

An Analysis on the E-Government and Sustainable Development Goals of Tanzania: Aligning Digital Initiatives with Public Policy Objectives

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Abstract: *E-government is a concept used to describe the intrude of technological advances to the improvement of public services with regard to their effectiveness, availability, and openness to the public, thereby integrating technology in the development of sustainable solutions. This paper assesses Tanzania's level of implementation of Sustainable Development Goals (SDGs) utilizing e-government and examines its influence on policy changes, the moderating roles of transparency and accountability, and the impact of digital inclusion. The study employed a longitudinal survey approach, selecting a random sample of 384 participants to evaluate e-government's contribution to SDGs. Data was collected using closed-ended Likert-scale questionnaires via online and paper-based methods. Convenience sampling was used, and data underwent variable cleaning and pre-processing. Hierarchical multiple linear regression and path analysis were conducted to test hypotheses, validate relationships, and examine digital inclusion as a moderator. Findings indicate strong positive correlations between e-government initiatives (EGI) and SDG progress ($\beta = 0.706, p < 0.001$). EGI significantly enhances policy outcomes ($\beta = 0.23, p < 0.001$), and transparency and accountability mediate this relationship (effect size = 0.6233, $p < 0.001$). However, digital inclusion negatively moderates the EGI-SDG relationship ($\beta = -0.46, p < 0.001$), highlighting disparities in access and impact.*

Keywords: E-government, sustainable development goals, policy outcomes, Tanzania

1. Introduction

Many countries are accepting the dramatic shift in governance brought about by the continuous advancement of technology by implementing e-government strategies and remedies that increase the effectiveness, convenience, and transparency of government-related operations (Danaeefard, 2023). E-government was the distribution of services through information and communication technologies (ICTs) in the context of the government and were seen as the solution that can introduce radical improvements in the territories and contribute to sustainable development (Goloshchapova et al., 2023). It was a commonly held notion among researchers and lawmakers, according to Lopatkova et al. (2019), that using e-government innovation offered a holistic approach to executing sustainable growth. Capitalising on this global trend, authorities everywhere were embracing e-government as a novel approach to producing efficient, inclusive, human-centred public services and government initiatives for sustainable growth. The idea of e-government, also known as e-governance, was one that attempts to integrate ICT into the system of governance to provide better, more affordable, and efficient execution of public services as well as efficient public interaction (Ariyaningsih et al., 2023; Kanaan et al., 2019). The aforementioned suggests that electronic government is the use of ICT and online architecture in various ways to create a web of multiple independent entities for the purpose of providing public amenities. The UN established the SDGs in 2015 to support national progress through the digital revolution by utilising technological advancements (Vereinte, 2018). At the September 2015 UN sustainability conference, world leaders approved the revised 2030 Framework for Sustainability (Nakicenovic et al., 2018). According to reports, the emergence of e-government was promoting changes in company procedures, boosting

within efficiency in delivering services to cut down on public spending, improving civic engagement, boosting accountability and candour, boosting the level of exchange of data and interoperation, boosting competitiveness and innovation, and providing 24/7 e-service delivery (Alahakoon & Jehan, 2020).

Urban populations seem to have more access to various online amenities because of access to infrastructure and proficiency with digital technology, while marginalised and rural populations might not be able to take advantage of these resources (Laskar, 2023). However, the appraisal of e-government programs depended on various prerequisites including; impactful and efficient ICT system, appropriate legislations as well as supportive political leadership (Glyptis et al., 2020; Malodia et al., 2021). E-government influence on sustainable development was mediated by two factors namely: transparency and accountability (Defitri et al., 2020). Indeed, e-government increased governmental accountability and transparency since it increases citizens' access to information and engagement, respectively. For instance, open data platforms covering government spending, tender information, and evaluation information enabled the citizens to demand and exercise more responsibility in governance. This study concentrates on the level of achievement of e-government in Tanzania in the areas of transparency and accountability, and the implications for the realisation of sustainable development goals. The degree of digital literacy was regarded as a moderating factor that either strengthens or weakens the effects of e-government activities. Digital exchange was understood as the equal opportunities of people in the utilization of technologies and the Internet. In Tanzania, strategies for digital access accessibility consisted of undertaking the expansion of broadband facilities, availing economic internet connectivity as well as raising awareness

and skills through the education and training portfolios. Thus, the study examines how, and to what extent, any disparities in digital inclusion by demographic status and geographical regions make e-government valuable and proactive to impact positively on the implementation of SDGs and policy outcomes.

