



The centrality of Digital Literacy to Citizen Interaction with E-government Services in Tanzania: A Literature Review

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Abstract

The quest for promoting digital literacy among the populace to access e-government services is more critical than ever because the implementation and success of e-governance depend on digital literacy. This paper envisions a successful change towards the realisation of using electronic government services as a directed development dependent upon the presence of specific empowering agents, such as building digital literacy among the populace. The paper employs a literature review of various sources to understand better the emerging situation of digitalising government services and the determinants of digital technologies used to access e-government service provision. Findings indicate that top-down-oriented initiatives are studied mainly on how they lead to the successful implementation of e-government rather than how the bottom-up approaches have been successfully applied to yield the expected results of e-government service provision. The work is expected to provide practitioners of digitalisation of government services with theoretical and policy gaps that must be addressed when dealing with e-government service delivery to citizens with mostly inadequate digital literacy. Topical gaps in the literature are identified as areas for future research. The study is based on findings from the literature review, specifically on the role of digital literacy in the use of e-government services in Tanzania. More studies are needed to include findings from Africa and elsewhere to get a clearer global perspective about the need for digital literacy for the successful implementation of servitisation of government services.

Keywords: Digital Literacy, e-government services, Mobile services acceptance

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1. Introduction

Digital literacy is a crucial dimension of public engagement in governance, and its importance is highlighted in several SDG indicators and targets, including Target 16.7, which calls for ensuring "responsive, inclusive, participatory, and representative decision-making at all levels." Moreover, Africa's comprehensive Digital Transformation Strategy (2020–2030) stresses the need to ensure digital literacy among the populace for the realisation of the Africa Agenda of the "Africa we want"(AU, 2020; UNECA, 2017). Hence, using information and telecommunication technology to engage people in public decision-making and service delivery is essential to e-government.

Building digital literacy as one of the ways of public engagement is the backbone of e-governance. According to Tomaszewicz (2015), definitions of e-government often include digital literacy. Thus, building digital literacy involves initiatives taken by the government to ensure that the citizens are aware of the necessity and gains of e-governance interactions, particularly the Government and citizens interactions, making the government more responsible towards the people, enabling transparency in the functioning of government departments, facilitating easy access to information by citizens at anytime from anywhere, curtailing the unwanted traffic or movement of people from one place to another, and the provision of better services to citizens (Rajput & Nair, 2013). Thus, digital literacy is envisioned to foster good governance. It prevents red tape and corruption as citizens are more empowered to access information and interact with the government through digital technologies (Adnan et al., 2022).

In this respect, research on digital governance is growing despite the findings on the benefits of embracing and carrying out digital governance in the public sector to ensure efficient service delivery, remaining inconclusive (Agostino et al., 2020). Accordingly, there are examples of failures related to lack or inadequate public engagement through digital literacy, resulting from the inability of citizens to make use of e-government services availed to them and a failure to hold service providers accountable due to a lack of awareness, knowledge, and capacity to make use of digital technologies (Kagoya & Mbamba, 2021).

The introduction of the Internet and the explosion of e-commerce in the private sector have spurred the public sector to move in the same direction towards adopting technology to transform government functioning (Mu & Lee, 2017). Despite the good news, most e-government projects are implemented using technology-centric techniques, and more attention needs to be paid to user engagement considerations despite being utilised by citizens.

Citizens who are the end-users are presumed to be important stakeholders as they interact with the government in the formation, adoption, and implementation of electronic government services. Thus, digital literacy is one of the ways of ensuring that effective end-user engagement is a fundamental part of the e-government relationship in democracies (Li & Shang, 2020). Although governments worldwide invest significantly in digital initiatives to build knowledge communities

with linked and actively involved citizens, issues such as a lack of sustained interaction and participation quality still afflict these governments (Kagoya & Gilbert, 2020; Sharma et al., 2022).

As far as a literature review is concerned, some little research has looked at the critical facets of successful e-government execution in the developing world from the perspective of digital literacy, and little is known about digital literacy as a prerequisite to the effective use of e-government services through citizen-to-government (C2G) interactions in the Tanzanian context. Citizens from developing nations, including Tanzania, have a constricted adoption of e-government services as a result of their low digital literacy (Schuppan, 2009; Sichone & Mbamba, 2017), posing a challenge to the effective implementation of citizen interaction with e-government services (Adnan et al., 2022).

