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Catalysing Digital Transformation in Tanzania: COVID-19's Impact

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Abstract

The COVID-19 pandemic has predominantly been viewed for its adverse impacts on economies, political stability, and the social well-being of individuals and societies worldwide. Unlike many other countries, Tanzania did not enforce complete lockdown measures but took significant actions such as closing schools, colleges, and universities, and encouraging organisations and businesses to adopt remote working practices. Similar to global trends, Tanzania experienced cancellations of flights, postponement of conferences, enforced social distancing, and strictly regulated gatherings. These circumstances necessitated the adoption of digital technologies for interactions, including online meetings, marketing, shopping, worshipping, social interactions, e-learning, and video conferencing. Consequently, Tanzania underwent substantial digital transformation to cope with the pandemic's effects and sustain its economy. As a qualitative study, this article explored the impact of COVID-19 on digital transformation in Tanzania. It employed a combination of two methods, viz., review of literature and researcher's analytical perspectives, notably, single perspective approach. Strategic search approach was applied using key words to access credible secondary data literature by Google Search and Google Scholar search engines. The findings reveal significant changes in human-computer interaction during COVID-19, highlighting the

pandemic's role as a catalyst for development transformation in Tanzania. Despite the challenges posed by the pandemic, its contribution to advancing digital technologies in Tanzania is undeniable.

Keywords: *COVID-19, pandemic, digital transformation, digital technologies, Tanzania*

Introduction

This article recognises the positive impact of the coronavirus disease (COVID-19) to digital transformation in Tanzania. COVID 19 as a pandemic claimed lives of millions of people in the world though turned out to be a catalyst towards new way of living using digital technologies. This been due to the fact that less human physical interaction was advised as a means of controlling the spread of the pandemic (Karabag, 2020).

The COVID-19 as officially named by the World Health Organisation (WHO) in February 2020, is a pandemic originated in Wuhan, China, killing more than 1,000 people in the country in the first month of the outbreak (Guo et al., 2020; Rothan & Byrareddy, 2020). As of 2023, more than 760 million cases and 6.9 million deaths were reported around the world (WHO, 2023b). In Tanzania, “a total of 42,822 cases and 792 deaths” were reported by 31st December 2022 (WHO, 2022 p.46).

Following the increased COVID-19 cases and its related deaths, WHO issued the Public Health and Social Measures (PHSM) towards combating the pandemic. The PHSM comprised of personal protective measures which included, among others; physical distancing, international travel-related measures, social interaction measures, and other response measures like isolation and quarantine (WHO, 2023a). Such measures resulted to less physical interactions among people. In many countries physical interactions was very limited due to lock-down practices applied in response to the PHSM.

Unlike other countries that practiced lockdown measures, Tanzania did not. However, since the announcement of the first COVID-19 case in the country on 16th March 2020, the government, on the following day, took measures to close all schools, colleges and universities in the country (Msigwa, 2020; Shao et al., 2023). Some organisations and businesses opted to work from home as a means to overcome the pandemic. Like in many other countries, in Tanzania flights were cancelled, conferences postponed, social distancing enforced, and gatherings allowed under strict restrictions. As such, people opted for digital technologies such as online meetings, marketing, shopping, and worshipping as adaptive measures. Other adaptive measures included; social media interactions, e-learning, and video conferencing. Under such circumstances, the country underwent a significant transformation in digital technologies to cope with the pandemic's side effects and sustain socio-economic wellbeing of its people.

Digital Technologies before COVID-19 in Tanzania

The current study acknowledges the use of digital technologies in Tanzania before the pandemic. The technologies had already revolutionised the way people interact, work and live. Hence, the use of digital technologies was apparent in social, economic and political activities. For instance, at higher learning institutions, use of digital technologies has been for long, a means to enhance effective teaching and learning. The Open University of Tanzania (OUT) for example, started using MOODLE learning management system since 2008 to enhance active learning and facilitation in Open and Distance Learning (ODL) programmes (OUT, 2010). Likewise, the University of Dar es Salaam, University of Dodoma, Institute of Adult Education (IAE) and Institute of Finance Management began using the learning management system some years prior to the pandemic. The IAE had multimedia learning digital technologies in use to facilitate adult and non-formal learning

sessions in the country as early as 2017 (Mariki, 2020a, 2020b). Also, the Tanzania Global Learning Agency has been providing trainings to public servants and leaders using digital technologies since its establishment in 2000 (Senkondo, 2015).

