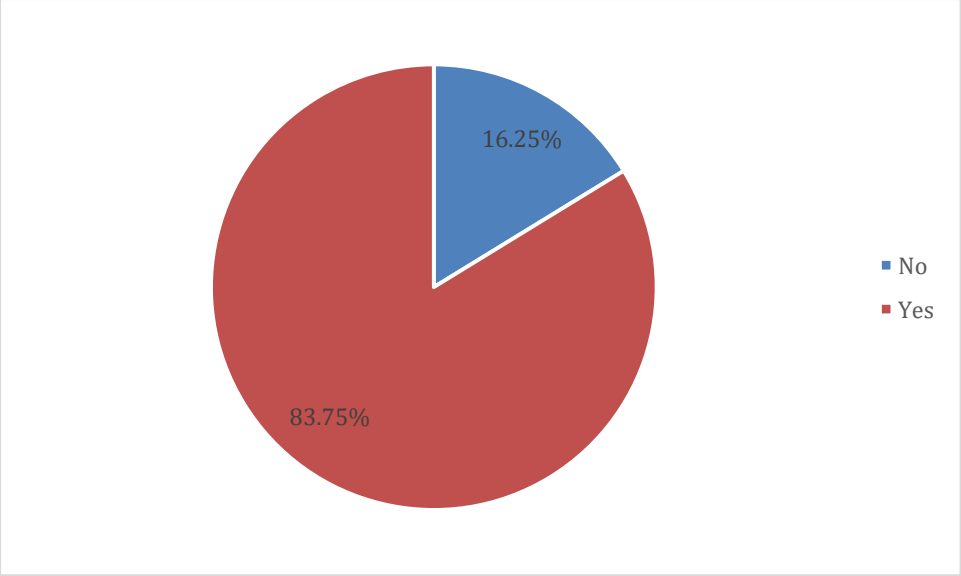

Fig 4.13: Distribution of Response on "Do you supervise or manage other employees in your organization?"

Fig 4.14 revealed that when participants were asked about their involvement in organisational decision making, 54.94% of participants revealed that they are occasionally consulted about decision-making in the organisation. 37.65% of participants are frequently involved while 7.41% are not involved in organisational decision making.

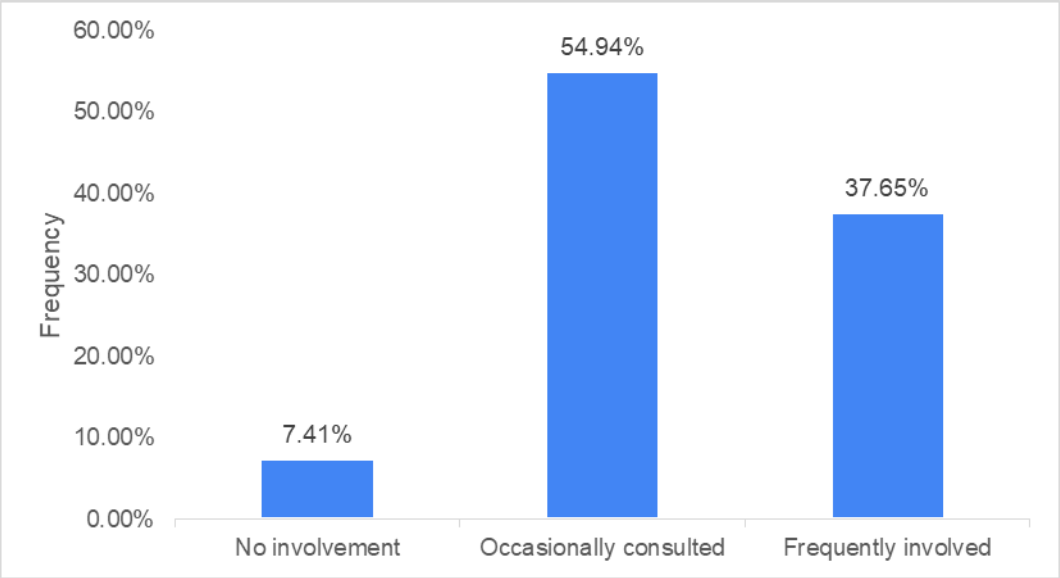

Fig 4.14: Distribution of Response on "Which of the following best describes your level of involvement in organizational decision-making?"

4.3. Relationship between digital transformation and leadership styles

Table 4.1 presents the summary statistics and one-sample t-test result of items measuring the relationship between digital transformation and leadership styles. The result revealed that average value ranges from 2.75 and 3.23. Two of the items are significantly greater than 3 while one item is significantly less than 3 and five items are not significantly different from 3. The result revealed that when participants were asked if digital transformation has encouraged leaders in their organization to become more innovative, average response is 3.23(SD=1.19) and is significantly greater than 3 (t = 2.43, p= .02). This implies that proportion of participants that believe that digital transformation has encouraged leaders in their organization to become more innovative is greater than those who did not believe so. Also, average response when participants were asked if organisation's leadership style is evolving to suit the demands of a digital workplace is 3.22(SD=1.17) and is significantly greater than 3 (t = 2.30, p= .02). This

implies that proportion of participants that believe that organisation's leadership style is evolving to suit the demands of a digital workplace is greater than those who did not believe so

On the other hand, average response when participants were asked if leadership in their organization has changed in response to digital transformation is 2.75(SD=1.21) and is significantly less than 3 (t = -2.56, p= .01). This implies that proportion of participants that believe that leadership in their organization has changed in response to digital transformation is lesser than those who did not believe so.

Table 4.1: Summary Statistics and One-sample t-test Result

Items	N	M	SD	t	p
My organization has adopted digital tools that influence how leaders communicate with their teams.	160	3.08	0.94	1.01	0.32
Leadership in my organization has changed in response to digital transformation.	158	2.75	1.21	-2.56	0.01
I believe digital technologies have made leadership more transparent and accessible.	155	3.03	1.01	0.32	0.75
Leaders in my organization are actively involved in promoting digital initiatives.	154	3.12	1.08	1.34	0.18
Digital transformation has required leaders to adopt new styles of leadership.	156	3.00	1.19	0.00	1.00
Digital transformation has encouraged leaders in my organization to become more innovative.	156	3.23	1.19	2.43	0.02
Leaders effectively use digital platforms to align the team with organizational goals.	157	2.89	1.19	-1.15	0.25
My organization's leadership style is evolving to suit the demands of a digital workplace.	158	3.22	1.17	2.30	0.02

Moreover, the average value of five items measuring the relationship between digital transformation and digital style are not significantly different from 3. These items are:

- My organization has adopted digital tools that influence how leaders communicate with their teams

- I believe digital technologies have made leadership more transparent and accessible.
- Leaders in my organization are actively involved in promoting digital initiatives.
- Digital transformation has required leaders to adopt new styles of leadership.
- Leaders effectively use digital platforms to align the team with organizational goals.

