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Technological Readiness as Mediator to Adoption of E-Governemnt Services in Zanzibar SMEs

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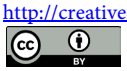


Abstract

The aim of the paper is to explore e-government services technological readiness as a mediating factor impacting the development of Zanzibar SMEs. The ultimate objective is to provide actionable insights and recommendations that could inform future strategies and policies to enhance Zanzibar SMEs on the successful implementation and acceptance of e-government services in Zanzibar. The study involves SMEs which are Small and Medium Industries Development Agency (SMIDA), Zanzibar Association of Tourism Investors (ZATI) and Zanzibar National Chambers of Commerce (ZNCC). Quantitative research design holds significant merit for this study, whereby primary data was in this study ensures that all variables are accurately and comprehensively captured. The study involved 384 respondents. Survey questionnaire used to collect the required information. Generally, the results displayed that, while Technological Readiness does not exhibit a mediating effect between either Human Resource Capital or Financial Source Capital and E-government Services Adoption, it does play a significant mediating role in the relationships of both Government Policies and Information Communication Technology with E-government Services Adoption. This highlights the importance of considering intermediary factors like Technological Readiness when understanding the influences on E-government service adoption to Zanzibar SMEs.

Keywords

Electronic Government Services, Small and Medium Entrepreneurs, Technology Readiness

1. Introduction

1.1. Government

Government is closely echoed by [1], who expound that a government is a territorially based entity possessing the constitutional or legislative authority to enforce binding authoritative decisions on the residents and businesses within its jurisdiction. Delving deeper into the functionalities of a government reveals a spectrum of roles it plays in shaping societal, economic, and political landscapes. The government is the primary driver of public policy, and its actions or inactions significantly influence the direction and pace of national development. In the economic domain, the government's role is multifaceted. While it is true that market forces fundamentally drive economic growth, it is also undeniable that the government's role in regulating and enforcing market norms and practices, such as property rights and contract law, is critical [2].

1.2. E-Government Services

[3] describes e-government services as the utilization of information technologies by government agencies that hold the potential to transform relations with citizens, businesses, and other arms of the government. This transformation is seen in improved delivery of government services to citizens, enhanced company interactions, and more efficient government management. The intended benefits of these transformations include reduced corruption, increased transparency, heightened convenience, and economic advantages such as cost reductions and revenue growth.

1.3. Small and Medium Enterprises (SMEs) in Zanzibar

Promotion of sustainable industrialization, including the development of SMEs is one among the Zanzibar vision 2020 priorities. One of the steps as mentioned in the vision 2020 is Zanzibar Poverty Reduction Plan (ZPRP) that aims at increasing income and access to social services. The major goal set up by ZPRP is the support for micro, small and medium-sized enterprises [4]. Most of the SMEs are owned and operated independently by individuals and families. According to [4], SMEs classified in three categories, namely; micro enterprise 1 - 4 members, small enterprise 5 - 19 members, and medium-sized enterprise 20-to more than 99. Within Zanzibar, microenterprises are the ones that recruit maximum 4 employees, often people in family members, or employ capital of up to Tshs.5.0 million. Many micro-enterprises are in the technology field. Small enterprises are mainly formalized businesses with between 5 and 49 workers or spending resources from Tshs.5 million up to Tshs.200 million. Medium-companies employ between 50 and 99 people or invest from Tshs.200 million to Tshs.800 million [4].

1.4. The Socioeconomic Background of Zanzibar SMEs

Socioeconomic Status: The study captures a spectrum of socioeconomic back-

grounds. The combined majority belongs to the high (31.8%, n = 127) and upper-middle (28.2%, n = 113) socioeconomic categories. It could indicate that those with more affluent socioeconomic statuses interact more with e-government services. The low-middle category, at 31% (n = 124), shows promising inclusiveness. However, the middle and low socioeconomic statuses, at 4.5%, have a limited presence, possibly alluding to restricted access or exposure to e-government services.

Education Level: Educationally, the respondents primarily come across as well-educated. Almost half, precisely 49.5% (n = 198), have an undergraduate degree, indicating a higher education demographic predominance. Secondary and postgraduate degree holders cumulatively match the situation, reinforcing the notion of a highly educated respondent base. Those with just primary education stand at 2.3%, pointing to potential barriers to their involvement.

Geographical Location: Geographically, 71.3% (n = 285) of the respondent's hail from suburban regions, highlighting a substantial adoption or accessibility of e-government services in such areas. Urban regions, with a 22% representation, also see active engagement, albeit less than their suburban counterparts. Rural regions, with a representation of 6.8%, seem to have a lesser degree of e-government service penetration or utilization.

Work Experience: Regarding professional experience, the data underscores a gamut of expertise in the field. A dominating 51% (n = 204) have an experience range of 3 - 5 years, marking them as established professionals. Those with 1 - 2 and 6 - 10 years of experience signify emerging and more seasoned professionals. Interestingly, fresh entrants and veterans, at 2.3%, have comparable representation, giving insights into the dynamic nature of the workforce in the sector.

E-Government Service Usage Frequency: On the frequency of e-government service usage, 86% (n = 344) are weekly users, emphasizing the regularity and consistency of service use. Daily users, at 8%, denote a smaller yet engaged segment. Those who use the services occasionally or monthly, totalling 6.1%, represent the more sporadic user base.

2. Problem Statement

The digital revolution, or the evolution of Information Communication Technology (ICT), has significantly influenced individual and government activities around the globe [5]. Countries like Denmark, Finland, Australia, and Sweden have shown remarkable growth in online government services [6]. The present study intends to explore the Zanzibar SMEs technological readiness as a mediate factor of e-government services adoption to Zanzibar SMEs: The rationale for undertaking this research emerged from the discernible gap in prior research concerning the e-government in Zanzibar [7]. Despite recent advancements in policy, ICT infrastructure, and awareness campaigns, there appears to be little study in this area, particularly concerning the SMEs technological readiness. However, African countries, including Zanzibar, are still trailing in digital gov-

ernment adoption [8]. Considering Zanzibar's prior state of zero-stage e-government implementation, the present study aspires to shed light on the region's current e-government services. Although empirical evidence has supported the efficacy of e-government services in various developed and developing countries, these outcomes cannot be generalized due to the significant differences in each region's socio-economic, cultural, technological, and political contexts [9]. Apart from that, from a theoretical perspective, existing studies have primarily relied on established theories such as the Theory of Reasoned Action (TRA), Theory of Planned Behaviors (TPB), Technology Acceptance Model, Technology Organization Environment, and Diffusion of Innovation. The theories will be evaluated, on the other hand, the theories could help understand how factors such as human capital, financial capacity, ICT infrastructure, and e-government policies interact in the Zanzibari SMEs context. Therefore, this study identifies a critical need for a quantitatively driven investigation guided by potentially more applicable theoretical frameworks. This approach would help fill the existing research gap and contribute to a more nuanced understanding of e-government service adoption in Zanzibar, informing more effective strategies and policies for its successful implementation.

3. Research Questions

RQ1: How does technological readiness influence the relationship between human resource capital and the adoption of e-government services in Zanzibar SMEs?

RQ2: How does technological readiness influence the relationship between financial resource capital and adoption of e-government services in Zanzibar SMEs?

RQ3: How does technological readiness influence the relationship between government policies and adoption of e-government services in Zanzibar SMEs?

RQ4: How does technological readiness influence the relationship between information communication technology and adoption of e-government services in Zanzibar SMEs?

RQ5: How does technological readiness influence the adoption of e-government in Zanzibar SMEs?

4. Research Aim and Objectives

This research aims to explore e-government services technological readiness as a factor impacting the development of Zanzibar SMEs. The ultimate objective is to provide actionable insights and recommendations that could inform future strategies and policies to enhance Zanzibar SMEs on the successful implementation and acceptance of e-government services in Zanzibar.

Based on the research questions, the objectives of this study are:

RO1: To determine the technological readiness influence the relationship between human resource capital and the adoption of e-government services in

Zanzibar SMEs.