In addition, it should be noted that Tanzania had already instituted measures to integrate digital technologies into its economic and political activities to ensure a fast-growing economy and sustainable development. In its development vision 2025, Tanzania recognises ICT as a central driving force towards attaining sustainable development (URT, 1999). Notably, catalysing digital transformation in Tanzania gained momentum in 2015 when the then President Dr. John Pombe Magufuli, mandated both public and private sector institutions to adopt digital technologies in their operations. Consequently, the then Ministry of Works, Transport and Communications, reviewed the 2003 ICT policy and launched the National ICT Policy in 2016 (URT, 2016). Also, the e-Government Authority (eGA) and Tanzania Communications Regulatory Authority (TCRA) introduced regulations in executing the designated mandates. As a result, there was a transformation in the way of doing business and providing services within the public and private sectors. Government institutions instituted electronic management information systems to execute their services as a measure towards digital transformation as per the government requirements. The practice influenced digital transformation such that the country witnessed a massive use of electronic transactions and communications in both formal and informal sectors.

The existing literature highlights the progress of Tanzania's digital transformation before COVID 19. The literature like, Lupilya and Jung (2015), noted significant advancements in electronic service delivery and the implementation of information systems in government institutions, facilitating more efficient business operations and service delivery across various sectors. Additionally, Wahid (2018) and, Kamatula and Kemoni

(2018) emphasised the impact of ICT on the provision of electronic regulatory services. The literature outlines the services like the Integrated Financial Management System (IFMS), Human Capital Management Information System (HCMIS), and the National Payment System (NPS). The services have not only enhanced the efficiency, effectiveness, and reliability of government services but also, contributed significantly to the national economic growth. Furthermore, the regulatory environment, shaped by the Cybercrimes Act and the Electronic Transactions Act of 2015, boosted confidence in the use of digital technologies among financial institutions. This is as evidenced in the application of e-services, cyber security measures, and improvements of the overall digital landscape in Tanzania (Oyebamiji, 2021).

Notwithstanding the previous application of digital technologies in the country, its use increased enormously during COVID-19. Universities, higher learning institutions, schools, businesses, religious institutions, and the government, ventured on the use of digital technologies as a coping mechanism against the pandemic (Msigwa, 2020). Thus, the current paper aims at sharing, contemporary transformation in digital technologies that would not have happened if not for the pandemic. Specifically, it shares first, the notable transformations in the way of doing things, and secondly, the transformation in the general use of digital space. The transformation in the use of digital technologies, as presented in this paper, is regarded as a positive impact of the pandemic but does not neglect the fact that COVID-19 was one of the deadliest pandemics ever happened in human history.

Methods

This article is a qualitative study which employed a combination of two methods, viz., review of literature and researcher's analytical perspectives, notably, single perspective approach (Clarke & Davison, 2020). The combination was meant for triangulation purposes to enrich broad

perspectives on digital transformation in Tanzania resulted from the COVID-19 pandemic. Various reliable sources were consulted, using Google Scholar in accessing recent peer-reviewed journals and conference proceedings, and Google Search in accessing reputable articles, reports, and data from credible organisations. Subsequently, Government and institutional reports were accessed from Tanzanian regulatory bodies, international organisations and reputable digital insight platforms.

To ensure a comprehensive literature review, a strategic search approach on Google Scholar was employed to access secondary data from credible sources. Thus, keywords related to COVID-19 and digital transformation, such as “COVID-19 + WHO,” “COVID-19 pandemic,” “COVID-19 deaths and cases to date,” “COVID-19 pandemic in Tanzania,” “digital-age,” “digital transformation during COVID-19,” and “digital transformation in Tanzania during COVID-19,” were used. Given the rapid evolution of digital technologies, a custom range function on Google Scholar, was set to focus on the most recent publications, particularly from 2019 onwards. The search phrases were iteratively refined to capture the most relevant information, and only articles from trustworthy sources, including peer-reviewed journals and official government publications.