African nations were frantically attempting to catch up with the wave of change as they realise the need of these facilities, especially in view of the prosperous experiences of developed economies. But e-government was only gradually taking hold in Africa as a result of an absence of digital readiness (Olumekor et al., 2024). This were explained by the reality that African authorities use ICTs more rarely than governments in developed countries, have less e-government programs, and utilised previous generations of technology (Glyptis et al., 2020). SDGs were recognised as crucial components in creating distinctive public amenities, coupled with e-government. Effectiveness, reliability, accountability, openness, inclusivity, and improved access to essential government amenities, particularly for the underprivileged, were characteristics of the public sector (Crammond & Carey, 2016; Vereinte, 2018). Furthermore, global challenges encompassing geography and demographic sectors, such as financial, social, cultural, and environmental issues, must be addressed by SDG programs. The purpose of this study is to evaluate the realization of the Tanzania's progress toward the SDGs in regard to the e-government. Secondly, the study aims at examining the level of e- government influence on policy impacts particularly in the context of the developed and discussed policy outcomes; including public service delivery, efficiency in governance, and corruption in Tanzania. Third, the study examines moderating role of transparency and accountability in the association of SDG and e-government and moderating impact of digital inclusion on it.

1.1 Theoretical framework

Technology Acceptance Model (TAM) states perceived ease of use and perceived usefulness as two important elements influencing the technology acceptance (Davis et al., 1989). This is the main reason why, with respect to e-government, this theory can be expanded even further to assess the perceptions and the degree of adopting of e-government amenities by different groups of citizens as well as government officials. Based on this model, the application of e-government systems will be more prosperous and accepted if users find them useful for the accomplishment of governmental and development objectives (perceived usefulness) and easy to use (perceived ease of use) (Mayasari et al., 2017). According to this theory, Tanzania's commitment to e-government faces a positive association with the advancement of SDGs (Othman et al., 2020). E-government therefore fosters the afore-listed perceived benefits, which over time, directly subsidize to most of the SDGs that include; quality education, good health, economic growth and reduced inequalities. Furthermore, TAM posits and find that how well e-government strategies are in supporting the country's strategic plan and the 2030 sustainable development goals enhances policy outcomes in Tanzania (Zeebaree et al., 2022). In this case, e-government is better supported and promoted through policies since the

related initiatives are seen as a direct contribution to the implementation of the SDGs, hence improving the policy impact. It also guarantees that digital solutions are not promoted haphazardly but rather place emphasis on specific goals of the country's development agendas. The introduction of e-government services, based on the theoretical framework of TAM, guarantees that these resources are easy to use and efficient, thus contributing to improved policy implementation and effectiveness.