The implication of this result is that either majority of participants are indifference or that participants view is highly diverge such that proportion of participants that agree with this items are close to those who did not. To determine this the frequency distribution (after strongly disagree and disagree have been combined. Also, agree and strongly agree were combined) was shown in fig 4.15. The result revealed that while the proportion of participants that agreed that their organisation has adopted digital tools that influence how leaders communicate with their teams (39.38%) is more than those that disagree (26.88%), large proportion of participants were undecided (33.75%) which means that substantial proportion of participants are not sure if the digital tools adopted by their organisation has influence how leaders communicate with their teams. The same result occurs for the item "I believe digital technologies have made leadership more transparent and accessible". However, for other items: Leaders in my organization are actively involved in promoting digital initiatives – Digital transformation has required leaders to adopt new styles of leadership; and Leaders effectively use digital platforms to align the team with organizational goals – the proportion of participants that agree and disagree are close which means the response of participants highly diverge.

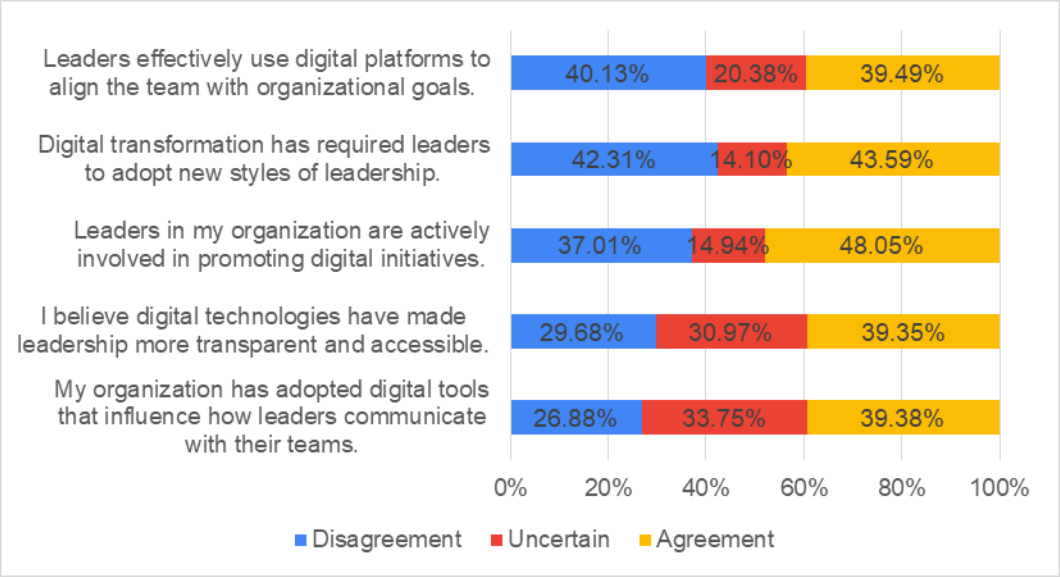

Fig 4.15: Distribution of Response on items measuring the relationship between digital transformation and leadership styles

In summary, participants agree that digital transformation has encouraged leaders to become more innovative and that leadership style is evolving to suit the demands of a digital workplace but disagree that leadership has changed in response to digital transformation. Moreover, they were uncertain as to the influence of digital tools on how leaders communicate with their teams and whether it has made leadership more transparent and accessible. Their response diverged regarding actively involvement of leadership in promoting digital initiatives, adoption of new styles of leadership due to digital transformation and whether Leaders effectively use digital platforms to align the team with organizational goals.

4.3.1. Regression Result

In order to estimate the impact of digital transformation on leadership styles, a regression model was estimated. The independent variables are binary variables measuring whether the organisation has implemented digital transformation initiatives in the past 5 years (Demographic Question 9) and whether participants have received any formal training in digital tools or technologies (Demographic Question 11). The regression model is given as

$$LS_i = \beta_0 + \beta_1 DTI_i + \beta_2 DTT_i + \varepsilon_i$$

Where LS is the aggregate of all items measuring the relationship between digital transformation and leadership styles and DTI represents digital transformation implementation and DTT means digital transformation training.

The result of the estimated regression model is presented in table 4.2a – 4.2b. Table 4.2a which shows the ANOVA table revealed that both variables digital transformation implementation and digital transformation training has no joint significant effect on leadership styles as p-value is greater than 0.05 which connotes the non-rejection of null hypothesis that the independent variables jointly have no significant effect on the leadership styles. Individually, the result shown in table 4.2b (the coefficient estimates) showed that neither of digital transformation implementation (t=0.67, p =.50) nor digital transformation training (t=-0.69, p=.51) has significant effect on leadership styles.

Taken together, the result of the regression model and t-test where majority of the items are insignificant demonstrated that digital transformation have had limited impact on leadership styles in the organisations of the participants.

Table 4.2a: ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	4.149	2	2.074	.445	.642[b]
	Residual	685.425	147	4.663		
	Total	689.573	149			

Table 4.2b: Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	24.424	.463		52.779	.000
	Has your organization implemented digital transformation initiatives in the past 5 years?	.261	.387	.055	.673	.502

	Have you received any formal training in digital tools or technologies in your current role?	-.285	.426	-.055	-.668	.505

4.4. Impact of Digitalization on Workforce Engagement

Table 4.3 presents the summary statistics and one-sample t-test result of items measuring the impact of digitalisation on workforce engagement. The result revealed that average value ranges from 2.96 and 3.36. All of the items are not significantly different from 3 except one. The result revealed that when participants were asked if their engagement at work has increased due to greater digital access to resources and communication, average response is 3.36(SD=1.21) and is significantly greater than 3 ($t = 3.74$, $p<.001$). This implies that proportion of participants that believe that their engagement at work has increased due to greater digital access to resources and communication is more than those who did not.

Table 4.3: Summary Statistics and one-sample t-test result

Items	N	M	SD	t	p
Digital tools used in my organization help me stay engaged with my work.	159	2.98	1.07	-0.22	0.82
I feel more connected to my team due to digital collaboration platforms.	157	2.96	1.17	-0.48	0.63
Digital transformation has improved my job satisfaction and motivation.	158	3.04	1.16	0.48	0.63
Digital systems in place make it easier to receive feedback and recognition.	154	3.07	1.17	0.76	0.45
The use of digital technology supports a healthy work-life balance for me.	155	3.09	1.18	0.96	0.34
I feel empowered to contribute ideas through digital platforms.	154	3.07	1.20	0.74	0.46
My engagement at work has increased due to greater digital access to resources and communication.	158	3.36	1.21	3.74	<.001

In summary, while participants believe that their engagement at work has increased due to greater digital access to resources and communication, they are unable to agree on whether digital tools or platforms have made them feel more connected to their team, improved their job satisfaction and motivation, makes it easier to receive feedback and recognition, supports a healthy work-life balance for them and empowered them to contribute ideas.