RO2: To investigate the technological readiness influence the relationship between financial resource capital and adoption of e-government services in Zanzibar SMEs.

RO3: To determine the technological readiness influence the relationship between government policies and adoption of e-government services in Zanzibar SMEs.

RO4: To investigate the technological readiness influence the relationship between information communication technology and adoption of e-government services in Zanzibar SMEs.

RO5: To explore the technological readiness influence the adoption of e-government in Zanzibar SMEs.

The study scope is geographically, Zanzibar city. The country is known for its unique location in the Indian Ocean, about 25 - 50 kilometers off the mainland coast of Tanzania, lying between latitudes 6 degrees south of the Equator. The decision to study SMEs is underpinned by our access to three significant entities, namely SMIDA, ZATI, and ZNCC as the Umbrellas of SMEs in Zanzibar. These organizations are particularly relevant due to their distinct roles in supporting and developing SMEs within Zanzibar. The proposed study holds significant implications for various stakeholders, including the government, industry, policymakers, theorists, and the academic community.

5. Materials and Methodology

5.1. Materials

SMEs cover "All enterprises which are considered as an entity engaged in an economic activity, irrespective of legal form. This includes, self-employed persons and family businesses engaged in technical or other activities, and partnerships or associations regularly engaged in an economic activity" [10]. SMEs can be formed by several objectives. In effect, Zanzibar industrial policy puts priority on the development of SMEs. According to the Ministry of Trade Industry and Marketing, most SMEs are organized as cooperation and Industry [11]. Zanzibar Business Census [12] showed that there were 15,192 informal sector operators employing 67,526 persons, of which Urban West (Unguja). Statistics show that many activities are concentrated in trade; wholesale and retail business (65%), followed by manufacturing (12%) and hotel and restaurants attracted only 8 % of business activities. MSMEs engage about 4% in community and personal services while another sector attracted only 11%. Small and Medium Enterprises (SMEs) are the engine of economic growth. They play a significant role in poverty alleviation and economic development. SMEs are labour intensive and mainly employ low skilled labour from the rural sector. Thus, the contribution of Small and Medium Enterprise (SMEs) on poverty alleviation is direct obtained through income generation, revenue collected by the government from the SMEs annually, the number of employments created, increasing of new in-

vestment and the change of the capital formation. It has been revealed that in the period between 2006 and 2007, the total number of employments in SMEs increased from 200,548 to 206,988 [13].

5.1.1. Current State of Adoption of E-Government Services

Year(s)	Event
1970s	The concept of e-governance originates in India. Focus on developing in-house government applications in various sectors.
1980s	The National Informatics Centre (NIC) connects all district headquarters, marking a significant development in the advancement of e-governance.
Early 1990s	Information and Communication Technology (ICT) supplements IT systems, expanding their application across more sectors and emphasizing reaching rural areas.
May 18, 2006	The central government approves the National e-governance Plan (NeGP), formulated by the Department of Electronics and Information Technology and Department of Administrative Reforms and Public Grievances.
2019	Khan and Krishnan describe the maturity of e-government services, stressing the value of integrated services.
2023	The World Bank emphasizes how digital government represents a transformative shift in government operations worldwide.

5.1.2. E-Government Services Benefits

Briefly the following are the benefits of e-government services; The anti-corruption nature of e-government is gradually lauded as one of the most important benefits of e-government implementation. Scholars such as, [14] [15] concluded that the implementation of e-government systems **minimizes the prospects of corruption** and increases citizens' trust in the governments of developing countries. E-government could be a formidable tool in the fight against corruption [15] to enhance government institutions' transparency. **Access to government services** 24/7 is one of the significant advantages of e-government systems. [16] defined access as "the range of public services available to citizens through online access". **Access to the services** that institutions have monopolised is critical. Such services include vehicle registration and licensing services provisions, airport and harbour clearance of items, registration, and license renewal services. Regarding these, the government's ability to implement online services and remove bureaucracy is very important [17].

5.1.3. Challenges of E-Government Services Adoption

Despite this significant investment in e-government infrastructures, several challenges are faced by e-government, thus impeding the success different scholars show. Briefly, the following are some of them. **Economic divide** defined the economic or affordability divide as the gap between rich and poor and its effect on ICT adoption. The latest [18] survey found that citizens with high incomes in

developed nations are more likely to have access to ICT than citizens in developing countries. **Security Threats**. Security threat remains the most significant worry regarding e-government though the confidence level in online government systems' security has increased over the years. Threats such as interception of data, identity theft, hacking, copyright, and fraud are some of the issues users frequently encounter. Security does not only concern technical aspects but non-technical ones as well. E-government security assurances are significant if citizens are to use them. The digital literacy divides. The digital literacy divide refers to the gap in skills or know-how regarding ICT usage. [18] found a connection between the capability to use e-government efficiently and its usage. **Policy and Regulation Issues**. Policy and regulatory issues pose significant barriers to the implementation of e-government in public sector service delivery. Policies and regulations serve as guidelines, statements, principles, and approved functions within the government's legislative body. They are used to direct the execution of e-government implementation in public services.

5.1.4. Technological Readiness

Technological readiness can be seen as a crucial mediator in the relationship between the resources available (human resource capital, financial resource capital, and information communication technology), government policies, and the adoption of e-government services. To begin with, the concept of technological readiness [19] encompasses the availability of necessary technologies and the skills and attitudes necessary for their effective utilization. It presents the preparedness of a society or an organization to use new technologies effectively. Given this definition, the relationship between human resource capital, financial resource capital, government policies, information communication technology (ICT), and e-government services can be viewed through the lens of technological readiness. In the context of human resource capital, skills and knowledge are paramount for the successful adoption and implementation of e-government services [20]. However, this relationship is mediated by technological readiness. Even if human resources with the necessary skills are available, without technological readiness—the infrastructure, attitude, and regulation supporting technology use—their impact on e-government services adoption can be minimal. Adequate funding is required for infrastructure development, training, and service delivery, among other things. Nevertheless, the relationship between financial resource capital and e-government services adoption is not direct. It is mediated by technological readiness. Sufficient financial resources may not lead to the successful adoption of e-government services without technological readiness. The preparedness to use the technologies bought or developed using the financial resources significantly determines the successful adoption of e-government services. Government policies play a critical role in providing a conducive environment for e-government services adoption [21]. Policies related to data protection, ICT, privacy, e-commerce, and more directly impact the adoption of e-government services. However, the relationship between government policies

and e-government services adoption is mediated by technological readiness. Despite well-intentioned and supportive policies, without technological readiness—a conducive technological environment—these policies may not yield the intended results in terms of e-government services adoption. Lastly, ICT is at the heart of e-government services. It is the backbone upon which these services are delivered. However, ICT's impact on e-government services adoption is mediated by technological readiness. A later study by [22] in the UK and Netherlands identified the key mediating role of technological readiness in translating government policies into actionable digital initiatives. They found that even well-conceived policies could fail to promote e-government adoption if they are not aligned with the technological readiness of the targeted public sector institutions and the general populace. [23] further underpinned this notion by investigating the role of technological readiness in India's e-government context. Their findings suggested that technological readiness was a crucial mediating factor between the ICT infrastructure and the adoption of e-government services, particularly in developing economies where the digital divide could be pronounced. Moreover, [24] suggested that examining Saudi Arabia's e-government program underlines the importance of technological readiness as a mediator. Their work noted that despite considerable financial investments, and a well-articulated strategy, the adoption rate of e-government services was not at the anticipated level. The authors attributed this gap to the low technological readiness among users and within public sector entities. In brief, technological readiness mediates the relationship between human resource capital, financial resource capital, government policies, ICT, and e-government services adoption. This implies that technological readiness should be at the forefront when strategizing on the successful adoption of e-government services. Therefore, in addition to focusing on human resource capital, financial resource capital, government policies, and ICT, stakeholders should equally focus on promoting technological readiness. Technological readiness significantly influences the Zanzibar SMEs successful adoption of e-government services, encompassing multifaceted aspects like technological infrastructure, digital literacy, financial resources, regulatory climate, socio-cultural variables, and cybersecurity [25].