Institutional Theory discusses the manner in which structures are diffused as formal and legitimate patterns that inform organizational populations directly (Zucker, 1987). This theory is useful for the analysis of the external environment in which e-government initiatives are introduced and their further consequences for public policies and SDGs. In Tanzania, weak ICT infrastructure and uneven political commitment (Olumekor et al., 2024) may hinder e-government diffusion, aligning with Institutional Theory's emphasis on external pressures. Meanwhile, TAM's perceived usefulness resonates with citizen demands for accessible services (Mashaka et al., 2019). According to Institutional Theory, government bodies, like any other organization, are shaped by institutional factors such as Rules and regulations, Expectations and Best practices and Cognition (Carpenter & Feroz, 2001). Hence, it postulates that the level of digital inclusion mediates the association among SDG delivery and e-government implementation in Tanzania. The role played by Institutional Theory about the role of regulatory mechanisms of advancement and the normative standards about e- government services to assess the capability of the respective segments of the population to benefit from such services is explained (Gil-García & Pardo, 2005). As a result of global pressures of transparency and accountability, e-government systems that improve these aspects in a country's administration are adopted (Wong & Welch, 2004). The institutionalization of the principles of transparency and accountability guarantees that e-Government drives the improvement of policy outcomes as it fosters initiatives towards more efficient polices (Benkhadra, 2022). Thus, this paper constructs a theoretical framework from TAM and Institutional Theory, which presents the diverse and complex interconnections between e-government implementation, SDGs, technology adoption, transparency, and accountability. It explains technology acceptance model for understanding the affording of e-government by the organizational and individual component, stressing ease of use and perceived usefulness. These aspects are important at the individual level to show how e-government can contribute to changes for SDGs and improve policy outcomes. While importing the concept of implementation, the Institutional Theory further contextualizes e-government in the realm of socio-political forces thereby stressing the influence of institutional pressures towards digital opportunity, openness, and responsibility. Thereby this macro-level perspective is so important in order to understand how and to what extent e-government initiatives have impact on the existing legal system, norms and expectations as well as on cognitive mental models regarding sustainable developments and public policies. Altogether, the presented theories assist in providing a complex analysis (Figure 1) of the following research hypothesis and its propositions.

H1: There is a significant positive correlation between the adoption of e-government initiatives and progress towards SDGs in Tanzania.

H2: Effective alignment of e-government strategies with SDGs leads to better policy outcomes in Tanzania.

H3: The level of digital inclusion moderates the association between e-government adoption and SDG achievement in Tanzania.

H4: Transparency and accountability positively mediate the influence of e-government on public policy outcomes in Tanzania.

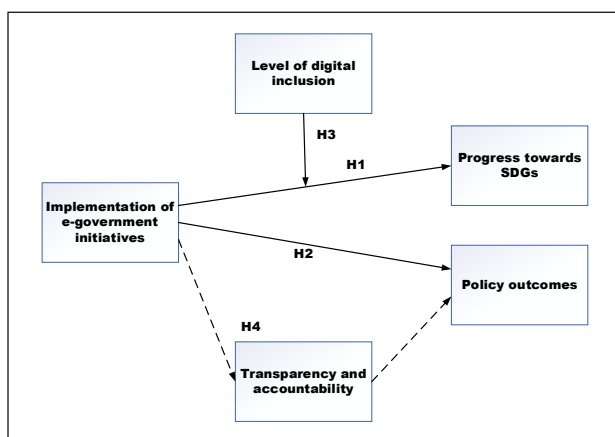


Figure 1: Conceptual diagram of the proposed hypothesis

2. Literature Review

Adams & Paul, (2023) examined the correlation between the UN's e-government rating and the growth of e-government across Africa between 2010 and 2020, and projected how e-government will impact the continent's achievement of the SDGs by 2030 using a refined panel data regression model. Kagoya & Mbamba, (2021) evaluated crucial elements for Tanzania's e-government deployment effectiveness from the standpoint of consumer engagement using characteristics related to user involvement, backing from management, and technology infrastructure using partial least squares structural equation modelling. Kagoya et al., (2021) investigated the socioeconomic salient drivers of successful e-government deployment in Tanzania and Uganda using a multi-group approach and quantitative information were collected using structured questionnaires and analysed using SmartPLS. Mashaka et al., (2019) reported on Tanzania's native population's differing attitudes of e-government and showed that taking into account the needs of neighbourhoods, economic concerns, and social circumstances are all important factors in easing the acceptance of e-government platforms. The study made the case that a variety of problems contribute to the apparent divide among neighbourhoods and the federal government, focussing on deep conversations with