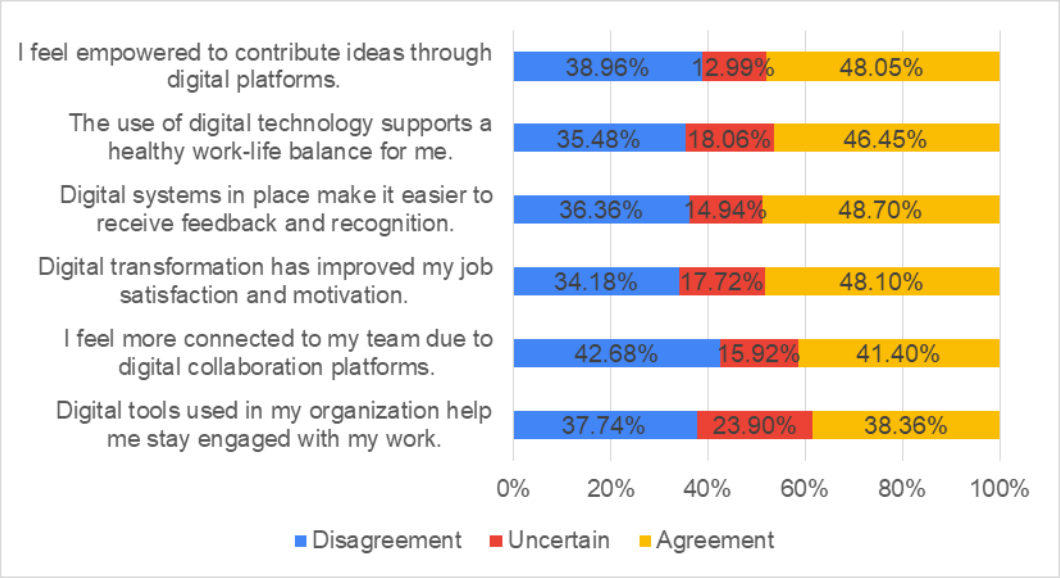

Fig 4.16: Distribution of Items Measuring Impact of Digitalization on Workforce Engagement

4.4.1. Regression Result

In order to estimate the impact of digital transformation on work engagement, a regression model was estimated. The independent variables are binary variables measuring whether the organisation has implemented digital transformation initiatives in the past 5 years (Demographic Question 9) and whether participants have received any formal training in digital tools or technologies (Demographic Question 11). The regression model is given as

$$WE_i = \beta_0 + \beta_1 DTI_i + \beta_2 DTT_i + \varepsilon_i$$

Where WS is the aggregate of all items measuring the impact of digital transformation on work engagement and DTI represents digital transformation implementation and DTT means digital transformation training.

The result of the estimated regression model is presented in table 4.4a – 4.4b. Table 4.4a which shows the ANOVA table revealed that both variables digital transformation implementation and digital transformation training has no joint significant effect on work engagement as p-value is greater than 0.05 which connotes the non-rejection of null hypothesis that the independent variables jointly have no significant effect on the employee engagement. Individually, the result shown in table 4.4b (the coefficient estimates) showed that neither of digital transformation implementation (t=0.67, p =.50) nor digital transformation training (t=-0.69, p=.51) has significant effect on leadership styles.

Taken together, the result of the regression model and t-test where majority of the items are insignificant demonstrated that digital transformation have had limited impact on work engagement of participants.

Table 4.4a: ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.829	2	.415	.080	.924[b]
	Residual	754.901	145	5.206		
	Total	755.730	147			

Table 4.4.b: Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	24.738	.501		49.390	.000
	Has your organization implemented digital transformation initiatives in the past 5 years?	.060	.413	.012	.146	.884

Have you received any formal training in digital tools or technologies in your current role?	-.168	.456	-.031	-.370	.712

a. Dependent Variable: WE

4.5. Strategies for Optimizing Leadership Effectiveness in a Digitalized Workplace

Table 4.5 presents the result for strategies for optimising leadership effectiveness in a digitalised workplace. The result revealed that average value ranges from 2.92 and 3.47. Three of the items are significantly greater than 3 while five items are not significantly different from 3. The result revealed that when participants were asked if digital leadership development programs are necessary for organizational growth, average response is 3.17(SD=1.15) and is significantly greater than 3 at 10% significance level (t = 1.82, p= .07). This implies that proportion of participants that believe that digital leadership development programs are necessary for organizational growth is greater than those who did not believe so. Also, average response when participants were asked if leaders who demonstrate digital skills are more respected in my organization is 3.18(SD=1.23) and is significantly greater than 3 (t = 1.77, p= .08). This implies that proportion of participants that believe that leaders who demonstrate digital skills are more respected in my organization is greater than those who did not believe so. Moreover, the proportion of participants who believe that investing in digital infrastructure helps leaders support their teams more effectively is higher than those who believe otherwise (M= 3.47, SD=1.14, t = 5.11, p<.001).

Table 4.5: Summary Statistics and one-sample t-test result of items measuring

Items	N	M	SD	t	p
Leadership training in digital competencies would enhance leadership effectiveness.	156	2.92	1.12	-0.93	0.36
Clear digital communication from leaders increases team productivity.	155	2.94	1.26	-0.57	0.57
Leaders who embrace digital tools improve decision-making processes.	154	3.00	1.13	0.00	1.00

Collaborative digital platforms can improve leadership visibility and trust	155	3.08	1.19	0.81	0.42
I believe that adapting leadership approaches to digital trends is necessary for success.	156	3.10	1.28	1.00	0.32
Digital leadership development programs are necessary for organizational growth.	156	3.17	1.15	1.82	0.07
Leaders who demonstrate digital skills are more respected in my organization.	154	3.18	1.23	1.77	0.08
Investing in digital infrastructure helps leaders support their teams more effectively.	157	3.47	1.14	5.11	0.00

Moreover, the average value of five items measuring strategies to are not significantly different from 3. These items are:

- Leadership training in digital competencies would enhance leadership effectiveness.
- Clear digital communication from leaders increases team productivity.
- Leaders who embrace digital tools improve decision-making processes.
- Collaborative digital platforms can improve leadership visibility and trust
- I believe that adapting leadership approaches to digital trends is necessary for ‘success.

The implication of this result is that either majority of participants are indifference or that participants view is highly diverge such that proportion of participants that agree with this items are close to those who did not. To determine this, the frequency distribution (after strongly disagree and disagree have been combined. Also, agree and strongly agree were combined) was shown in fig 4.17. The result revealed that the latter is the case for all items, as there is high proportion of participants that agree and disagree with these statements implying that participants have divergent views on the effectiveness of these strategies in optimising leadership effectiveness in a digitalised workplace.