5.1.5. Human Resource Capital

While referring to what has been illustrated by [26], he discussed that human resource capital consists of factors that influence the level of user readiness and perceived value of adopting an e-government system. The human dimension is related to the psychological factors of users driving technology in the e-Government context. Thus, the human size includes optimism, innovativeness, discomfort, insecurity, compatibility and social influence factors, enhancing the reliability of IoT adoption in e-government. By equipping the workforce with the required expertise added that effective change management strategies should mitigate resistance, promote user acceptance, and ensure a smooth transition. Clear communication channels, stakeholder engagement, and comprehensive training in-

itiatives are essential to successful change management.

5.1.6. The Financial Resource

Many studies have been conducted towards the financial on e-government system adoption, whereby it determines precisely failure or success. The budget of the organization is also essential, because it reflects the priorities in the organisation's development. Most developing countries are struggling to fund their e-government initiatives. They lack financial support to implement e-government projects, resulting in a funding dilemma even if governments have plans for implementing e-government [27]. The implementation of e-government in almost all countries in the world becomes successful because the countries commit to disbursing sufficient budget across government departments; otherwise, other departments will lag in the implementation of e-government projects, resulting in e-government service gaps. Therefore, the researcher relates the situation of the e-government adoption system in Zanzibar SMEs e-government services technology readiness [27].

5.1.7. The Electronic Government Policies

Developing countries face the challenge of promoting competition in markets traditionally dominated by monopoly providers, and this underscores the importance of creating effective telecommunications policies and regulatory frameworks. Legal frameworks and laws play a crucial role in advancing the e-government development agenda by providing a range of civil and criminal penalties and enforcement procedures [28]. Furthermore, the study emphasizes the significance of security and privacy protection as a critical factor in enhancing the reliability of e-government services. Government entities should develop and enforce privacy policies and regulations to safeguard citizens' personal information. These policies need to clearly outline the collection, storage, processing, and sharing of personal data, ensuring compliance with relevant data protection laws. In brief, having clear regulations and laws, regularly updated policies, and robust privacy protection measures are vital for creating a trusted and secure environment for e-government services.

5.1.8. ICT Infrastructure for Adoption of E-Government Service

The role of technology, mainly Information and Communication Technology (ICT), is crucial in adopting Zanzibar SMEs e-government services. According to [29], the technology dimension relates to the capabilities offered by technology, which can enhance user acceptance of e-government systems by providing superior system quality and user support. Similarly, the use of technology, such as SMS and BBM, has enabled citizens to mobilize and organize various activities, ranging from demonstrations to coordinating riots and political campaigns. These examples highlight how technology has facilitated the mobilization of large groups of people, showcasing the potential of information and communication technologies (ICT) to enhance citizen engagement. Crowd sourcing has gained attention as a concept that can leverage the power of the crowd to involve

citizens in public sector initiatives.

5.1.9. Underpinning Theories of This Study

This study is underpinned by several theoretical frameworks that facilitate understanding Zanzibar SMEs e-government services technological readiness. These theories provide a well-rounded perspective on e-government services adoption by examining the role of human resource capital, financial resource capital, government policies, and information communication technology, emphasising technological readiness and digital literacy as mediating and moderating factors, respectively.

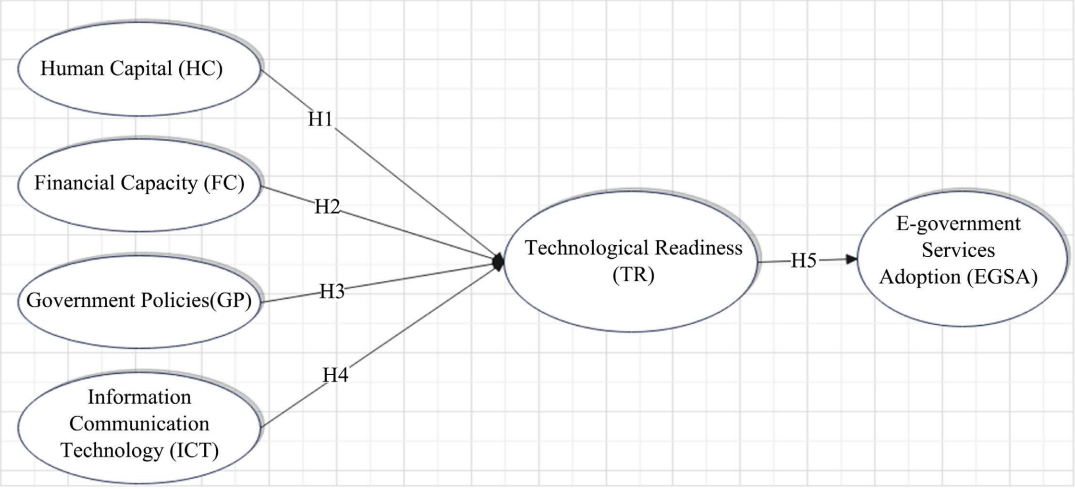
1) The Unified Theory of Acceptance and Use of Technology (UTAUT)

The Unified Theory of Acceptance and Use of Technology (UTAUT) is a prominent framework that provides significant insights into technology adoption and use. One of the key contributors to the development of this theory is Venkatesh, who, along with his colleagues, proposed the theory to consolidate various models of technology acceptance [30]. The UTAUT is composed of four key constructs, among which is **performance expectancy**. According to [31], performance expectancy is defined as the degree to which an individual believes that utilizing a specific system will augment their job performance. This construct merges five related factors, including perceived usefulness (from Technology Acceptance Model (TAM) and TAM2, as well as Combined TAM and TPB (C-TAM-TPB)), extrinsic motivation (from Motivational Model (MM)), job-fit (from Model of PC Utilization (MPCU)), relative advantage (from Innovation Diffusion Theory (IDT)), and outcome expectations (from Social Cognitive Theory (SCT)). The UTAUT also suggests that the influence of these constructs on technology adoption and use is moderated by certain demographic variables, such as age and gender [31]. **Effort expectancy**, another core construct in the Unified Theory of Acceptance and Use of Technology (UTAUT), is defined as the degree to which an individual believes that using a particular system would be free from effort [31]. **Social influence** is a construct defined in the Unified Theory of Acceptance and Use of Technology (UTAUT) as the extent to which an individual perceives that important others (such as senior staff members or influential individuals) believe they should use the new system (Venkatesh *et al.*, 2003). As defined by [31] **facilitating conditions** represent the degree to which an individual believes that an existing organizational and technical infrastructure supports the system use. In the Perceived Behavioral Control (TPB/DTPB, C-TAM-TPB) model, facilitating conditions play a critical role, suggesting that individuals are more likely to engage in a behaviour when they perceive they have the necessary resources and opportunities.

2) Technology Acceptance Theory (TAM)

The Technology Acceptance Model (TAM) has played a significant role in informing the development and adoption of e-government systems. The TAM was originally proposed by [30] as a theoretical framework to explain end-user acceptance and use of technology across a wide range of computing technologies

and user demographics. At its core, the TAM posits those two specific beliefs shape technology acceptance: Perceived Usefulness (PU) and Perceived Ease of Use (PEU). [30] defined PU as the potential user's subjective probability that using a particular system, such as a single platform e-payment system, would enhance their job performance. On the other hand, PEU refers to the degree to which the prospective user expects the target system to be free of effort. The TAM further acknowledges that these perceptions might be shaped by other factors, referred to as external variables within the model. The model has undergone several refinements, with the final iteration, TAM3, being developed by [32].



5.1.10. Research Hypothesis

The present research aims to delve into a comprehensive understanding of the adoption of e-government services in Zanzibar, focusing on the various factors influencing this process. The study's main thrust is to examine the interplay between human capital, financial capacity, e-government policies, ICT infrastructure, and technological readiness as a mediator in shaping the adoption of e-government services. To effectively analyze these complex interactions and their impacts, this study sets forth several research hypotheses.