Moreover, many researchers worldwide (i.e., Heeks, 2006; Mensah & Adams, 2020; Kagoya & Mbamba, 2021; Kagoya et al., 2021; Elkadi, 2013; Ziemba et al., 2013; Al-Naimat et al., 2013) have carried out empirical studies focusing on macro-level Government to Government (G2G) and paid little attention to micro-level of government to citizen (G2C), where users directly interact with the government to obtain e-services using ICT (Appolis & Alexander, 2013; Traunmüller, 2012; Chen & Hsieh, 2009). Correspondingly, some authors have revealed that for successful implementation of e-government, building digital literacy among users to ensure digital inclusion in the interactions between the government and the citizens must not be ignored (Adaba et al., 2022; Adnan et al., 2022; Bandura & Leal, 2022; Ishengoma et al., 2019; Pangrazio & Sefton-Green, 2021; Portland (Institute, 2022). The study addresses things. First, it provides an overview of the significance of previous studies on the influence of digital literacy on citizens' use of digital technologies to interact with e-government services. Secondly, it provides a comprehensive review of the findings on digital literacy and the citizen use of digital technologies to interact with e-government services. Thirdly, it defines the gaps to be addressed by conducting further research in the future. The study's findings are envisaged to give the reader a better understanding of how e-government initiatives are advancing in terms of stakeholder engagement through building digital literacy in line with evolving ICT.

The shift to e-government services in Tanzania started from the onset of the Government Strategy Paper for National Vision 2025, which noted that “ICT opportunities can be harnessed to meet national development goals.” Since then, various efforts have been made to deploy e-government initiatives in Tanzania by implementing several public sector reforms to improve the delivery of services to the public (TIC, 2022). Such reforms include adopting ICT to ensure that the public sector can deliver quality, effective, and efficient services to its citizens (URT, 2017); instituting the Medium-term National Strategy for Growth and Reduction of Poverty (NSGRP/MKUKUTA) to accelerate e-government services provision to ensure high-quality livelihood; peace, stability and unity; good governance; a well-educated and learning society as well as a competitive economy by 2025. Others include adopting Tanzania’s Mini Tiger Plan of 2011/12–2025/26 to enhance science, technology and innovation (STI) capabilities for quality service provision (URT,

2021) and increasing the application of technology in government-to-citizen (G2C) interactions (Pillai, 2016). Hence, the use of ICT is hailed as the vital solution to enhancing access to critical, affordable, life-enhancing services for people in underserved communities, as well as good governance because public institutions can use mobile money, SMS, and USSD platforms to deliver services, collect payments, and engage with the public (Okeleke, 2019).

The move towards digital services was further intensified by the ICT policy passed in March 2003, which articulated areas of harnessing ICT in Tanzania. These include strategic ICT leadership by putting in place an appropriate institutional framework such as the establishment of TCRA to regulate the ICT sector; e-Government Authority (e-GA) to promote the use of ICT in the Public Service; setting up the Universal Communications Service Access Fund (UCSAF) to bridge the digital divide between urban and rural areas; setting up of ICT Units in MDA's and establishing of the ICT Commission in July 2012, which is the National ICT think-tank responsible for accelerating ICT industry in the country and ICT solutions in Eastern and Southern African region. Others include the improvement of the quality of life through, for instance, the introduction of mobile money services such as M-Pesa, Tigo Pesa, Airtel Money and Ezy Pesa, which has enabled people to save, send and spend money, including payment of bills for utilities through mobile platforms (URT, 2016).

In addition, the Government of Tanzania adopted the National e-Government Strategy in 2009. It revised it in 2013, aiming at, among others, establishing effective e-government service delivery platforms to improve government efficiency and provide better services to citizens (URT, 2017). Furthermore, in 2012, the Government of Tanzania established the now e-Government Authority with the mandate of coordination, oversight, the provision of e-government initiatives, and the enforcement of e-government standards in public services (Dewa & Zlotnikova, 2014).

Because of such initiatives, Tanzania has introduced 394 websites as indicated in brackets at the following levels: MDA's (268); public universities (12); National Hospitals (91); National Super-specialised hospitals (6); Zonal Referral hospitals (4); Regional Referral Hospitals (28); Public Universities (12); Training Centres (6); Education Institutes (24); Colleges (44) and the Judiciary (1) (URT, 2023). In most cases, government websites offer G2C and G2B models. Several government-wide systems have been installed successfully, enabling the government to perform processes more efficiently, effectively, and reliably. Such systems include the Human Capital Management Information System (HCMIS), Integrated Financial Management System (IFMS), Tanzania Custom Integrated System (TANCIS), and BRELA Online Registration System, to mention only a few (URT, 2013).