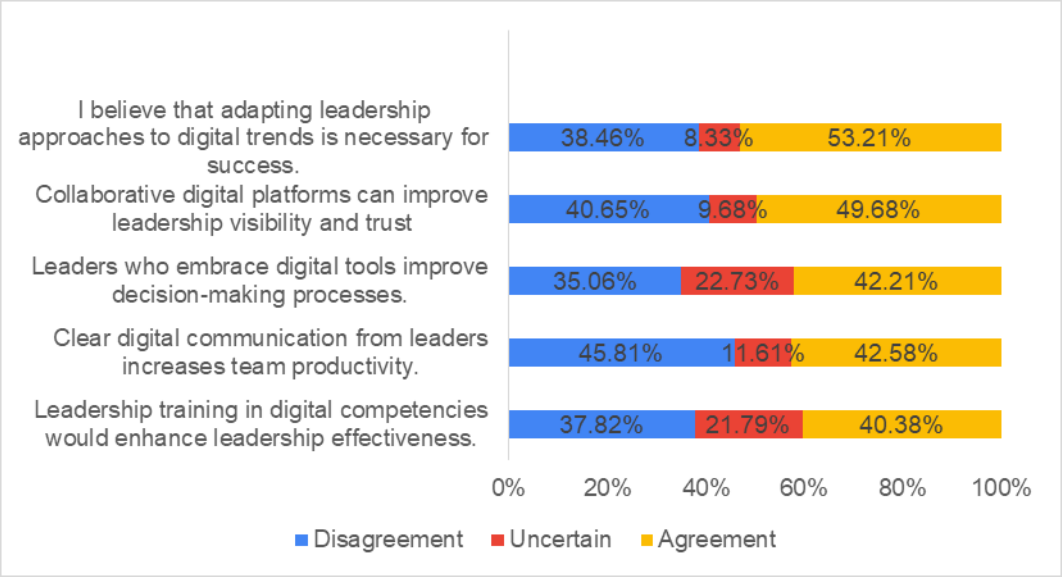

Fig 4.16: Frequency Distribution of some items measuring strategies of optimising leadership effectiveness in a digitalized workplace

In summary, the participants agree that digital leadership development and investment in digital infrastructure skills can optimise leadership effectiveness in a digitalised workplace. However, they have divergent view – with many participants agreeing and many other disagreeing – on leadership training in digital competencies, clear digital communication, collaborative digital platforms, adapting leadership approaches to digital trends as a means of optimising leadership effectiveness in a digitalized workplace.

4.6. Discussion

4.6.1. Relationship between Digital Transformation and Leadership Styles

The results of this research has provide insights into the dynamics of relationships in digital transformation (DT) activity and leadership styles in Nigerian organizations. Although, some indicators support the idea of adaptation and innovation in leadership practices, the general data point at the idea that digitalization has not strongly restructured the paradigms of leadership yet, possibly because of situational constraints or dormant reluctance to change. Compared to the wider literature, these findings validate and refute previous theoretical and empirical assertions, especially in your literature review.

According to the t-test analysis, participants agree with the statement that the digital transformation is a force of innovation and gradual evolution of leadership styles, but

there is no consensus among the participants on whether leadership has fundamentally changed. Only two factors, leaders being more innovative and leadership style change, were significantly above the neutral point, implying that some people have a positive opinion on this aspect. In contrast, the item indicating direct change in leadership as a result of digital transformation received a score well below the neutral point, suggesting resistance or superficial implementation. This ambivalence directly resonates with Transformational Leadership Theory (Bass, 1985) which focuses on innovation, visions, and adaptation. Though, in theory, proper digital transformation and digitalization of business activities are supposed to encourage transformational leadership qualities, including intellectual stimulation and individual consideration, the findings show that these measures are not adopted completely. Northouse (2021) has given an insight into these challenges in the digital context: leaders are required to not only adopt new technologies but are expected to transform the vision and structure of organizations. However, the disagreement of the participants on the issue indicates that, although the innovation is emerging, it is not causing a fundamental shift in leadership practice on a large scale.

Furthermore, the restricted meaningful change, based on the approach of the Technology Acceptance Model (TAM) (Davis, 1989), may be attributed to the lack of perceived usefulness or ease of digital leadership tools to adopt among the leaders. Unless leaders consider digital tools essential to the effectiveness of their leadership, they are unlikely to change their styles and adapt to a digital climate. The ways that digital transformation requires leadership transition, witnessing the increase of such leadership styles as transformational, digital, agile, and servant, are widely explained by studies like Kane et al., (2015); Odai et al., (2025); and Peykar (2024). Nevertheless, the findings indicates that there exist a disconnect between theoretical potential and practice within the Nigerian organizations. The finding that leaders are not perceived as significantly promoting digital initiatives or adopting new leadership styles may reflect cultural and infrastructural barriers specific to emerging economies. As noted by the literature, the culture of leadership in Nigeria is still quite hierarchical and collectivist (Hofstede, 1984; Roman, 2024), so they do not easily adopt the flexible and participatory digital leadership model. Respect of authority or organisational culture may make the employees to be hesitant in critically evaluating the leadership behaviour, which is why the level of neutrality or divergence in responses is very high. This concurs with the findings by

Udegbunam et al. (2023), which indicate the limitations caused by infrastructural gaps and digital illiteracy in Nigeria to the transformation of leadership. Herein, even digitally aware leaders may be unable to exemplify or promote new behaviour because of a deficiency in enabling infrastructure or resources. In other words, the lack of availability of regular and trustworthy digital sources or inadequate training facilities may discourage leaders to switch to other forms of leadership, such as transactional or traditional ones.

The regression findings also support the small practical effects of digital transformation on leadership styles. Either the implementation of digital transformation or digital training was not statistically different on the composite measure of the leadership style. This observation illustrates the intricacy of leadership transformation; it is not merely a function of introducing to digital tools but is deeply entrenched in the organizational culture, leadership prophecy, and individual competencies. This contradicts much of the global literature which capture digital transformation to be one of the drivers or boosters of leadership change (Sousa & Rocha, 2019; Maheshwari & Yadav, 2020). Those claims, however, are still mostly based on research in developed countries where structural preparedness and attitude towards innovation are more supportive of a leadership change.

In the Nigerian context, leadership effectiveness in the digital era likely requires more than training and tool implementation but also the need of cultural repositioning and strategic outlook and psychological preparation. This confirms the suggestion made by Rockstuhl et al. (2011) that culturally intelligent leaders are vital in such environments. To create real change, leaders need to reconcile the difference between digital requirements and culture-specific standards of leadership.

There is much more indifference or divergence of opinions of the respondents on issues like the use of digital communication tools and leadership transparency is significant. This may be due to early or uneven stages of digital maturity among organisations. Kane et al. (2015) also believe that digital transformation is not an overnight process: at a lower level of readiness, organizations might implement tools without changes in structures and behaviours, which creates confusion amidst the employees as to whether their job should change. It may also imply that there is communication gap between leadership and workforce with regards to digital programmes. When employees do not

know about digital work of leadership or consider it as cosmetic, they might show uncertainty or indifference. This highlights the relevance of visibility, communication, and inclusion, which are referred to in the paradigms of servant and transformational leadership (Peykar, 2024; Bass & Riggio, 2006).