1) Human Resource Capital and E-Government Services Adoption

The organisation's management characteristics play an important role [33]. For example, the implementation readiness of management has consequences for the implementation of e-government services [34]. The implementation of e-government services adoption, a clear vision and strategy are important ingredients in e-government initiatives [35] [36] [37]. In addition to that, the ability to plan to any manager is still a must-have. A manager will need to assign tasks, meet objectives, and be responsible for finding ways to complete projects while staying within budget or time limits. Managers may also need to be flexible enough to adjust an existing plan to fit new circumstances in the implementation of e-government. Furthermore, personal and political power influences employees' perception of new e-government services. Some employees are excited

about new opportunities, but a potential barrier is lack of time to experiment which is essential to innovation and improving e-government services [38]. Management must carry out this kind of working environment to create an enabling environment for the smooth running of the organisations. Making this study successful and examining the role of Managers and capability in implementing e-government adoption. The following hypothesis is developed:

H1: *Technological readiness influence the relationship between human resource capital and the adoption of e-government services in Zanzibar SMEs.*

2) Financial Resource Capital and E-Government Services Adoption

The implementation of e-government initiatives requires funding to operate and maintain e-government projects. E-government services are provided through ICT infrastructure that can automate and digitize e-government services. The e-government ICT infrastructure may consist of several components forming the backbone of e-government implementation, namely infrastructure application server environment, infrastructure security, operating systems, application development tools, data and content management tools, and hardware [39]. The budget of the organization is also important, because it reflects the priorities in the organisation development. However, most developing countries are struggling to fund their e-government initiatives except for a few countries. The implementation of e-government in almost all countries in the world becomes successful because the countries commit to disburse sufficient budget across government departments. Researcher relates the situation on the adoption stages of implementation of e-government in public organisation. Therefore, the following hypothesis will be used to examine the reality.

H2: *Technological readiness influence the relationship between financial resource capital and adoption of e-government services in Zanzibar SMEs.*

3) Government Policies and E-Government Services Adoption

Government policies and regulations are important factors in e-government services adoption in any country of the universe [40]. For the digital transformation of government to succeed, digital technologies must be fully embedded in policymaking and service design processes from the outset. The public sector needs to be digital by design. This implies mobilizing existing and emerging technologies and data to rethink and re-engineer business processes and internal operations [40]. The aim is to simplify procedures, innovate public services, and open multiple channels of communication and engagement with the public and private sectors, the third sector and the public. It is for the development of this policy that shapes the guidelines implementation of e-government within the country. Therefore, the following hypothesis measures the effectives of the e-government adoption.

H3: *Technological readiness influence the relationship between government policies and adoption of e-government services in Zanzibar SMEs.*

4) Information Communication Technology and E-Government Services Adoption

In this situation, according to [41], e-government is predicated on leveraging

the power of technology to deliver services provided by governments. However, many e-government projects in developing countries are still in an early stage and have not achieved many expected outcomes such as cost savings and downsizing, amongst other issues [41]. It has been found that some technology-related factors have been studied from previous research. However, no comprehensive study could fulfill all components and factors. It has been understood that technological development improves the automation of the effective implementation of e-government towards the services adoption in the countries. In this regard, many developing countries' governments trying to improve services to citizens through other channels, since the inability to provide e-government services to all citizens can hold back e-government projects [42]. The study intends to evaluate ICT infrastructure's role in improving Zanzibar SMEs e-government services technological readiness.

H4: *Technological readiness influence the relationship between information communication technology and adoption of e-government services in Zanzibar SMEs.*

5) Technological Readiness as Mediator

Technological readiness plays a crucial mediating role in the connection between ICT infrastructure and the acceptance and application of e-government services in Zanzibar. In the context of Zanzibar, technological readiness can be seen as a potential mediator in the relationship between ICT infrastructure and the adoption of e-government services. High levels of technological readiness among citizens and e-government service users can facilitate effective use of existing ICT infrastructure, culminating in the successful uptake of e-government services. Therefore, efforts aimed at enhancing technological readiness, including initiatives to foster digital literacy, broaden access to technological resources, and provide training and support to develop comfort and familiarity with digital technologies, are critical to realize the full potential of ICT infrastructure [43]. Considering [44] definition of technological readiness, which includes individuals' predisposition to adopt technology, the element of perceived usefulness from the Technology Acceptance Model (TAM) can also be applied here. Moreover, [31] in their Unified Theory of Acceptance and Use of Technology (UTAUT), highlighted performance expectancy (like perceived usefulness) and effort expectancy (like ease of use) as significant determinants of user acceptance and usage of technology. These constructs align well with the concept of technological readiness, as they emphasize the user's capability and willingness to engage with the technology. Hence, it is crucial to provide necessary training and support to alleviate any possible technophobia among Zanzibar's potential e-government service users. This leads to the proposed hypothesis:

6) The Importance of Technological Readiness as Mediating Role in Government Policy and the Relationship between ICT and E-Government Service Adoption

Technological readiness is very important in the mediating in government policy, and the relationship between ICT and e-government services adoption.

The study by [45] point about trust transcends beyond the reliability of ICT infrastructure. Citizens build trust when there is consistency and transparency in government actions. Sound policies made them possible and reliable digital platforms. For Zanzibar, it means that while focusing on infrastructure development is pivotal, building and maintaining public trust is equally important. The transparency in policy formulation. The academic literature extensively explored the dynamic interplay between technological readiness and adopting e-government services. For instance, [46] provided a comprehensive overview of individual innovation adoption decisions that impacted technological readiness. They identified that people's predispositions toward technology significantly affect their engagement with new digital services. Their study underscores the importance of creating a technologically ready environment to ensure the effective adoption of e-government services. Additionally, [47], in his seminal work on the Diffusion of Innovations, highlighted the significance of the population's technological readiness in determining the rate and breadth of new technological adoptions. He emphasized that technological innovations, including e-government services, require infrastructural readiness and a receptive audience. In Zanzibar, ensuring technological readiness to harness the benefits of available resources becomes paramount. Furthermore, the study by [48] evaluated the impact of citizens' trust in e-government services. Their findings suggested that even when there is a high level of technological readiness and digital literacy, trust can be a pivotal determinant in the adoption rate of e-government services. [49] contributed to the discourse by examining citizens' barriers and impediments in adopting e-government services. Their research accentuates the role of technological readiness, suggesting that even with the best policies and ICT infrastructure if citizens are technologically ready, the consumption of such services would be active. [50] emphasized the role of public-private partnerships in enhancing technological readiness. They suggest collaborations lead to shared expertise and resources, ultimately facilitating a more technologically ready environment for e-government adoption.

5.2. Methodology

5.2.1. Quantitative Research Design

Quantitative research design holds significant merit for this study, which aims to explore the factors influencing the adoption of e-government services in Zanzibar. This approach is well-suited to address the research questions posed and test the formulated hypotheses due to several reasons. Firstly, quantitative research emphasizes objectivity [51]. The research can reduce the potential bias in data interpretation by collecting numerical data and analyzing it using statistical methods. This enhances the credibility and reliability of the findings and supports making precise and valid inferences about the population based on the sampled data [52]. Secondly, a quantitative approach allows for a broader overview of the situation. Given that this study focuses on e-government service adoption, it involves multiple dimensions such as human capital, financial ca-

pacity, policies, and ICT infrastructure [53] [54].

5.2.2. Primary Research

The use of primary data for this study brings several benefits and advantages that are integral for achieving the objectives of this research, which aims to explore Zanzibar SMEs e-government services technological readiness. First, primary data offers data specificity. Since primary data is collected directly from the source, it can be designed and collected to precisely address the research questions and hypotheses of this study [55]. This ensures that all variables—human capital, financial capacity, e-government policies, ICT infrastructure, and technological readiness—are accurately and comprehensively captured. Fourth, primary data allows for the incorporation of diverse perspectives.