Nonetheless, various ministries, departments, and government agencies (MDAs) have established their website portals, such as the President's Office, Regional Administration and Local Government Tausi Portal, that facilitate Taxpayer access to services offered by Local Government Authorities (LGAs) through self-service; Salary slip portal; Recruitment portal as well as mobile

apps such as PCCB (TAKUKURU) Application; MADINI App; GePG Tanzania; DAWASA App; TANESCO App; *e-Mrejesho*, which is a platform that enables citizens to submit and track complaints; *Haki App*, which helps citizens to submit complaints and get feedback through website, SMS and a mobile phone application. Others include *Ajira Portal Mobile App*, which helps Tanzanians with the required qualifications to apply for jobs; *Judiciary Mobile Tz*, an app. that users can use to request case details by filling in the required fields; and lastly, *TIRAMIS*, which is the app used in educating people on how to verify insurance covers¹.

2. Literature Review

Definitions of some key concepts are essential to providing a framework for reviewing the centrality of digital literacy to the interaction between the government and citizens using e-services.

3.1. Electronic Government (e-government)

The World Bank characterises e-government as using information technologies by government agencies to adjust communications with the public and different arms of the government (Srivastava & Teo, 2004). E-Government is expected to facilitate the interaction between the government and its clients (G2C), including citizens and business communities (G2B), as well as within the public administration itself (G2G). Heeks (2001 cited in Kaaya, 2009) categorises e-government services into three domains: e-administration (government administrative services), e-citizens, and e-services (the online participation of citizens in various activities, including their interaction with government agencies).

3.2. E-government Services

Electronic government services are offered through websites, portals, and mobile applications to provide access to online information and services to citizens, such as downloadable online forms and personalised services such as filing income taxes, paying taxes, renewing licenses, paying traffic tickets, changing addresses, and making appointments. Others include online applications for services and electronic payments, applying for jobs, reporting malfeasance, and providing feedback on quality service provision (Adam & Fazekas, 2021; Palvia & Sharma, 2014).

3.3. Digital Literacy

Digital literacy refers to the awareness, skills, and understanding required to operate comfortably in Information Technology (IT)--enabled environments. Thus, digital literacy is considered an essential skill in using e-technologies for e-governance (Rajput & Nair, 2013).

¹<https://www.ega.go.tz/e-services/government-to-citizens-g2c>; accessed on 9th August, 2023

3.4. Citizen interaction

Citizen interaction refers to a phenomenon that involves citizens' ability to access online information disseminated by the government for public use and use e-services provided by the government without being required to physically visit government offices (Reddick, 2005).

3.5. ICT Performance in Tanzania

3.5.1. ICT Performance by Number of Mobile Phone Users

According to the Tanzanian Communication Regulatory Authority (TCRA) report, the number of Tanzanians who use mobile phones stood at 64.1 million as of June 2023, up from 60.2 million subscriptions in June 2022 (TCRA, 2023). The trend of telecom subscriptions for the past five years shows an average increase of 7 per cent per annum, while the telecom penetration level is reported to have reached 101 per cent (TCRA, 2023).

Table 1: **Number of Mobile Phone Users**

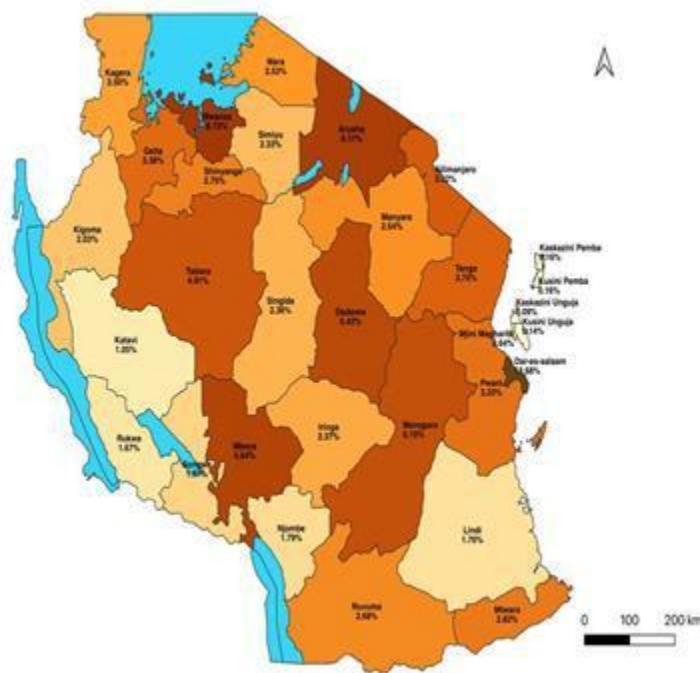
Year	2019	2020	2021	2022	June 2023
Mobile subscriptions	47,685,232	51,220,233	54,044,384	60,192,231	64,005,244
Fixed Subscriptions	76,288	72,469	71,834	84,696	83,407
Subscriptions	47,761,520	51,292,702	54,116,218	60,276,927	64,088,651
Penetration	88%	89%	91%	98%	101%