Overall, the findings revealed a critical context-specific insights disputing the deterministic perception of digital transformation as a straight-forward catalyst of leadership change. Although any evidence of innovation and changing styles is slightly present, the overall effect seems to be minimal, partial and situational. This inconsistency in responses and insignificant regression outcomes suggests that leadership transformation is not an automatic consequence of digital programs but strategically cultivated through cultural consistency, vision, and infrastructural preparedness. The findings compared to the literature highlights the need of contextual adaptation of global leadership models. They expose that in Nigeria as in most of the emerging economies digital age leadership requires not only technology development but also cultural and organizational development. It thus becomes evident that the research is crucial to bridging the divide in empirical evidence of contexts in developing countries, as the findings provide a more contextual account of the digital transformation-leadership relationship

4.6.2. Impact of Digitalization on Workforce Engagement

The results on the impact of digital change on workforce engagement in Nigerian companies provide insightful outcomes. Although there is an increasing body of theoretical and anecdotal evidence of the robust possibilities of digital technologies to facilitate employee engagement, the findings suggest a more muted and fragmented reality. Only one item relating to increased engagement due to greater digital access to resources and communication was statistically significant, and the rest did are not significant. This indicates a complex, context-specific relationship between digital transformation and engagement processes, especially in emerging economies, such as Nigeria.

The statistically significant finding on access to resources and communication aligns well with the main constructs of workforce engagement, in particular, the theory presented by Kahn (1990) and the Job Demands-Resources (JD-R) model (Bakker & Demerouti, 2007). Access to digital communication tools and information systems is likely to create

an enabling work environment by decreasing psychological and operational friction. This can act as a resource in a job, stimulating participation of making things more manageable and fluid relationships, particularly in work environments that are geographically dispersed or hybrid workplaces. Nevertheless, when analysing the insignificance of other items, including increased job satisfaction, team connection, feedback mechanism, work-life balance, and empowerment, it can mean that digital transformation efforts have not yet infiltrated the experiential aspect of work engagement adequately. As the literature review identifies, engagement is multidimensional and implies emotional, cognitive, and behavioural engagement (Pandey & Sushil, 2023). A communication-supporting tool can influence behavioural or functional participation, whereas higher-order psychological concepts like motivation and job satisfaction are not at all influenced.

This mismatch can be attributed to poor implementation, improper training or insufficient change management policies. In this respect, digital transformation seems to be primarily technological rather than either cultural or strategic, which the regression indicates corroborated. Although organisations documented digital transformation activities and digital training, these activities had minor impact on the outcomes of workforce engagement. This confirms the fact that it is not just technological adoption but it is the manner in which these tools are integrated, communicated, and integrated into the culture of the organization that becomes so important (Leonardi, 2020; Trushkina et al., 2020). The literature review encapsulated narratives about the possibilities of digital tools in enhancing engagement. Technologies like Slack, Microsoft Teams, Zoom are seen as the means of real-time cooperation and feedback (Leonard, 2021), and the potential contribution of dashboards and analytics to autonomy and accountability. Theoretically, those technologies are to expand job resources and provide the feedback and recognition that the JD-R model suggests is crucial to maintaining engagement.

However, these outcomes that appeared to be only partially achieved in the Nigerian setting. The digital utopia of the literature, built mostly on evidence created in the developed world, collides with the harder realities of infrastructure shortages, low rates of digital literacy and cultural barriers to change. Engagement in emerging markets is hampered by poor digital ecosystem and socio-economic imbalances as indicated by Udegbunam et al. (2023) and Chetty et al. (2018). Employees may lack consistent internet

access, be unfamiliar with the digital platforms deployed, or perceive these tools as externally imposed rather than internally valuable. Also, the JD-R paradigm underscores the idea that engagement flourishes when job resource to job demand prevalence is in the positive range. Due to unfamiliarity and/or lack of training and/or tool overload, digital tools in the Nigerian context may actually increase cognitive load leading to digital fatigue instead of engagement (Tarafdar et al., 2019). In this way, even the tools meant to empower may paradoxically disengage when they are not well contextualised.

The findings revealed that participants were either neutral or ambivalent concerning feedback, empowerment, and collaboration through digital tools contrast with the Technology Acceptance Model (TAM) (Davis, 1989), stating that perceived usefulness and ease of use determines the adoption and engagement with a particular technology. When employees do not see digital systems as something they can easily get used to and which can add value to them (as captured in their relatively poor responses), then their behavioral intention to fully embrace those systems—and become more engaged—is likely compromised. Such disconnection can also be associated with shallow efforts at digitalization, with companies merely implementing systems without restructuring the workflow process or ensuring all people involved are included in any measure of effective training, thus constraining their true potential.

Another significant insight from the literature review is leadership as the central factor in determining engagement throughout digitalization (Odai et al., 2025; Northouse, 2021). By contrast, the regression results showed that both digitization implementation and digital training were not significant predictors of engagement. This can actually mean that there is no leadership interest in engaging in an active practice of engagement using digital tools. Transformational and digital leadership styles are required, as highlighted in the literature, to establish psychological safety, ongoing feedback and opportunities for contribution none of which appear to be experienced by the participants. he failure to perceive improved job satisfaction or empowerment implies the lack of such leadership behaviours. It further indicates that digital tools are being adopted without the human-based strategies. This disengagement is particularly harmful in collectivism, hierarchical cultures, including the present case of Nigeria, where the modelling and approval of leadership is a key aspect in shaping employee attitudes and actions (Roman, 2024; Hofstede, 1984). The adoption of digital tools without the presence of culturally

intelligent and strategically adaptive leaders means that they might not be utilised or understood well.

These contrasting insights between this study's findings and the wider literature review present a critical tension: there is the possibility to foster engagement with the workforce through the use of digital tools, but this is not close to being fully achieved within the Nigerian setting because of cultural, infrastructural, and leadership-related barriers. The availability of more resources and communication seems to be the low hanging fruit, with some positive effects. However, the deeper engagement indicators such as job satisfaction, motivation and empowerment cannot be achieved by merely deploying digital tools. This substantiates and expands arguments that any digital transformation should be supported by inclusive practices, employee engagement, and capacity-building (Naujokaitiene et al., 2015; Assefa et al., 2021). It also highlights the value of digital leadership, not as a characteristic of being tech-savvy but as culturally situated and strategically minded capacity to make digital potential efficient towards employees, practice, and ultimate experience.

In summary, the findings revealed that the effects of digitalization on the engagement among workforce in Nigeria are partial and uneven. Although the access to communication and resources is promising, there are still no broad engagement results. These findings dispute the frequently presumed linear connection between digital adoption and employee engagement and call into focus the essence of contextual preparedness, strategic administration, and conversant implementation. To harness full opportunity of digital transformation to workforce engagement requires moving past infrastructure to include training, changing culture, and leadership.

4.6.3. Strategies for Optimising Leadership Effectiveness in a Digitalised Workplace

The results provide a substantial consideration of the perceived of various strategies toward promoting leadership of digitally transforming workplaces in the context of Nigeria. This information shows that although some of the strategies, like digital infrastructure investment and digital leadership development processes are accepted, other strategies that are commonly cited, such as digital communication transparency, leadership training, and leadership style adaptability, evoked mixed perception among the participants. These ambivalent reactions indicate the promise as well as the

constraints of online leadership practices in a developing economy with limited infrastructure and riddled with socio-cultural challenges.