5.2.3. Population

The population of Zanzibar, as of the 2022 census, was approximately 1,889,773 million [56]. However, for this study focused on Zanzibar SMEs e-government services adoption, the population of interest might be a subset of this larger group. The target population for this study would logically be those involved in the Zanzibar SMEs public sector, particularly employees who are actively engaged with e-government services, or citizens who use these services. A conservative estimation might be made because there is a lack of specific data on the number of these individuals. Applying this percentage to Zanzibar's population would give approximately 600,000 potential e-government users. So, for this study, the total target population would be approximately 650,000 (50,000 public sector employees and 600,000 potential citizen users).

5.2.4. Simple Random Sampling

Simple random sampling is often utilized in surveys and quantitative research designs [57]. As in simple random sampling individuals get equal opportunity to participate in the study, it is favorable in studies where the population is homogenous, and the population of the study is uniformly distributed. Simple random sampling is an extensively used sampling method in scientific research. Simple random sampling is selected for populations which are highly homogenous where the members of the research are randomly selected to participate in the research [58]. Simple Random Sampling is the "simplest and most common method of selecting a sample, in which the sample is selected unit by unit, with equal probability of selection for each unit at each draw" [59].

5.2.5. Determining Sample Size

Determining an appropriate sample size is a critical step in quantitative research. An adequately sized sample helps to ensure that the results are representative of the overall population and that the study's findings can be generalized. In this case, the target population for the study is estimated to be 650,000, which includes both public sector employees and potential citizen users of e-government services in Zanzibar. To calculate the sample size, several factors must be consi-

dered: the confidence level (how sure we want to be that our sample results reflect the actual population), the margin of error (the amount of error we're willing to accept), and the population proportion (a guess about the response we're likely to see). The sample size of this study would be decided on a confidence level of 95%, which is quite common in social science research. For the margin of error, this study chooses 5%, which means we are okay if our results are off by 5% in either direction. For the population proportion, because the study does not have a prior estimate, it is common to use 0.5 (or 50%) which maximizes sample size and ensures a more conservative approach. The formula for calculating the sample size (n) when the population is greater than 10,000 is as follows.

Here:

$$n = \frac{z^2 \times \hat{p}(1-\hat{p})}{\varepsilon^2}$$

Z is the z-value (for a 95% confidence level, the z-value is 1.96);

P is the estimated proportion of the population which has the attribute in question (0.5 in our case);

E is the margin of error (0.05 in our case).

So, substituting these values into the formula [60]:

$$n = \frac{1.96^2 \times 0.5(1-0.5)}{0.05^2} = 384.16$$

So, based on this formula, the initial sample size should be 384. However, because the study population is finite (650,000), It will be needed to apply a correction formula:

$$n = n/\left[1+\left((n-1)/N\right)\right]$$

Here, n is the initial sample size and N is the population size. Substituting these values into the formula:

$$n = 384/\left[1+\left((384-1)/650000\right)\right]$$

$$n = 384/\left[1+\left(383/650000\right)\right]$$

$$n = 384/1.00058923$$

$n = 383.84$ -Rounding up, the final sample size should be approximately 384 participants.

5.2.6. Instruments

The following are the research instruments that were applied during the data collection stage particularly in the qualitative part.

5.2.7. Questionnaire

A questionnaire is a pre-formulated written set of questions to which respondents record their answers, usually within rather closely defined alternatives.

Questionnaires are generally designed to collect large numbers of quantitative data. They can be administered personally, distributed electronically, or mailed to the respondents. Questionnaires are generally less expensive and time-consuming than interviews and observation, but they also introduce a much larger chance of non-response and non-response errors. [61] through this method, different respondents will be given a paper to fill in information as set by the direction from the researcher or research assistant. The questionnaire was supplied to 400 respondents who were involved in the study. [62]. A questionnaire is a pre-formulated written set of questions to which respondents record their answers, usually within instead of closely defined alternatives. Questionnaires to collect large numbers of quantitative data. The researcher administered the survey personally, distributed them electronically, or mailed them to the respondents. Questionnaires are generally less expensive and time-consuming than interviews and observation, but they also introduce a much larger chance of non-response and non-response error. According to [61], the researcher or research assistant distributes the questionnaire to different respondents to fill in the required information set by the direction. The respondents involved in the study would respond to the questionnaire. The contents involved in designing the questionnaire were the main areas related to the study format and structure. The survey questionnaire would take approximately 20 minutes to complete. A self-administered questionnaire instead of a postal or e-mail questionnaire encouraged people to participate in the study. According to [63], the advantages of a questionnaire include the following aspects: 1) simple to administer; 2) the data obtained is reliable; and 3) the coding, analysis, and interpretation of data are relatively simple and straightforward. Most questions are alternative questions requiring respondents to select from a predetermined set of responses. Additionally, the researchers used itemized scale ratings, namely, the Likert-type scale, to measure the responses to the questionnaire. The advantages of Likert scaling are that it is easy to construct and understand, flexible, and economical in terms of space [64]. The survey's main objective is to get first-hand information from the respondents regarding the current e-government services adoption in Zanzibar. The researcher obtained the feedback directly from the users based on their experiences described in the paper. Survey question tools with simple random sampling with heterogeneous participants, the data may produce accurate findings. [65] Additionally, according to [66] and [67], the sampling technique is effective when the population is homogeneous, and the list of the population intended for the study is easily accessible. It is essential to use impartial random selection [68]. It lessened the confounding effects of both known and unknown factors through randomization [69]. There is an equal probability for each sample thus reducing bias or distortion.

5.2.8. Issue of Reliability and Validity

1) Reliability in Quantitative Research

One of the main requirements of any research process is the reliability of the

data and findings. Reliability deals with the consistency, dependability, and replicability of "the results obtained from a piece of research" [70]. Obtaining similar results in quantitative research is relatively straightforward because the data is in numerical form. [71] [72] point out that instead of obtaining the same results, it is better to think about the dependability and consistency of the data. Therefore, relating to the explanation from the authors, the researcher uses it to ensure that different techniques contribute to consistency. To ensure there was reliability in the study. The pilot study was taken. Generally, the results showed that Cronbach's Alpha values ranged from 0.852 to 0.945 for the constructs, with an average value of 0.957 across all constructs. In the large scale survey, the study assessed the measurement model. The study assessed the constructs separately as the current study has two different constructs, reflective and formative constructs. The construct "e-government Services Adoption" showcases loading that oscillates between 0.751 (ESA05) and 0.939 (ESA02), reflecting each item's commendable reliability. The results observed fidelity in measurement for constructs such as "Technological Readiness". It is pivotal to highlight that the researcher omitted specific items, namely ESA10, TR09, TR10, GF01, GF10, HC10, and ICTI10, due to their subpar loading. The exclusions accentuate the rigorous criteria applied to ensure measurement quality.

2) Validity in Quantitative Research

[73] defined it as "a valid account if it represented accurately the features of the phenomena, that it intended to describe, explain or theorize" (p. 69), [74]. Researchers note that all the strategies aim to strengthen the representation of the data and findings [75]. In the current study, the researcher considered validity necessary while validating the data. Researchers often discuss issues such as objectivity, truth, evidence, reason, fact, and numbers when talking about validity [75] and validity in quantitative research has strict methodological rules and standards. A researcher would commit to achieving the task. The study used three measures to check the discriminant validity (the degree to which items differentiate among constructs or measure distinct concepts) of the measurement model: the cross-loading, the Fornell-Larcker criterion, and HTMT. Researchers consider the average variance extracted (AVE) to establish convergent validity [76]. Thus, the AVE is equal to the commonality of a construct. An AVE value of 0.50 or higher shows that, on average, the construct explains more than half of the variance of its indicators using the same logic as the individual indicators. On the other hand, an AVE of less than 0.50 shows that, on average, there are more errors in the items than the variance explained by the construct [76]. The Heterotrait-Monotrait Ratio (HTMT) used to evaluate discriminant validity in the constructs. The method compares the correlation of indicators across constructs with the correlation of indicators within the same construct. All the HTMT values are well below the threshold of 0.85, implying that each construct is distinctly different. It confirms satisfactory discriminant validity among the constructs in the model. **Table 1** shows HTMT used to evaluate discriminant validity. For illustration see (**Table 1**).