Source: TCRA Report (2023)

3.5.2. ICT Performance by Telecom Services Use by Region

Subscriptions per region per the total populations (Percentage of Subscriptions per region) are shown on Map 1. The distribution of subscriptions per region per the total populations (Percentage of Subscriptions per region) shows that Dar es Salaam has the highest percentage (18.68%) compared to all other regions, followed by Mwanza (6.72%) and Arusha (6.11%). On the other hand, the regions with the lowest subscription percentage in Tanzania Mainland are Katavi (1.05%), Rukwa (1.67%), Lindi (1.76%), and Njombe (1.79%) (TCRA, 2023)

Map 1. Region Subscriptions Percentages as of 30th June 2023



Source: (TCRA, 2023).

3.5.3. ICT Performance by Estimate of Internet Users

According to the September 2022 communications statistics, Internet penetration was 51%. Internet penetration is the ratio of Internet users to the total population. The penetration trend in the last five years and the strategies implemented show that the target of covering 80 per cent of the population by 2025 is achievable. In 2016, there were 19.86 million Internet users, with a penetration of 40 per cent. The number of SIM cards, Internet users and penetration was 22.99 million at 45 per cent in 2017, increasing to 23.14 million, 43 per cent in 2018 and 25.79 million at 46 per cent in 2019. There were 28.47 million users with 46 per cent penetration in 2020 and 29.86 million users with 50 per cent in 2021. By September 2022, there were 31.12 million users with a penetration of 51 per cent. However, regular mail decreased from 720,000 in January to 164,490 in March 2022, and only 27 per cent of communications consumers were estimated to own smartphones (TCRA, 2022).

Table 3: Internet Users

Year	2016	2017	2018	2019	2020	2021
Users	19,862,525	22,995,109	23,142,960	25,794,560	28,470,506	29,858,759
Penetration	40%	45%	43%	46%	49%	50%

Source: TCRA Quarterly Report (2022)

3.6. Context

This study was carried out in Tanzania. The country was ranked 153rd among countries with middle E-government Development Readiness, with 85.75 per cent mobile cellular telephone subscriptions per 100 inhabitants, while individuals using the Internet per 100 inhabitants was 22 per cent. According to UNESCO (2015) _ records, the adult literacy rate stood at 77.8 per cent, and the gross enrolment ratio for 2020 was 57.59 per cent (Korkyan et al., 2022). Similarly, the TCRA report (2023) indicates that the number of Tanzanians who use mobile phones reached 64.1 million as of the end of June 2023, with the trend of telecom subscriptions for the past five years being at an average increase of 7 per cent per annum and the telecom penetration level was getting very close to 101per cent (TCRA, 2023).

Regarding the status of e-government implementation in Tanzania, the TCRA (ibid) report indicates that Tanzania is at the fourth stage of e-government development, considering the UN's model (Korkyan et al., 2022). The UN Model includes the following five stages: I: Emerging Presence (In this stage, there is a one-way information provision from the government agencies and limited interaction), II: Enhanced Presence (the government provides more excellent public policy and governance sources of current and archived information, such as policies, laws and regulation, reports, newsletters, and downloadable databases. The interaction is unidirectional, with information flowing essentially from the government to the citizens); III: Interactive Presence (in this stage, citizens can make online communication such as making an appointment, submitting requests/complaints and applying for a job online and expect to get appropriate feedback), IV: Transactional Presence (the stage is characterised by the stipulation of secured transactions with a high level of authorisation. Typical instances may include one-stop online centres for citizens to apply for passports, permits or licenses, allowing them also to make payments online), and V: Networked Presence (the stage is characterised by an integration of G2G, G2C and C2G services) (Kaaya, 2009; Palvia & Sharma, 2014; URT, 2013). Thus, these prevailing circumstances of a country being at a transactional presence stage of e-service delivery justify the dire need to study how digital literacy among the populace can play a crucial role in enhancing the use of e-government services.