As observed in the one-sample t-test, three out of the eight suggested strategies were significantly higher than 3 (neutral point). Most noticeably, the statement "Investing in digital infrastructure helps leaders support their teams more effectively" is significant ($M=3.47$, $p<.001$). The finding is in line with fundamental logic and supports findings in the literature that emphasised a robust infrastructure as the cornerstone of digital transformation (Ndungu & Signe, 2020; Udegbunam et al., 2023). Leadership strategies that depend on digital resources are bound to fail no matter the training or the goodwill unless the appropriate infrastructure is in place, e.g., stable power supply, reliable internet, and access to platforms. This way, digital infrastructure is not only a factor that enables leadership performance but a pre-requisite. Another two items with marginal significance at 10% -- level support for digital leadership development programs ($M=3.17$, $p=.07$) and respect for leaders who demonstrate digital skills ($M=3.18$, $p=.08$) – indicates that digital competence is beginning to be considered an asset in leadership. That is in line with the digital leadership definition suggested by Kane et al. (2015) and Yuancebalkan et al. (2018), according to which digital leadership is a unique construct that focuses on constant learning, technological proficiency, and resilience in times of disruption. As shown, even though it cannot be assumed to represent a universal belief, among Nigerian respondents, there seems to be a relevant agreement growing that leadership effectiveness in a digital age is augmented by leaders who have a demonstrable digital capacity and who are systematically developed in that capacity.

Nonetheless, the absence of significance in the remaining five strategies, including clear digital communication, collaborative platforms, and adapting leadership styles warrants critical analysis. The global literature supports these strategies. As an example, Indiarti and Lantu (2022) conclude that agile leadership and collaborative digital platforms can make leaders more visible and build trust. In a similar vein, Trushkina et al. (2020) also remark that in a hybrid or remote environment, alignment and engagement require clear digital communication. The divergence of participant's response, consequently, can reflect greater contextual questions. Nigerian culture, digital maturity, and leadership traditions in Nigeria may not allow it to implement some of these strategies as

successfully as in various Western contexts, where most of them have been designed and established.

According to the results, the Nigerian organizations tend to be hierarchical and collectivistic (Hofstede, 1984; Roman, 2024). Such an environment will be characterised by top-down, authority based leadership, limited two-way communication or democratic decision making. This can be an indication as to why the strategies that included clear communication and cooperation on the digital level did not see a strong support; employees may also not get used to, or cannot find value to, the leadership dynamics that are flatter, where the leaders are visible and communicative through the digital channels. Additionally, the difference in perceptions can be indicative of the unequal exposure to digital and literacy levels of leaders and staff. Inclusive and extensive digital literacy work is required, as argued by Chetty et al. (2018) and Assefa et (2021), without which digital tools and practices can only increase disparities instead of promoting convergence. With leaders lacking digital readiness or employees not being effectively educated on the benefits of digital tools as far as improving their leadership performance is concerned, the outcome is skepticism or lack of concern. Therefore, training is not always enough: organizations need to create a similar culture that would naturalize the use of digital practices and foster psychological preparedness to embrace new paradigms of leadership.

Theoretically, these results have a significant interaction with Transformational Leadership Theory, Digital Leadership, and Technology Acceptance Model (TAM). According to Bass and Riggio (2006), transformational leadership focuses on being adaptive, appeals to vision, and embraces innovativeness all of which is presumed to be primary requirements in leading a digital transformation. However, as the results show, not all participants believe that the adaptation of leadership to digital trends is a necessity. This polarity denotes a difference between theoretical ideals and local organizational realities. It can be that the leaders are unwilling to change their style, or employees do not understand that the necessary changes bring any measurable results. A useful lens is also the TAM (Davis, 1989). This difference in perspective could be explained either by the low level of perceived usefulness or low level of ease of use of digital tools in the leadership setting. Employees will not feel persuaded of their importance unless they are thoroughly trained, have success stories, or their organisation

modelling these practices. In accordance to the argument of Wang et al. (2025), TAM must be expanded to have socio-cultural and infrastructural variables in the emerging market, a factor that is evident in the responses of the participants,

The mixed findings demonstrate that no particular strategy is universally effective; leadership optimisation in digital scenarios needs to be sensitive to the situation. Investing in digital infrastructure and investment in leadership development seems to provide a good background. Nevertheless, soft approaches, i.e., the artificial facilitation of digital trust by means of communication and collaboration, demand top leadership modelling and cultural realignment. Lacking such congruency, these strategies are likely to be viewed as superficial or beyond the organisational norms. This highlights the necessity of a hybrid leadership model as a literary proposal (Kansil & Sujuti, 2024). The mixture of transformational and digital leadership and the addition of culturally intelligent behaviours which acknowledge hierarchy and gradually incorporating participatory tools and communication conventions are necessary in the Nigerian context.

Chapter Five: Conclusion

5.0. Summary

This study investigated the impact of digital transformation on leadership styles and workforce engagement in Nigeria. This study sets out to achieve the following three objectives:

- To explore the relationship between digital transformation and leadership styles.
- To investigate the impact of digitalization on workforce engagement and
- To identify strategies for optimizing leadership effectiveness in a digitalized workplace

To achieve these objectives, a quantitative method was adopted. Quantitative data was collected through a structured questionnaire which were distributed through google forms. 162 participants completed the online questionnaire and the data were analysed using descriptive and inferential analysis. Descriptive techniques adopted to achieve the objectives include frequency distribution and graphs, and summary statistics while one-sample t-test and regression analysis were used to analyse the data. The results for the first objective reveal a mixed perception towards the relationship between digital transformation and leadership styles. Although participants responded positively that digital transformation has led to innovation and change in leadership style, they did not think that leadership changed significantly. The average values of most of the items were not statistically significant indicating indifference or divergent views. Regression analysis also confirmed limited impact and there was no significant influence of digital initiatives or training on leadership styles. Overall, digital transformation does not affect leadership behaviours significantly.

The findings for the second objective also reveal that there is limited perceived influence of digitalization on workforce involvement. Only one item, relating to increased engagement through improved access to digital resources and communication, turned out to be statistically significant. The rest of the items including satisfaction, motivation

and team connection did not have significant average values. Regression analysis demonstrated that there is no significant factor of implementing digital transformation or training on workforce engagement. Such results indicate that the benefits of digital access are located, although the broader consequences of engagement will be achieved using digitalization.

The result for the third objective revealed that digital infrastructure investment and leadership development were moderately supported as strategies to optimise digital leadership effectiveness. These items have significant average values denoting perceived importance. Nevertheless, the reactions to other strategies, including communication, collaborative platforms, and adjusting styles of leadership were not statistically significant, indicating contrary views or uncertainty. Frequency distributions demonstrated high variability in the response of the participants. In overview, some of the strategies are viewed positively others lack consensus, pointing to context-driven perceptions of what constitutes effective digital leadership.