The analysis was conducted within the context of digital transformation, focusing on the adaptation and implementation of digital technologies across various sectors during the pandemic. The data collected was synthesised to identify patterns and trends in digital technology adoption during the COVID-19 pandemic. Findings from accessed literature were presented in narratives with respective citations and in combination with the researcher’s perspectives to reveal contextual practices and experiences.

Results

Results are presented in line with the study objectives by sharing notable transformations in the way of doing things and use of digital space. Notably, the results enrich transformations happened in working modalities, learning modalities, and meeting conducts during COVID-19. Subsequently, the increased use of mobile money transactions, social media, and Internet during the pandemic catalysed a significant use of digital space.

Notable Transformations in the way of Doing Things

The way people do things changed during the pandemic due to the social distancing measures that amplified digital transformation, enabling processing of large amount of information through computer technologies, at all aspects of life (Hai et al., 2021). Existing literature (García-Peñalvo, 2021; Kozarkiewicz, 2020; Shao et al., 2023), view the transformation as revolution that brought new realities of life and significantly impacted the socio-economic development by integrating digital technologies. Digital transformation in Tanzania during COVID 19 was evident at all levels be it at work, market, home, or school. Accessed literature shows that there has been transformation in office operations, learning, meetings and use of digital space in general as presented in the following sections.

Transformation in working modalities

Working from home was not a common phrase used before in Tanzania but during COVID-19, it became a new normal as many organisations opted for the practice in order to ensure both safety among workers and continuous operations (Mwita, 2020). Working from home was practiced by various institution including telecommunication companies, United Nations (UN) agencies in Tanzania, Embassies, Non-Government Organisations (NGOs), and some private-owned schools. Employees

found it safe as a preventive measure against COVID-19 to work from home. However, the measure required digital technologies like computer system, stable Internet, smart video conferencing, reliable phone reception, smart phone, smart television, and online interactive platforms. Such requirements forced organisations to incur costs in creating an enabling environment for the work from home initiative (Shao et al., 2023). However, based on the fact that at the current digital-age, most people own their own smart technology facilities, some organisations facilitated their staff with internet connectivity for a smooth working from home.

Nonetheless, some organisations continued working in offices but in few numbers and shifts, such that others would be working from home and others at work interchangeably. The practice required digital technologies to facilitate the office operations at the new settings. As such, use of computer mediated communications was not an option. Also, in avoiding possible transmission of corona viruses, such institutions introduced the use of biometric attendance systems. The institutions installed biometric fingerprint scanners in place of manual monitoring of time and attendance of employees. Such intervention exists to date as it has been not only effective in minimising virus transmissions but also in monitoring employees' attendance.

Transformation in learning modalities

Digital technology became a game changer during COVID-19 as it became a solution towards learning at all levels of education in the country. As it has been said earlier in this paper, the government of Tanzania closed all schools and colleges on 17th March 2020. To cope with the situation, schools and colleges introduced their own means of using technologies to facilitate students' learning from home. Some schools created learning applications in which they shared learning materials to their students. Others focused on the use of social media and the existed e-learning

platforms to interact with students at their homes (Msigwa, 2020). Televisions initiated special programmes to help students to keep up with their curricular while at home. Such programmes were not compulsory but free for students at basic education levels to watch and learn (Mwakyusa, 2022; Shao et al., 2023). Going online was also the best option adopted by higher learning institutions so as to keep up with the existed situation (Victoria et al., 2022). The closure of schools and colleges forced the academic institutions to engage into digital technologies that would enhance distance learning among students. As such, both traditional and dual-mode higher learning institutions opted for the technologies. For instance, OUT, the oldest and largest dual mode university in the country, made a remarkable move by strengthening the use of digital technologies. The university administered online oral examinations to all students from Tanzania and abroad (Oreku, 2021). Further, OUT mainstreamed the use of ZOOM technologies in facilitating learning sessions to students. As such, students at the university also had opportunity to defend their post-graduate dissertations via ZOOM platform during the pandemic.