3.7. Theoretical Framework and Empirical Literature Review

This article deployed the Unified Theory of Acceptance and Use of Technology (UTAUT) to study individual technology acceptance and use across various settings. UTAUT theorises that an

individual's behavioural intention to use technology is influenced by performance expectancy, effort expectancy, social influence, and facilitating conditions (Venkatesh, 2021). The UTAUT was adopted because it modifies the Technology Acceptance Model (TAM) and comprises eight competing technology acceptance models of TAM: Theory of Reasoned Action (TRA), Theory of Planned Behaviour (TPB), motivation model, innovation diffusion theory, TAM/TPB combined PC utilisation model, and social cognitive theory (Kagoya & Mbamba, 2021). Thus, the theory fits well in explaining the centrality of digital literacy to citizen interactions with e-government services in searching for information, providing comments or getting advice about various opportunities related to e-government services as well as making transactions for getting the e-government service (Venkatesh et al., 2016).

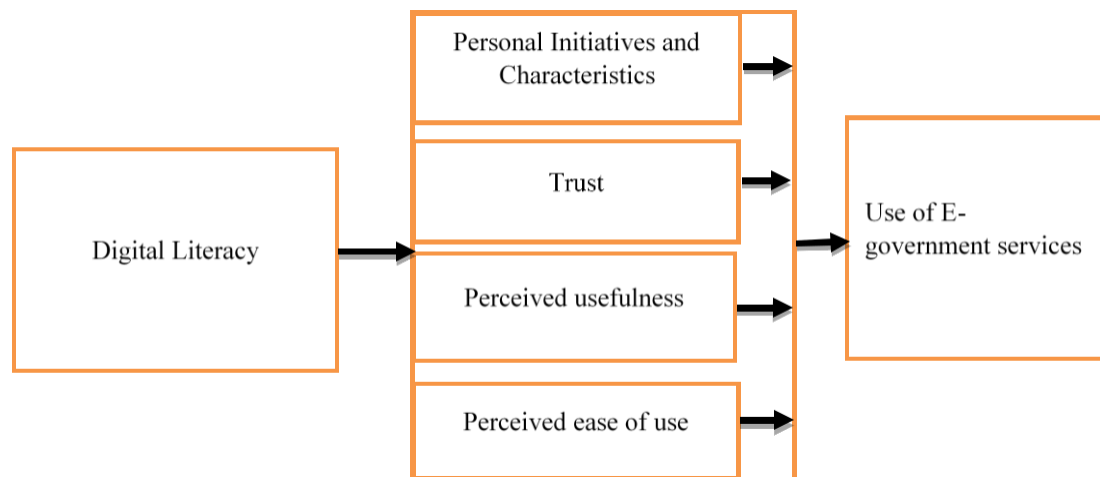
As noted earlier, Tanzania is at the transaction phase of e-service implementation, requiring 24/7 service through web portals and mobile applications without walking to government offices. Furthermore, Tanzanians who use mobile phones reached 64.1 million. Also, Telecom Services Use is higher in urban areas, particularly Dar es Salaam, Mwanza, Arusha, and Unguja, than in rural areas; mobile phone and Internet users have an increasing penetration rate. Given these observations, there is a possibility of G2C and C2C interaction in e-service provision (TCRA, 2022). Thus, this article seeks to explain why digital literacy matters in enabling effective digital interactions between government and citizens using e-government services to ensure e-government becomes a reality in Tanzania rather than remain a rhetorical move. Given the applied theory in this article, the literature review examined the interrelationships among digital literacy, trust, perceived usefulness, perceived ease of use, personal initiatives and characteristics, and digital interaction between government and citizens by considering the application of the theory employed in this work.

3.7.1. Influence of Digital Literacy on Personal Initiatives and Characteristics

Personal drive is related to the user's readiness to evaluate new applications. Individual qualities encompass the following components: age, sex, educational foundation, knowledge and abilities, culture, and inclination. Users' abilities and requirements play a significant role in adopting mobile services. Furthermore, many digital technologies are innovation-based applications that require a certain level of knowledge and ability from the user to use them successfully. It is difficult for individuals lacking a technological background to embrace such versatile services and interact with digital government services. Subsequently, an individual's digital literacy is presumed to influence the digital interaction between the government and citizens. Building digital literacy through ICT preparedness and training and creating awareness is fundamental to advancing the compelling utilisation of digitalised services. A study by Tomaszewicz (2015) among European Union countries revealed that digital literacy skills had an impact on the level of e-government development and effectiveness, which are considerably dependent on human factors and are determined by the level of competence and motivation among citizens and workers of public administration. Similarly, a study carried out by Samuel et al. (2020) to explore awareness and

adoption levels of e-government services as well as the drivers and barriers to the adoption of e-government services in developing countries found that citizens with digital literacy in cities found mobile digital technologies as valuable and easy to use to find e-government services. A study by (Venkatesh & Venkatraman, 2014) concluded that individual differences, such as digital knowledge, contribute to determining the adoption and use of e-government technologies.