5.1. Implications of the Findings

This study holds a number of key implications to both the theory, practice, and policy especially within the scope of emerging economies. Using the findings of the three major objectives as a base, it was evident that the reality of digital transformation in the Nigerian workplaces was differentiated and location-specific. Such results are highly significant to organizational leaders, human resource practitioners, policymakers, and researchers in exploring successful digital integration and leadership strategies within such contexts. The first implication is that digital transformation alone does not guarantee leadership change. The results reveal that the digital revolution has not brought much impact to leadership styles in the organisations of the participants. Although the participants agree that innovation and adaptation towards digital requirements have increased, they are not convinced that leadership has undergone a major transformation due to digitalization. This challenges the prevailing narrative in global literature that associate digital change to direct or immediate leadership change. For practice, this indicates that changes in leadership cannot be left to chance but require a deliberate design and facilitation, not a by-product of the digital embrace (Parra-Sánchez & Talero-Sarmiento, 2024). Hence, structured leadership development efforts, mentoring and culture change programs have to be placed on a top priority level by

organizations in order to allow leaders to internalize and role-model digital competencies (Vial, 2021). Moreover, the leadership training should not be limited only to the surface level digital training and should also focus on mindset change, change management skills as well as emotional intelligence all of which are crucial in leading in digital contexts (Maheshwari & Yadav, 2020).

Another implication of the findings is that workforce engagement requires more than digital tools. The findings reveal that although the presence of digital access to communication and resources modestly increases engagement, the outcomes of broader engagement (motivation, feedback, empowerment and job-satisfaction) does not significantly respond to digital transformation. Such a realisation has far-reaching implications about the way organizations conceptualize digital engagement strategies. For practitioners, this highlights the significance of a human approach to digital transformation. It is not enough to provide digital tools and the platforms to engage the workforce deeply. Instead, these tools have to be integrated into a more comprehensive strategy of inclusive communication, participatory leadership, supportive culture, and employee well-being (Nousopoulou et al., 2022). Leadership also needs to show the visible commitment to engagement not only at the level of implementation of tools, but also at the level of relational leadership practices stimulating trust, belonging, and a common purpose (Ahmad et al., 2022).

Another implication of the findings is that strategic approaches to digital leadership must be contextualized. The mixed perception regarding different approaches to maximising leadership performance also points towards the need to adjust the digital leadership programs to the socio-cultural specifics of Nigeria and other countries classified as developing. Although there is a consensus on digital infrastructure and leadership development, more complicated approaches, like adaptive leadership styles, collaborative platforms and digital communication, raise differing views. There are two important implications to this. First, leadership strategy in digitally transforming organizations must be adaptive and culturally intelligent. There might be a clash between the traditional authority structure and the new practice of participatory leadership, and leaders might need to intercede within hierarchical and collectivist societies like Nigeria. (Ndungu and Signe, 2020) This requires a hybrid approach to leadership where cultural standards are honoured and change in new digital ways is brought to practice at a gradual

pace (Yang et al., 2025). Second, institutions should invest on change readiness and digital literacy across all levels, not just to technical personnel or on the senior level (Westerman et al., 2014). Employees may be sceptical, indifferent, or even resist, especially when they have no skills or knowledge about the benefits of such digital initiatives, negating well-intentioned leadership strategies (George et al., 2014).

From a policy standpoint, the study hints that national and sectoral policies need to facilitate broad digital literacy, infrastructural development and leadership training (Sousa & Rocha, 2019). Governments and industry regulators in developing economies such as Nigeria should not only work on the dissemination of the digital tools; they should also work on the ease of accessing quality leadership and organisational development programmes that are digitally inclined (Bughin et al., 2017). Public-private partnerships could be important in filling this gap and allow small and medium enterprises (SMEs), which are the backbones of the employment in Nigeria, to gain access to affordable digital leadership solutions (Kane et al., 2015). Moreover, capacity building programs that focus on the mid-level and emerging leaders will be critical to ensure establishment of a pipeline of digital-savvy leadership (Prokopenko et al., 2024).

5.2. Recommendations

Based on the findings, three recommendations were suggested:

Recommendation 1: Establish Structured Digital Leadership Development Programmes

According to the findings, there was a significant agreement among the respondents ($M = 3.17$, $p = 0.07$) on the statement that digital leadership development programs must be implemented in improving organisational growth. Nonetheless, most of the respondents were neutral or divided on other leadership strategies, hinting at uncertainty about how to implement successful digital leadership. This result highlights an evident understanding among workers that digital leadership development is a critical undertaking, despite the dissimilar perceptions regarding other strategic initiatives. Investing in structured digital leadership platforms by providing the necessary skills to determine and lead in digital spaces, including analytics-driven decision-making, digital communications, data ethics, and agile leadership is recommended. However, digital leaders should not only be tech-literate but also adaptive in behavioural modelling and

instilling an atmosphere of innovation as emphasised in the literature (Kane et al., 2015; Yuancebalkan et al., 2018). Digital leadership education is one of the key ways of reducing this difference in the case of Nigeria, where traditional leadership hierarchies prevail (Hofstede, 1984), and digital education can assist leaders in the process of changing their culture and developing the technologies to meet the current demands.

Moreover, the structured programs will streamline leadership skills within departments and maintain digital take-up approach uniformity (Odiche & Amodu, 2024). These initiatives are possible via collaborations with higher education, virtual certifications and internal capacity building programs (Trushkina et al., 2020). Finally, the focus on the development of digital leadership will help meet employee needs and expectations, solve the identified problem of leadership inertia, and enable organizations to be better prepared to guide the process of digital transformation in more effective and inclusive ways.

Recommendation 2: Invest in Digital Infrastructure as a Foundational Strategy

The participants majorly agreed with the statement that investing in digital infrastructure enables leaders to support their teams more effectively ($M = 3.47$, $p < 0.001$). It was the most statistically significant item relating to the strategies of optimising of leadership effectiveness in a digitalized workplace. This observation shows that infrastructure is seen not only as a technical requirement but also a strategic value of proper leadership. Leaders cannot make effective use of digital tools or platforms in an environment such as Nigeria, where access to digital tools is not constant or even reliable (Udegbunam et al., 2023). This means that significant investments in infrastructure, including access to stable internet, electricity, cloud services, and collaborative software systems, are required. The insignificant outcomes in the rest of the items concerning leadership and engagement could partly be attributed to infrastructural constraints that bar complete operationalization of digital strategies. Unless the enabling infrastructure is adequate and integrated, leaders cannot communicate effectively through digital platforms, offer real-time response, or exhibit digital expertise (Bughin et al., 2017).

Investing in digital infrastructure means that organisations create a conducive environment for all other digital transformation efforts to flourish. It guarantees that the leaders and employees will have consistent access to tools that will make communication

easier, allow performance monitoring, organizing a team, and collaborating remotely, the features of strong leadership in the digital age (Odai et al., 2025). Additionally, the investment in infrastructure will decrease the digital inequality in the workforce, increase interaction and inclusion between departments or locations (Northouse, 2021). It also complies with international best practices to underline that infrastructure is a precondition of digital maturity (Nousopoulou et al., 2022). Infrastructure must therefore be viewed as one of the fundamental investments that organizational leaders need to make, prior to, or contemporarily with other investments in leadership training and strategic programs, to ensure that their companies have a genuinely digital-ready workforce and leadership culture.