The university of Dar-es-Salaam (UDSM), the oldest conventional-mode institution in Tanzania engaged in the use of ZOOM and MOODLE technologies in facilitating learning during COVID 19. According to Mtebe et al. (2021), UDSM purchased 60 ZOOM accounts for its academic units so as to enhance effective teaching and learning. Notwithstanding the fact that the university used digital technologies way back before COVID 19, its increased focus on the use of digital technologies after the pandemic was evident. Raphael and Mtebe (2023) indicates that during COVID 19 the university academics mainstreamed the use of ZOOM technologies in administrative meetings and postgraduate research-support services including students' dissertation defence.

At the Institute of Adult Education, the oldest correspondence and ODL institution in the country, digital technologies were also considered the option towards learning. IAE purchased MOODLE learning management system and ZOOM accounts to be used by students while at home. IAE applied the ZOOM technology as a pilot study in which its findings indicated successful use of the technology (Machangu et al., 2022). Thus, the institute continued using the technology to date for both learning sessions and administrative meetings.

According to Mwakyusa (2022), lecturers and students at higher learning institutions strengthened the use of WhatsApp groups in learning processes during COVID-19. Students established WhatsApp platforms in which they had discussions and sharing of information and learning materials. Facilitators used the WhatsApp groups to provide learner support services and other communications including timetabling, ZOOM session invitations and sharing of learning materials.

Transformation in conducting meetings

In times of the pandemic some organisations established video conferencing facilities to enhance meetings. The e-Government Authority (eGA) for instance, created *e-mikutano* (e-meetings) system in 2020 as a video conferencing platform for public institutions (Shao et al., 2023). The system was created in supporting public institutions during the pandemic. In response to eGA requirements, the Local Government Authorities (LGAs) established video conferencing facilities at their respective administrative areas as a mandatory requirement. As a result, the LGAs in the country managed to conduct meetings virtually at their respective offices without a need for traveling long distances for the meetings as is used to be before COVID-19. Occasionally, the Prime Minister used *e-mikutano*, an online platform created by eGA, to address Regional Commissioners and LGAs. This was made possible for the first time in Tanzania as a means to cope with the COVID 19 effects.

In addition, on 17th August 2020, while in Dodoma, the then President of the United Republic of Tanzania, H.E. the late Dr. John Pombe Magufuli attended a Southern Development Community (SADC) virtual meeting streamed live by various media in the region. In this meeting, which was the 40th meeting of the SADC Heads of Member States, His Excellency addressed the meeting and handed over the SADC chair to the President of Mozambique, H.E. Filipe Jacinto Nyusi (Upendo Media, 2020; URT, 2020). The meeting portrayed a digital transformation that was a revolution remarkable not only in Tanzania but also in other countries in the region.

Similarly, various institutions both private and public ventured in using online meeting platforms like ZOOM, video conference, and Microsoft teams. Such platforms for facilitating online meetings gained popularity in short period of time. People working from home had to participate in such meetings frequently as an alternative to physical meetings. Hence, organisations invested in digital technologies to ensure effective virtual meetings and communications.

Transformation on the use of Digital Space

Tanzania witnessed an enormous increase in the use of digital technologies in the country in which citizens could access services online while at home. Organisations such as the Ministry of Health and some other health institutions which established 24 hours call centres to track COVID-19 patients, catalysed the use of digital space. Consequently, the significant increase in the use of online services like financial transactions, social media, and other related digital technologies, accelerated the use of digital space and allowed people to easily access services (Shao et al., 2023).

Use of digital space in mobile money transactions

In the efforts to ensure financial stability during COVID-19, the Bank of Tanzania (BoT) encouraged cash-less transactions by allowing mobile

money service providers to increase daily transaction limit and daily balance to customers from Tshs. 3,000,000 to 5,000,000 and 5,000,000 to 10,000,000 respectively. The public responded positively as the mobile money transaction value increased by 14.1% in 2020 which was more than twice the increase in 2019 (Lyimo, 2022; Shao et al., 2023). Figure 1 shows the mobile money value of transactions in the year 2020.