Figure 1: E-government Service Model



Source: Literature Review

3.7.2. Influence of Digital Literacy on a Person's Trust to use e-government services

In digital services, trust can be defined as a user's conviction about the extent to which a specific versatile application can be considered free of security and protection risks. Thus, trust implies accepting portable applications with the expectation that they will be risk-free and that material benefits will be obtained at some future date. Elements that may influence user trust in using versatile applications include, but are not limited to, user perceptions of safety, security settings, and application privacy. These significant forerunners of trust in versatile interactions need to be fully embraced to engage the public as a precursor to the effective use of government digital services. Thus, digital literacy is paramount to enable citizens to understand the security settings of gadgets and the rules and regulations governing the sharing of information or use of such gadgets in accessing e-government services. Owing to these factors, trust directly influences clients' expectations of using portable services.

Consequently, it is fundamental to engage the public in awareness creation about policies and acts to oversee the use and security highlights of versatile applications to eliminate pessimistic views regarding e-services. Abdulkareem and Mohd Ramli (2022) investigated the usefulness of trust in the e-government to influence the use and success of e-government services in Nigeria. She indicated that trust in e-government predicts the public value of e-government and

mediates the relationship between the quality dimensions and the public value of e-government.

3.7.3. Influence of Digital Literacy on Perceived Usefulness of Digital Interaction

Perceived usefulness is determined by how much an individual believes using a specific framework improves their task. Perceived usefulness improves a user's expectations of the purpose. Building digital literacy through sensitisation can help motivate citizens to use electronic services by explaining to them the advantages of utilising e-services, such as expense viability, privacy, practicality, and low degree of debasement for help. A study by Lin et al. (2011) to assess citizen adoption of e-government initiatives in Gambia concluded that perceived usefulness strongly influences user intention towards e-government products. Sofia Elena (2009) attempted to identify the factors affecting public confidence towards e-government services in Romania, and their findings revealed that technical and organisational reliability, perceived quality, perceived usefulness, Internet experience, and trust propensity directly enhance e-government usage. Chohan and Hu (2022) examined the impact of ICT training programs on the success of e-government services in improving digital competency and decreasing the digital divide in developing societies. The study revealed that e-government ICT training programs directed at citizens in conjunction with increasing digital literacy can have a positive impact. Training programs could also lessen the digital divide, enrich citizens' potential, and promote the more equitable usage of public services in developing societies.

3.7.4. Influence of Digital Literacy on a Person's Perceived Ease of Use

Perceived convenience is the degree to which an individual accepts that utilising a specific digital platform liberates him or them from exertion. Digital literacy plays a vital role in enhancing the perceived ease of use of a mobile device to access e-government services, in that a person can adopt a new technology with a positive mind. According to perceived convenience, it is challenging to utilise innovation, and thus, perceived convenience will eventually have an immediate positive influence on the user's purpose. The study by Davis et al. (1989) postulated that apparent convenience affects apparent handiness. The acceptance of specific mobile digital services has also demonstrated this discovery. It proposes that apparent convenience has a positive effect on perceived usefulness. Sang et al.(2009) found that perceived usefulness, relative advantage, and trust were significant determinants of e-government adoption in Cambodia. In another similar empirical study, Hung et al.(2006) examined the factors that determined acceptance of the online submission system of tax declarations and payments in Taiwan. The study concluded that user acceptance of the online submission system for tax declarations and payments was influenced by perceived usefulness, ease of use, risk perception, trust, compatibility, and peer pressure.

3. Methods and Materials

The article provides an overview of previous studies on the influence of digital literacy on the use of digital technologies, reviews the findings on digital literacy and citizen use of digital technologies to interact with e-government services, and identifies the gaps requiring further research.

The study used a purposive sampling of articles on public administration, management, governance, digital literacy, and information communication technology systems over many years, deployed from reliable EBSCO, Emerald, Science Direct, and Taylor and Francis sources. Additional potential articles were distinguished by looking through Google Scholar. This method is acknowledged and used in past literature reviews (Hohenstein et al., 2014). Purposive sampling was adopted to identify articles that provided relevant in-depth information (Campbell et al., 2020; Etikan et al., 2016). The purposive sampling includes all articles that address the perspective of change in public administration because of improvement and the impact development of innovations (Osborne, 2006). Therefore, articles on the public sector, including governments (national, state, or local), government agencies, state-owned enterprises, and digital technologies, were selected.