Recommendation 3: Design Inclusive, Human-Centred Digital Engagement Strategies

The only statistic significant item on the effect of digitalisation on workforce engagement is the item "My engagement at work has increased due to greater digital access to resources and communication" ($M = 3.36$, $p < .001$). All the other items pertaining to engagement were insignificant, so there was minimal or skewed influence of digital tools on the wider engagement. This finding shows that although digital access enhances certain functional dimensions of participation, it does not automatically lead to a more emotional or motivational participation. Even employees are confused whether digital tools enhance job satisfaction, team connection, empowerment, or work-life balance. This supports the body of literature cautioning against overly techno-centric approaches to engagement (Tarafdar et al., 2019). Rather than introducing digital tools, organisations must consider inclusive human-focused engagement practices that incorporate digital tools in an emotionally perceptive leadership culture. These might be personalised digital feedback structures, wellness programs to address digital fatigue, and employee voice and recognition platforms. The leaders should be educated not only in using digital technologies but demonstrating responsive, communicative, and participative patterns as in transformational and servant leadership theories (Northouse, 2021; Peykar, 2024).

Engagement strategies, however, need to be comprehensive in the Nigerian context, where digital access and digital fluency may be uneven, and the risks of digital exclusion need to be minimised (Achieng & Malatji, 2022). This will be important in training, effective communication and a gradual adoption of the tools (Acemoglu & Restrepo,

2020). In summary, the secret to enhancing collaboration in a digital workplace lies beyond the implementation of technology but rather an intelligent incorporation of digital systems, strategy and cultural awareness in the leadership practices (Indiarti & Lantu, 2022). A human-centred approach will contribute to creating that bridge, as opposed to the barrier, between employees and technology.

5.3. Limitation and Direction for Future Studies

One major limitation of this study lies in its reliance on self-reported cross-sectional survey data which might be biased due to social desirability, recall errors or mis-interpretation of questions (Porfírio et al., 2021). Although this study offers valuable information on attitudes towards digital transformation, leadership styles, and involvement, it does not capture actual behavioural changes and longitudinal effects. The answers given by the participants are simply their subjective perspectives at a single point in time and might not be entirely in alignment with what organizational practice or the emerging leadership dynamics. Besides, the quantitative design of the research, while effective in defining the generalized patterns has a rather narrow chance to delve deeper into contextual, cultural, and interpersonal dimensions of digital leadership effectiveness or engagement among employees. As an example, the variation in reactions to some strategies and dimensions of engagement may indicate the presence of underlying complexities, e.g., organizational culture, digital maturity, or leadership communication styles, the complexity of which cannot be entirely decomposed using quantitative instruments.

It is on this basis that future research needs to be mixed-methods or longitudinal in nature. A qualitative research approach based on interviews, focus groups, or a case study would facilitate more in-depth coverage of the actual experience of digital transformation as it is integrated and implemented into Nigerian organizations. The approaches can provide insight into how leadership adaptation, employee resistance, or infrastructural limitations manifest in daily work life. Also, it could be expected that future research would look into sector specific dynamics, with potential differences between digital transformation in different sectors (e.g. finance vs. manufacturing vs. public sector). Inter-regional or inter-organisation comparisons might be another way of generalising results and finding practices that are context-specific. Finally, this study can be extended using more varied approaches as well as longitudinal follow-up to provide a richer and

precise picture of the effects on leadership and engagement based on digital transformation, especially in the context of such a complicated socio-economic and cultural environment like the one present in developing nations such as Nigeria.

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Appendix 1: Survey Questions

- **Demographic Questions**

1. **What is your age group?**
    - 18–24
    - 25–34
    - 35–44
    - 45–54
    - 55 and above
2. **What is your gender?**
    - Male
    - Female
    - Non-binary
    - Prefer not to say
3. **What is your highest level of education completed?**
    - High School
    - Diploma
    - Bachelor's Degree
    - Master's Degree
    - Doctorate
    - Other: _____
4. **How long have you been working in your current organization?**
    - Less than 1 year
    - 1–3 years
    - 4–6 years
    - 7–10 years
    - More than 10 years
5. **What is your current job level?**
    - Entry-level
    - Mid-level
    - Senior-level
    - Executive
    - Other: _____

_____

6. **What sector does your organization operate in?**
    - Public
    - Private
    - Non-profit
    - Other: _____
7. **What is the size of your organization?**
    - Fewer than 50 employees
    - 50–199 employees
    - 200–499 employees
    - 500 or more employees
8. **What region of Nigeria is your organization located in?**
    - North Central
    - North East
    - North West

- South East
- South South
- South West

9. **Has your organization implemented digital transformation initiatives in the past 5 years?**
    - Yes
    - No
    - Not sure
10. **How would you rate your digital literacy?**
    - Very Low
    - Low
    - Moderate
    - High
    - Very High
11. **Have you received any formal training in digital tools or technologies in your current role?**

- Yes
- No
- Not sure

12. **How often do you use digital tools in your daily work?**

- Rarely
- Occasionally
- Frequently
- Always

13. **Do you supervise or manage other employees in your organization?**

- Yes
- No

14. **Which of the following best describes your level of involvement in organizational decision-making?**

- No involvement
- Occasionally consulted
- Frequently involved
- Regularly responsible for decisions

Below is a **Likert scale questionnaire** (5-point scale: *Strongly Disagree, Disagree, Neutral, Agree, Strongly Agree*)

🔹 Research Objective 1: To explore the relationship between digital transformation and leadership styles

1. My organization has adopted digital tools that influence how leaders communicate with their teams.
2. Leadership in my organization has changed in response to digital transformation.
3. I believe digital technologies have made leadership more transparent and accessible.
4. Leaders in my organization are actively involved in promoting digital initiatives.
5. Digital transformation has required leaders to adopt new styles of leadership.
6. Digital transformation has encouraged leaders in my organization to become more innovative.
7. Leaders effectively use digital platforms to align the team with organizational goals.
8. My organization's leadership style is evolving to suit the demands of a digital workplace.

🔹 Research Objective 2: To investigate the impact of digitalization on workforce engagement

1. Digital tools used in my organization help me stay engaged with my work.
2. I feel more connected to my team due to digital collaboration platforms.
3. Digital transformation has improved my job satisfaction and motivation.
4. Digital systems in place make it easier to receive feedback and recognition.
5. The use of digital technology supports a healthy work-life balance for me.
6. The digital technologies used in my workplace allow me to collaborate more efficiently.
7. I feel empowered to contribute ideas through digital platforms.
8. My engagement at work has increased due to greater digital access to resources and communication.

🔹 Research Objective 3: To identify strategies for optimizing leadership effectiveness in a digitalized workplace

1. Leadership training in digital competencies would enhance leadership effectiveness.
2. Clear digital communication from leaders increases team productivity.
3. Leaders who embrace digital tools improve decision-making processes.
4. Collaborative digital platforms can improve leadership visibility and trust.
5. I believe that adapting leadership approaches to digital trends is necessary for success.
6. Digital leadership development programs are necessary for organizational growth.
7. Leaders who demonstrate digital skills are more respected in my organization.
8. Investing in digital infrastructure helps leaders support their teams more effectively.