Table 1. HTMT.

Construct	1	2	3	4	5	6
Digital Literacy						
E-government_Services_Adoption	0.171					
Financial_Source _Capital	0.269	0.243				
Government_Policies	0.369	0.239	0.266			
Human_Resource_Capital	0.070	0.191	0.115	0.119		
Information_Communication_Technology	0.238	0.184	0.211	0.248	0.084	
Techonolgical_Readiness	0.646	0.145	0.320	0.566	0.177	0.348

Source: Field research data, 2023.

The Fornell-Larcker criterion, is another tool employed to verify discriminant validity. The criterion emphasizes that a construct's square root of the average variance extracted (AVE) should be greater than its correlations with other constructs. A close examination reveals that diagonal values, which, are indeed higher than off-diagonal values in their corresponding rows and columns. Significantly surpasses its other correlations, the highest being 0.601 with 'Technological Readiness. Table 2 show Fornell-Larcker criterion.

Operationalisation of Human Resource Capital

In this study, the operationalization of human capital was adapted from the Human Capital Index (HCI) developed by [77]. The construct of human capital was measured using a Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). The questionnaire included ten items that assessed various aspects of human capital related to the use of e-government services. The responses were used to assess the extent to which individuals perceive themselves to possess the necessary human capital for effectively utilizing e-Government services in Zanzibar (See Table 3).

Operationalisation of Financial Resource Capital

The operationalization of Financial Capacity in this study includes ten items adapted from [78]. The participants were asked to indicate their level of agreement or disagreement on a five-point Likert scale ranging from "Strongly Disagree" (1) to "Strongly Agree" (5). The items measure various aspects of financial capacity. Participants selected the response option that best represents their perspective on each item (see Table 4).

Operationalisation of Government Policies

To measure the operationalization of e-government policies, a set of ten items was adapted from previous studies [79] [80] [81]. These items capture the perceptions of respondents regarding the effectiveness and impact of e-government policies in their country. Participants are asked to indicate their level of agreement on a five-point Likert scale ranging from "Strongly Disagree" (1) to "Strongly Agree" (5). The items cover various dimensions Government policies.

The scale provides a comprehensive framework for evaluating the extent to which e-government policies are perceived to be successfully operationalized in the context of the study (see Table 5).

Table 2. Shows Fornell-Larcker criterion.

Construct	1	2	3	4	5	6	7
Digital Literacy	0.841						
E-government_Services_Adoption	0.179	0.837					
Financial_Source_Capital	0.254	0.249	0.822				
Government_Policies	0.353	0.230	0.261	0.797			
Human_Resource_Capital	0.024	0.193	0.107	0.127	0.853		
Information_Communication_Technology	0.245	0.163	0.205	0.215	0.074	0.822	
Techonolgical_Readiness	0.601	0.141	0.305	0.579	0.169	0.330	0.815

Source: Field research data, 2023.

Table 3. Items for human resource capital.

Construct	Item No.	Items
	HC01	I have received adequate education and training to use e-Government services.
	HC02	I have the necessary skills and knowledge to navigate e-Government platforms.
	HC03	I continuously seek to enhance my knowledge and skills related to e-Government services.
	HC04	I feel confident in my ability to troubleshoot problems when using e-Government services.
	HC05	The skills and knowledge I have are well-recognized and utilized in the e-Government context.
[77]	HC06	I am comfortable learning new technologies as they relate to e-Government services.
	HC07	I can adapt and use e-government services in changing circumstances.
	HC08	I actively seek out opportunities to improve my understanding of e-Government services.
	HC09	I have been involved in training programs or workshops aimed at improving my proficiency with e-Government services.
	HC10	I have sufficient experience with using online platforms or digital services that enhances my use of e-Government services.

Table 4. Items for financial resource capital.

Construct	Item No.	Items
[78]	FC01	I feel confident in managing my personal finances.
	FC02	I have a good understanding of basic financial concepts, such as budgeting and saving.
	FC03	I am knowledgeable about different investment options and their potential risks and returns.
	FC04	I consistently set financial goals and work towards achieving them.
	FC05	I effectively track my income and expenses to maintain a balanced budget.
	FC06	I am comfortable making decisions about long-term financial planning, such as retirement savings.
	FC07	I have a good understanding of the impact of interest rates and fees on my financial decisions.
	FC08	I have a solid emergency fund to handle unexpected expenses.
	FC09	I regularly review and update my financial plan to adapt to changing circumstances.
	FC10	I feel confident in my ability to make informed financial decisions.

Table 5. Items for government policies.

Construct	Item No.	Items
[79] [80] [81]	GF01	The e-government policies implemented in my country effectively enhance transparency and accountability.
	GF02	The e-government policies provide easy access to information and services for citizens.
	GF03	I believe that the e-government policies in place promote citizen participation and engagement.
	GF04	The e-government policies contribute to improving the efficiency and effectiveness of government services.
	GF05	The e-government policies prioritize the protection of citizens' privacy and personal data.
	GF06	I am satisfied with the level of responsiveness and timeliness of services provided through e-government.
	GF07	The e-government policies adequately address the digital divide and ensure equal access for all citizens.
	GF08	The e-government policies support innovation and the adoption of new technologies for improved service delivery.
	GF09	The e-government policies promote collaboration and information sharing among government agencies.
	GF10	I believe that the e-government policies have a positive impact on overall governance and public administration.

Operationalisation of Information Communication Technology

The operationalisation of ICT infrastructure was based on the adaptation of the "Perceived ICT Infrastructure Scale" developed by [82]. The scale consisted of 10 items that assessed participants' perceptions of various aspects of ICT infrastructure in their organization. Participants were asked to rate each item on a five-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). The items covered various dimensions in ICT. The responses provided valuable insights into participants' perceptions of the state of ICT infrastructure in their organization (See Table 6).

Operationalisation of Technological Readiness

The operationalisation of technological readiness in this study is based on the Technology Readiness Index (TRI) developed by [83]. The TRI consists of ten items that assess individuals' readiness to embrace new technologies. These items capture various dimensions of technological readiness given. Participants rated their level of agreement with each item on a five-point Likert scale, ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). By using this operationalization, the study aims to assess individuals' readiness and attitudes towards technology, providing insights into their propensity to adopt and utilize e-government services in Zanzibar (see Table 7).

Operationalisation of E-Government Services Adoption

The operationalisation of e-government services adoption in this study is based on a scale adapted from previous research studies [32] [84] [85]. The

Table 6. Items for information communication technology.

Construct	Item No.	Items
[82]	ICTI01	The ICT infrastructure in my organization is reliable and stable.
	ICTI02	I have easy access to necessary ICT resources and tools.
	ICTI03	The ICT infrastructure in my organization supports efficient communication and collaboration.
	ICTI04	The ICT services provided in my organization are of high quality.
	ICTI05	The ICT infrastructure in my organization is up-to-date and technologically advanced.
	ICTI06	The ICT systems in my organization are user-friendly and easy to use.
	ICTI07	The ICT infrastructure in my organization meets the needs and demands of the users.
	ICTI08	The ICT resources available in my organization are sufficient for performing tasks effectively.
	ICTI09	The ICT infrastructure in my organization enables quick and timely access to information.
	ICTI10	Overall, I am satisfied with the ICT infrastructure in my organization.

construct includes ten items that measure various aspects of e-government services adoption. Participants are asked to rate their agreement with each item on a five-point Likert scale ranging from "Strongly Disagree" (1) to "Strongly Agree" (5) (See Table 8).

Table 7. Items for technology readiness.

Construct	Item No.	Items
[83]	TR01	I am optimistic about using new technologies.
	TR02	I enjoy trying out new technological products and services.
	TR03	I feel comfortable using technology in my daily life.
	TR04	I feel insecure when I am not familiar with the latest technology.
	TR05	I get anxious when using complex technological systems.
	TR06	I find it easy to learn and adapt to new technologies.
	TR07	I believe that technology can greatly improve my productivity and efficiency.
	TR08	I feel confident in my ability to troubleshoot and solve technological problems.
	TR09	I enjoy exploring the features and functionalities of new technological devices.
	TR10	I believe that technology plays a crucial role in shaping the future.