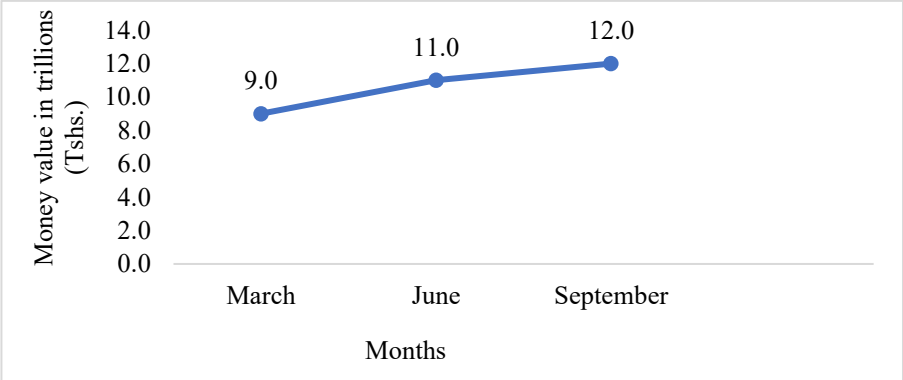


Figure 1: Mobile money value of transactions as of 2020 (TCRA, 2024)

Figure 1 illustrates that Tanzania saw a swift rise in the value of mobile money transactions, from 9 trillion shillings in March to 11 trillion in June 2020, representing a 22% increase. This growth is more than double the increase observed during the same period in 2019, which was 9%. These statistics suggest the potential impact of COVID-19, as the first reported case in March 2020 caused a significant shock among the populace. Communities opted for e-money services such as M-Pesa, Tigo Pesa, Airtel Money, Halopesa, Ezy Pesa, TTCL, and mobile banking, enabling them to transact remotely using their smartphones, tablets, or computers (Baruti et al., 2022).

Social media on digital space

The social media, particularly WhatsApp, became popular during the pandemic. The government shared daily information with the public regarding prevention measures, new cases, deaths, and other statistics from within and outside Tanzania. Most people, companies, and institutions made intensive use of social media to seek information online regarding not only COVID-19 news but also, socio-economic development issues (Elia, 2022). Communication between families and friends became mostly virtual via WhatsApp, where they shared video clips, images, and messages about family matters, the pandemic's effects, pandemic alerts, politics, marketing products, and more.

Increased Internet usage

With a significant number of mobile money subscribers and increasing engagement in online communications, the demand for Internet services increased as a result. Figure 2 illustrates the estimates of Internet users across the four quarters of 2020.

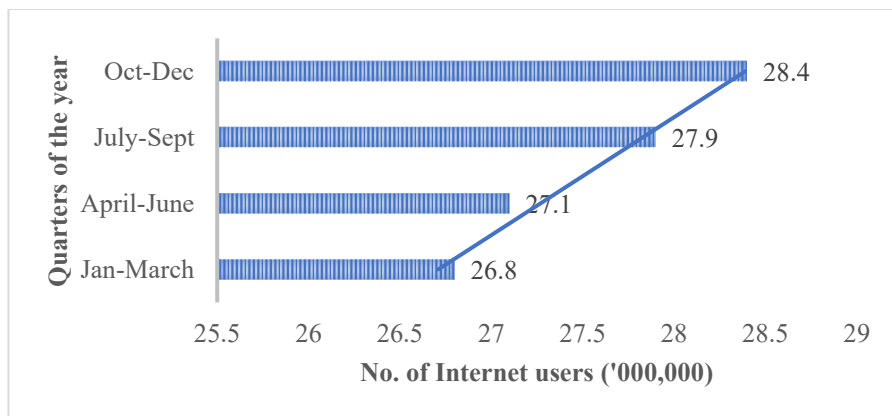


Figure 2: Estimates of Internet users across the 2020 Quarters (see TCRA, 2020)

From Figure 2, it is evident that the number of internet users was increasing throughout the year. According to TCRA (2020), Tanzania had 25.7 million internet users as of December 2019. As shown in Figure 2, by March 2020, this number had already increased by 4%. There was a slight increase of 1% by June 2020, followed by a notable increase of 3% from July to September 2020. This increasing trend is also reflected in the mobile money transaction values shown in Figure 1. Generally, it can be argued that digital transactions and communications reduced physical interaction incidences and ultimately, intensified the use of digital space in the country.