A traditional literature review was conducted using various available research techniques rather than excluding potentially useful studies that did not meet the restrictive criteria typically used in systematic reviews (Cornish, 2015). This literature review method was chosen as suitable because it intends to capture human behaviour at an individual level (Rozas & Klein, 2010) to determine the use of government electronic services using personal mobile devices. The method thoroughly reviews relevant knowledge in electronic services and mobile device usage, pointing out where study findings confirm or conflict with each other, making the consumption of information easy (Snyder, 2019). Although systematic literature review is considered a way to synthesise research findings in a systematic, transparent, and reproducible way and is referred to as the gold standard among reviews, it was not used in this study because performing a meta-analysis on studies with different methodological approaches is challenging. After all, the grand requirement for its effective use is that the concerned studies in the article must share statistical measures (effect size) to compare results (Tranfield et al., 2003; Cornish, 2015).

Reflections on specific topics that are pertinent to the paper's goal were produced because of the literature review. In this way, the changes in the public sector resulting from the influence of digital technology were outlined. To obtain this information, the titles, abstracts, and body texts of the selected papers were examined to see if they addressed "public governance," digital governance, "digitalisation," or "servitisation." Additional articles were manually selected from the public administration, management, and IT journals. They covered several topics: Policy studies, information economics and policy, public management review, public money and management, organisational behaviour and human decision process, management information systems, and

research in nursing, anthropology, and medicine. Others include Management Science, Advances in Computer Science, Public Administration Research and Theory, Human–Computer Interaction, Accounting, Auditing and Accountability, Business Management Review, Data Base for Advances in Information Systems, Public Management Review, Information and Management, Technology, and Sustainable Development, Information Systems Research, Information and Management. The purposive analysis of the selected articles allowed the researchers to identify how digital governance and information systems are reflected in the new scopes and components ascribed to digital governance.

5. Analysis and Discussion of Findings

5.1. Findings

Studies that focus on user participation in e-government mainly discuss how e-governance is an enabler of citizen participation rather than how user participation can be undertaken through building digital literacy and empowering citizens in using the available digital technologies to access e-government services effectively (Tejedo-Romero et al., 2022). Thus, top-down-oriented initiatives are studied mainly on how they lead to the successful implementation of e-government rather than how the bottom-up approaches have been successfully applied to yield the expected e-government results.

An increased number of internet users and mobile phone users in Tanzania needs to be more adequately studied, and where studies have been conducted, the UTAUT has been used (Ishengoma et al., 2019; Lee & Jun 2005). However, more must be done to show how the use of digital technologies in interacting with the government largely depends on digital literacy.

Various findings also vindicate digitalisation as an enabler of influencing participation of citizens rather than showing how digital literacy influences personal initiatives (Samuel et al., 2020; Venkatesh & Venkatraman, 2014; Ziemba et al., 2013); trust (Abdulkareem & Mohd Ramli, 2022; Sofia Elena, 2009), perceived usefulness of e-government services (Chohan & Hu, 2022), and ease of use of digital technologies in accessing digital information (Lin et al., 2011; Sang et al., 2009; Hung et al., 2006; Davis, 1989; Davis et al., 1989).

5.2. Discussion of Findings

Tanzania is in the digital presence and engagement stage in implementing e-government (Magayane et al., 2016); however, most citizens still need to be ready for electronic services (Kagoya & Gilbert, 2020). Because e-government developers fail to actively involve citizens in the implementation of e-government, the vast majority of people need to be made aware and able to use the e-services that are available (Kagoya & Mbamba, 2021). The discussion of empirical findings about deciphering how digital literacy impedes citizens' effective interaction

with e-government services reveals the circumstances that necessitate building digital literacy to address the challenge.

Despite increasing mobile phone usage in Tanzania, studies have revealed that many people cannot use cell phone-based services to search for information because they need to gain the necessary skills in digital technologies (Salam et al., 2018). These findings support the UTAUT's assertion that knowledge and skills are essential for efficiently using digital services around personal initiatives. Therefore, it is imperative to involve the public in education and retraining to harness human capital and maximise the advantages of the rapid pace of technological change.

Second, research findings also indicate that people need more faith in digital services to use government-provided e-services because access to these services depends on individuals' confidence in their security (Dewa & Zlotnikova, 2014). These findings are consistent with UTAUT's emphasis on user perceptions towards security and privacy settings and the application's integrity as critical drivers of user intention to use digital applications for public electronic services. Thus, concerted efforts to build citizens' trust by designing and maintaining policies for data security are essential to uplift citizens' use of digital services.