Table 8. Items for e-government services adoption.

Construct	Item No.	Items
[32] [84] [85]	ESA01	Using e-government services enhances my overall satisfaction with government services.
	ESA02	E-government services are easy to use and navigate.
	ESA03	E-government services save me time and effort compared to traditional offline methods.
	ESA04	I find e-government services to be reliable and secure.
	ESA05	I believe that using e-government services improves my access to government information and resources.
	ESA06	I intend to continue using e-government services in the future.
	ESA07	E-government services provide me with a convenient and efficient way to interact with the government.
	ESA08	I feel confident in using e-government services to complete transactions or obtain information.
	ESA09	E-government services have improved my overall experience with government agencies.
	ESA10	I would recommend e-government services to others.

6. Data Analysis Technique

Quantitative data obtained in the pilot study will be subjected to respondents' profile analysis and research model estimations using structural equation modelling (SEM) via the partial least square (PLS) technique. Data gathered in the large-scale study and analysed in the following contexts: 1) response rate and informant competency, 2) respondents' profile analysis, and 3) partial least square estimations. Ongoing data analysis were considered First of all, descriptive statistics, inferential analysis, Correlation analysis, and factor analysis are taken as they are important data analysis techniques in this study where the given results displayed the detail.

6.1. Correlations and Coefficient Analysis

6.1.1. Correlation Analysis

Is a statistical technique used to assess the strength and direction of the relationship between two or more variables? It is a valuable tool in research as it allows researchers to determine if there is a significant association between variables and to what extent they relate [86]. Correlation coefficients, such as the Pearson correlation coefficient, measure the degree of linear relationship between variables. The coefficient ranges from −1 to +1, where a value close to +1 indicates a strong positive correlation, a value close to −1 indicates a strong negative correlation, and a value close to 0 indicates no or weak correlation [87]. Correlation analysis helps researchers understand the nature of the relationship between variables, whether positive or negative, and provides insights into how changes in one variable could impact another. Various fields, such as social sciences, economics, and health research, use correlation analysis to examine the inter dependencies between variables and guide further analysis and decision-making. Correlation analysis determines the relationship between the four independent variables, Human Resource Capital (HRC), Financial Resource Capacity (FRC), Government Policies (GP), and Information Communication Technology Infrastructure (ICTI), and a mediating variable. Mediating variables are crucial in interpreting the relationship between independent and dependent variables [88]. In the study, the mediating variable could be the attitude toward technology or the perceived usefulness of e-government services. The analysis helps uncover the potential indirect effects of the independent variables on the dependent variable through the mediating variable. The study analyses the correlation between technological readiness and e-government services. Technological readiness refers to the preparedness to adopt and use new technologies, which is crucial for successfully adopting e-government services [83]. By analyzing the correlation between the two variables, the study provides insights into how enhancing technological readiness leads to improved uptake and utilization of e-government services in Zanzibar.

6.1.2. Coefficient Analysis

The coefficient of determination, denoted as $R2$, is an essential metric in SEM

that offers insights into the proportion of variance in the dependent variables explained by the independent variables. A higher $R2$ indicates the structural model's more robust predictive capacity. Delving into the current study's findings, the $R2$ for e-government Services Adoption stands at 0.462. It infers that the model predictors explain approximately 46.2% of the variance in the construct. According to the established benchmarks, the effect size is "Substantial" [89] and "Fair" as per the standards of [90] and [91]. Conversely, Technological Readiness yields an $R2$ of 0.587. The predictors account for a substantial 58.7% of the variance in the construct. Given the benchmarks, the given rate is "Perfect" per Cohen's standards and "Excellent" according to [90] and [91] Mediation Assessment Mediation effect occurs when a third variable (mediator) intervenes between other two constructs that are related. It can be explained that a mediator variable accounts for a relationship that exist between an exogenous variable (predictor) and endogenous variable (the criterion) [76] [86]. Therefore, the relationship nature between two variables is governed by mediator variable, it is the mechanism or process that is fundamental to the relationship, and therefore, mediation effect requires a strong theoretical justification to support it [76]. A study by [84] pinpointed problems with the Baron and Kenny method [86] "Statistical mediation analysis in the new millennium" and suggested full solutions in his book [84], to test the effect of mediation by determining the indirect effect using the bootstrapping technique. Mediation significance test is conducted by bootstrapping approach because bootstrapping can be applied to small sample with confidence. Moreover, it has no sample and variable shape distribution assumption and test significance with confidence interval. This approach thus, is suited perfectly for PLS-SEM and in addition, it generates higher statistical power than Sobel test [76].

H9a: The mediation analysis for the relationship between Human Resource Capital and E-government Services Adoption via Technological Readiness yielded a beta value of −0.012, with a p-value of 0.163 (see **Table 9**). Given that the p-value is above the significance level of 0.05, the mediation effect of Technological Readiness in this relationship is not significant. As a result, H9a is not supported.

Figure 1 mediates relationship between Human Resource Capital and E-government Services Adoption.

H9b: Similarly, when assessing the mediation effect of Technological Readiness between Financial Source Capital and E-government Services Adoption, a beta value of −0.019 was observed with a p-value of 0.070. This p-value, slightly above the significance threshold, indicates that the mediation effect, though potentially influential, is not statistically significant at the 0.05 level. Therefore, H9b is not supported.

Figure 2 mediates relationship between Financial Resource Capital and E-government Services Adoption.

H9c: For the relationship between Government Policies and E-government Services Adoption, the mediating role of Technological Readiness resulted in a

Table 9. Mediation analysis result.

Hypo	Relationship	Beta	STDEV	t-Value	p-Values	Decision
H9a	Human Resource Capital → Technological Readiness → E-Government Services Adoption	−0.012	0.008	1.397	0.163	**Not Supported**
H9b	Financial Source Capital → Technological Readiness → E-Government Services Adoption	−0.019	0.011	1.809	0.07	**Not Supported**
H9c	Government Policies → Technological Readiness → E-Government Services Adoption	−0.075	0.034	2.231	0.026	**Supported**
H9d	Information Communication Technology → Technological Readiness → E-Government Services Adoption	−0.029	0.015	1.975	0.048	**Supported**

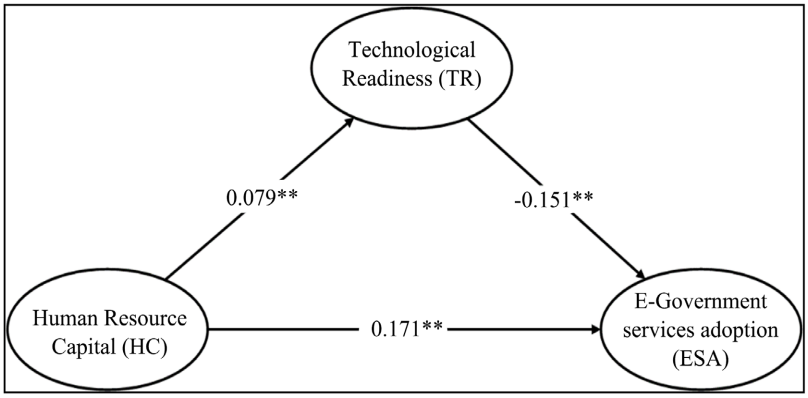


Figure 1. The relationship between human resource capital and e-government services adoption via technological readiness. Source: Field research data, 2023.