Discussions

The digital transformations observed in the way of doing things and significant use of digital space during COVID-19, pose a discussion on whether the experienced impact on digital landscape would have happened if not for the pandemic. It is with no doubt that the pandemic pushed the country to another level of advancement in digital technologies at all aspects of life. On one hand, COVID-19 was a devastating pandemic, but on the other, its significant contribution to the development of digital technologies in Tanzania is undeniable (Banga & Te Velde, 2020). Therefore, it can be argued that COVID-19 was a blessing in disguise when considering its impact on digital transformation in the country's technological landscape (see also- Nachit & Belhacen, 2020).

Undoubtedly, Tanzania would have achieved the stated digital transformation the coming years, as strategically stated in the country's development vision 2025 (URT, 1999), but the pandemic expedited the process. The transformations happened in the way of doing things and use of digital space, occurred abruptly and were accepted out of necessity, given the external pressure and prevailed conditions brought about by the pandemic. Thus, adopting the changes was inevitable; it was a necessary transformation for survival. Nevertheless, despite the pandemic's evident

role in catalysing digital transformation, it is crucial ensure sustainability measures are in place to avoid reverting to traditional technologies.

For instance, Shao et al. (2023) in their study on “sustaining public sector digital transformation induced by COVID-19 in Tanzania”, recommended enhancing digital payments, legal compliance, public service digitalisation and public e-services. However, these recommendations, depend on political will and prevailing socio-economic forces at a given time. During the pandemic, the situation forced the country to adopt digital technologies as an unavoidable option, but now that the threat has diminished, the emphasis on digital technologies may be compromised. Therefore, sustaining digital transformation requires extensive research involving both private and public sector stakeholders.

Additionally, digital transformation supported continuous operations during the pandemic. The use of digital technologies to enhance remote office operations and distance learning by universities and higher learning institutions was a necessary step. The adoption of the *e-mikutano* system, digital transactions, online services, information sharing, and staying connected via WhatsApp were the necessary transformations to minimise physical contacts and gatherings. These changes highlight a significant shift in administrative practices and the general way of living among Tanzanians. However, such widespread adoption of digital technologies necessitates the government to maintain safety protocols to ensure cyber security and sustainability.

Challenges and Inequalities Associated with Digital Transformation

While the digital transformation brought about many opportunities, it also highlighted and exacerbated existing inequalities. Access to reliable internet and digital devices is not uniform across Tanzania, creating a digital divide that disadvantages rural and low-income communities (Banga & Te Velde, 2020). The rapid shift to online platforms in education

and business left many without the necessary skills or resources to adapt quickly, widening the gap between those with digital literacy and those without (Msigwa, 2020).

Additionally, the reliance on digital technologies introduced cyber security risks and challenges in data privacy. Without robust cyber security measures, individuals and organisations are vulnerable to cyber-attacks, data breaches, and fraud (see also Oyebamiji, 2021; Shao et al., 2023). Moreover, the increase in digital transactions and online activities raises concerns about data privacy and the need for comprehensive regulatory frameworks to protect user information.

Conclusion and Recommendations

The article presented the impact of COVID-19 in catalysing digital transformation in Tanzania. Based on the review of the selected literature and the researcher's perspectives, it is evident that the pandemic had a significant impact on digital transformation in the country. Thus, the measures to address COVID 19 have not only helped in overcoming the pandemic but also changed the total way of life of Tanzanians and brought solutions to various challenges as a result of the introduction of digital technologies. Hence, the pandemic, despite its challenges, served as a catalyst for digital transformation in the country. Nonetheless, the sustainability of the transformations remains critical and requires on-going technical efforts by government and other stakeholders to ensure continued progress. Thus, to address these challenges and ensure sustainable and equitable digital transformation, the following recommendations are proposed:

1. The government should invest in strong and reliable digital infrastructure across the country to sustain the digital transformation and avoid reverting to the traditional technologies.

2. The government should enhance legal and regulatory frameworks that regulate digital transactions, oversee communications, protect data privacy, and ensure cyber security.
3. Research should be conducted to identify the long-term impact of the pandemic in digital transformation and sustainably, scale up best practices.

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