Third, research findings indicate that because of their lack of knowledge about the advantages of digital services, most local government representatives are hesitant to embrace the modern world and have not invested much time or energy in developing digital technology to improve service delivery (Manda & Mkhai, 2016). This reflects the context-related issue, emphasising that perceived ease of use must be considered because digital services must be context-specific to accommodate consumers' preferences. Hence, activating citizens' awareness of the government's actions can help improve services and meet community expectations.

Fourth, inherent opposition towards transformation often prevents residents from using digital platforms to communicate with the government, which is another obstacle. The literature reveals that even though communities are aware of the advantages of digital technology in providing government services, some still need to be convinced. In contrast, others still determine the government's ability to provide online services via cell phones without their physical presence. In summary, despite efforts being made toward digital democratic governance, the use of digital technologies in decision and service delivery processes is constrained by local governments' lack of competence and enthusiasm in using the technology (Linje et al., 2022).

Finally, one of the difficulties revealed in different study findings, such as Linje et al. (2022), is the pessimistic orientation of citizens regarding the use of government electronic services exacerbated by being disinterested and the need for more confidence in using government digital services. It was further revealed that most local actors perceived the Internet and other digital platforms as culturally improper, as the respondents claimed that discussing local concerns on social media was equivalent to baring all. To emphasise, the researcher quotes the councillor

who had this to say,

"I cannot and have no courage to put things there. I have been a leader for more than ten years, but I have not applied this, and I do not think I will" (Linje et al., 2022, p. 257).

Thus, to better address this, the barrier lies in citizens' perceived usefulness, which can only be resolved by involving and sensitising them. Therefore, digital governance must emphasise stakeholders' inclusion in building digital literacy.

6. Conclusions and Recommendations

The study sought first to provide an overview of previous studies on the influence of digital literacy on citizens' use of digital technologies to interact with e-government services and, secondly, to provide a comprehensive review of the findings on digital literacy and citizens' use of digital technologies to interact with e-government services, and thirdly identify the gaps for further research.

6.1. Conclusions

The main obstacle to citizens' successful use of digital technologies in interacting with e-government services is the need for more digital literacy.

A comprehensive review of the findings on digital literacy and the citizen's use of digital technologies to interact with e-government services signifies that digital governance needs to immeasurably emphasise stakeholders' inclusion in building digital literacy to overcome pessimistic orientations and cultural blocks that deter citizens from having confidence in using e-government services.

It was also found that most of the previous studies explored factors for successful e-government initiatives in developing countries but needed to empirically test the role of digital literacy in influencing mobile technology use and, ultimately, effective digital application for interaction between the government and citizens.

6.2. Recommendations

First, there is a need for the MDAs, particularly the Ministry responsible for information, communication and information technology and the e-government Authority, to explicitly acknowledge the unique challenges citizens face in accessing and benefiting from ICT opportunities. Policy measures, which focus on conducting mass awareness of the varied benefits of e-government services, are essential to do away with biases and cultural limitations that hinder

citizen participation in the digital realm.

Lastly, bridging the digital divide begins with education. The ICT Commission, responsible for ensuring the extension of ICT to underserved areas, among others, should forge public-public partnerships to foster equal access to digital literacy-tailored programmes for addressing unique needs and learning preferences of the different categories of citizens to develop the skills needed by the citizens to thrive in the digital era.

Citizens should give prime importance to digital literacy since this will enable them to access and utilise various software programs, such as internet browsers and messaging applications. It would also help them understand how to communicate in digital space, such as emails, social media sites, and other online forums. This will enable citizens to identify elements of a credible source, effectively conduct online research, and avoid fraud, phishing schemes, and other malicious activities to interact with e-government services.

7. Limitations and Areas for Further Studies

First, this study used a traditional literature review to generate reflections on relevant targets, as this article focusing is to focus literacy as a critical determinant of e-government service usage. A further in-depth systematic literature review should be conducted to explore other factors, such as poverty and technological infrastructure, that can affect the use of e-services in developing countries and to provide more generalisable findings in a wider context.

Lastly, this study was conducted through a literature review, thus limiting itself to the parameter of digital literacy within the context of technology acceptance theory. Quantitative or qualitative research should be conducted using other theories, such as Mobile Services Acceptance theory or information system success theory, to ascertain how digital literacy is an antecedent of the effective use of e-services in Tanzania and other developing countries.

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