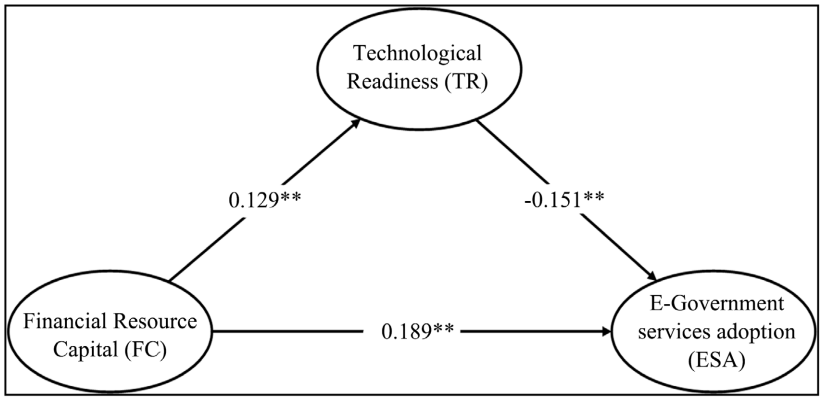


Figure 2. The relationship between financial resource capital and e-government services adoption. The mediation role of technological readiness. Source: Field research data, 2023.

beta value of −0.075 and a p-value of 0.026. This p-value, being below the significance level, provides evidence that Technological Readiness significantly mediates the relationship between Government Policies and E-government Services Adoption. Hence, H9c is supported.

Figure 3 mediates relationship between Government Policies and E-government Services Adoption.

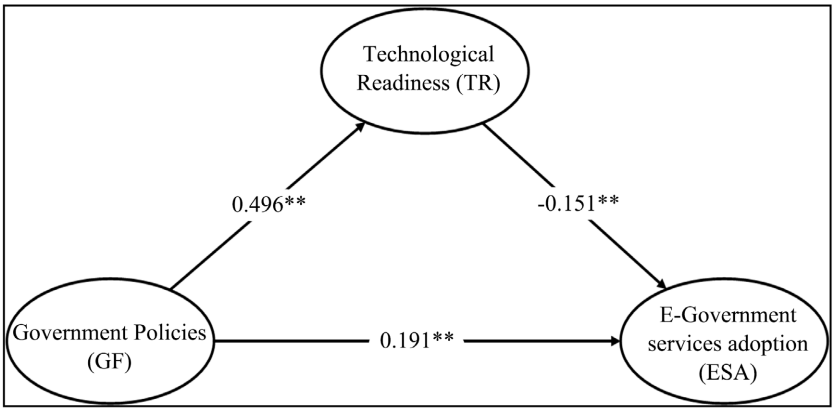


Figure 3. The relationship between government policies and e-government services adoption, the mediating role of technological readiness. Source: Field research data, 2023.

H9d: Lastly, regarding the relationship between Information Communication Technology and E-government Services Adoption, the mediation analysis showed a beta value of −0.029 and a p-value of 0.048. This p-value, marginally below the significance threshold of 0.05, indicates that Technological Readiness has a significant mediating role in this relationship. Consequently, H9d is supported.

Figure 4 mediates relationship between Information Communication Technology and E-government Services Adoption.

Answer to RQ9: *To what extent does technological readiness mediate the impact of human resource capital, financial resource capital, government policies, information communication technology and digital literacy as a moderator towards the adoption of e-government services in Zanzibar*.

Technological readiness was observed to be a significant mediator, especially when digital literacy played the role of a moderator. This mediation effect indicates that simply having resources is not enough; they need to be appropriately channeled and utilized, which is where technological readiness comes into play. Technological readiness, as a mediating factor, has long been the subject of research in the realm of e-government service adoption. The importance of technological readiness, as observed in this study for Zanzibar, aligns with the findings of [83], who emphasized that technological readiness not only encompasses infrastructure and tools but also the mindset and readiness of the populace to embrace and use new technologies. Therefore, even with adequate human resource capital and financial investment, if the target audience isn't technologically ready, the adoption of e-government services might remain suboptimal. Contrastingly, [45] in their study posited that while technological readiness is undoubtedly a critical factor, external variables like trust in the internet and perceived lack of accessibility often overshadow its significance. Their findings implied that people might be technologically ready but might still resist adoption due to external variables. This perspective throws light on Zanzibar's SMEs context, where despite the mediation of technological readiness, external factors

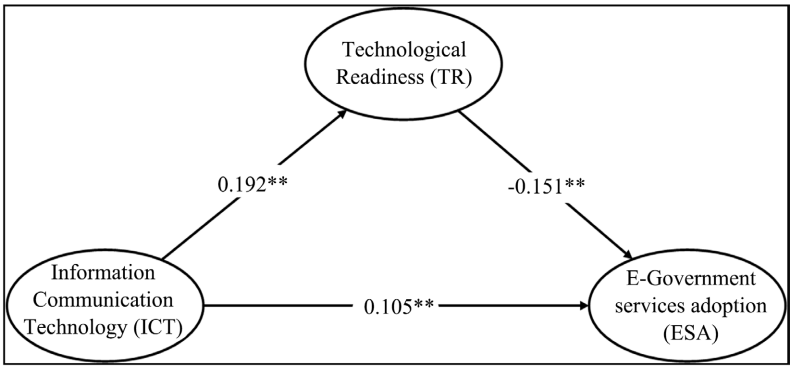


Figure 4. The relationship between information communication technology and e-government services adoption, the mediation role of technological readiness. Source: Field research data, 2023

influenced by government policies, or lack of trust might hinder the optimal adoption of e-government services. Another noteworthy angle emerges from the study by [91] which centered on the role of digital literacy as a moderator. Their research indicated that the higher the level of digital literacy, the more pronounced the mediation effect of technological readiness becomes. This aligns well with the observations for Zanzibar, where digital literacy amplified the mediating impact of technological readiness. It underscores the point that when individuals are well-versed with digital tools, they are more prepared to adapt to technological changes, thereby making the e-government services more effective and widespread to Zanzibar SMEs. In brief, while the current study highlights the pivotal role of technological readiness and the moderating effect of digital literacy in Zanzibar's context, it is essential to understand that the dynamics of e-government service adoption are multifaceted. The various layers of complexities, as explored by previous researchers, provide a comprehensive understanding of how multiple variables intersect and interact to influence the end outcome. As Zanzibar continues on its journey of e-governance, these nuances will need careful consideration.

7. The Study Implications to Zanzibar SMEs

The findings of this research can help Zanzibar SMEs businesses and service providers tailor their services to meet the needs and preferences of the Zanzibar populace, especially in areas where digital literacy plays a pivotal role. For businesses and service providers operating within Zanzibar, the revelations from this research are instrumental in refining their strategic orientations. Recognizing the significance of digital literacy as a determinant for e-governance adoption, industry players have an opportunity to realign their service offerings. Instead of a one-size-fits-all approach, businesses can design tailored services that cater to varying levels of digital literacy. This not only enhances user experience but also optimizes the efficiency of service delivery, ensuring that even individuals with minimal digital proficiency can navigate and utilize e-governance platforms with ease. Furthermore, the industry can leverage this newfound knowledge to invest

in community outreach and educational programs. Partnering with local educational institutions and community centers to offer digital literacy workshops can serve a dual purpose. Firstly, it can bridge the digital divide, ensuring a larger section of the population can effectively use e-governance services. Secondly, these initiatives can position businesses as socially responsible entities, leading to enhanced brand reputation and trust among the community. In essence, understanding the dynamics of digital literacy in e-governance adoption offers businesses both a challenge and an opportunity to innovate and solidify their foothold in the market.

8. Conclusion

This study provided that, Technological readiness to Zanzibar SMEs was underscored as another key mediator. It's not enough to merely have resources; they need to be optimized, channeled, and utilized effectively. Technological readiness encapsulates this sentiment, ensuring that the available human, financial, or infrastructural resources are primed for the digital age. Zanzibar's focus on this aspect of e-governance is commendable and in line with global best practices. The study paints a holistic picture of e-government service adoption in Zanzibar SMEs, balancing local nuances with global trends. It reaffirms some universally acknowledged truths while shedding light on region-specific dynamics. As Zanzibar stands on the cusp of a digital revolution, this research offers valuable insights to steer the ship in the right direction, ensuring that the waves of digital transformation lead to shores of efficiency, inclusivity, and progress.

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Conflicts of Interest

We declare that, have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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