both individuals and elected officials. Lyulyov et al., (2024) examined how digitalization—more especially, e-business and e-governance—affected the achievement of the SDG in nations that make up the European Union and determined how much online business and e-governance contributed to the accomplishment of the SDGs. Goloshchapova et al., (2023) claimed that e-government, which integrated technology powered by the internet to facilitate seamless communications between the authorities and its constituents, solved many pressing social issues, permitted collaboration among public servants, and provided public amenities to all people, irrespective of age or gender, was the only appropriate and workable approach to government in the twenty-first century. Xin et al., (2022) investigated the elements that motivated Pakistanis to utilise e-government facilities through social media connecting tactics, internet-based polls were mainly distributed among Pakistani citizens, especially those who reside in Turkey and China. Permana, (2023) looked at how Indonesian public policy was changing in the setting of the digital age, with an emphasis on projects related to e-Government being put into action and examined how governance was changing as a result of digital methods, with a focus on how that was improving government openness and effectiveness through a case study methodology.

3. Research Methodology

The approach for this study was a survey design to assess several dimensions of e-government and their impact on the attainment of the Sustainable Development Goals (SDGs) in Tanzania. To increase external validity, 384 respondents who met the inclusion criteria were selected randomly for the study. The survey used closed ended questions and Likert scale items to quantitatively measure perceptions of e-government services and their alignment with SDGs. The data collection was done for one month using online and paper based questionnaires depending on the access of the participants. Inconvenience sampling was used to make it logistically feasible, but this method may have overrepresented the urban, male (74.5%) and digitally literate population (see Table 1) and thus does not generalize to the rural and marginalized populations. Future work should employ stratified sampling in order to reduce these biases.

The collected data was cleaned and pre-processed to address missing values and outliers. Descriptive statistics presented demographic characteristics and key variables summarized. Hierarchical multiple linear regression and path analysis were used for inferential analyses to test hypotheses and explore variable relationships. Regression models were built to integrate moderation terms (e.g., digital inclusion) to assess their effects.. Model fit was evaluated using R-squared values, F-statistics, and t-tests, with significance thresholds set at $p < 0.05$.

4. Results

Table 1: Frequency distribution of sociodemographic characteristics of the participants

Demographic Factors		Frequency %	Variance	Skewness	Kurtosis	t
Age	18-24	26.3	1.108	0.083	-1.21	44.30***
	25-34	26.6				
	35-44	29.9				
	>45	17.2				

Gender	Male	74.5	0.191	1.127	-0.733	56.34***
	Female	25.5				
Education Level	Up to Secondary Education	34.9	0.968	0.783	-0.355	40.08***
	Bachelor's Degree	41.7				
	Master's Degree	10.7				
	Others	12.8				
Employment Status	Employed	44.5	0.765	0.225	-1.659	42.24***
	Unemployed	22.4				
	Student	33.1				
Internet Access	Yes	76.6	0.18	1.259	-0.417	57.03***
	No	23.4				
Primary Device for Internet Access	Smartphone	58.3	0.657	0.779	-1.037	39.34***
	Laptop	20.6				
	Desktop Computer	21.1				
Proficiency in Using Digital Tools	Proficient	44.5	0.469	0.508	-0.803	48.07***
	Average	43				
	Not Proficient	12.5				
Experience with E-Government Services	Extensive	9.6	0.647	0.098	-0.458	60.39***
	Moderate	43				
	None	37.2				
	No	10.2				

Table 1 presents the frequency percentage of sociodemographic characteristics of the study participants along with variance, skewness, kurtosis, and t-value. The age breakdown shows that most responders are between the ages of 18 and 44. Specifically, 26.3% are aged 18-24, 26.6% are 25-34, and 29.9% are 35-44, collectively accounting for 82.8% of the sample. The remaining 17.2% are over 45. The variance for this group is 1.108, with a slight positive skewness of 0.083 and a kurtosis of -1.210, indicating a somewhat platykurtic distribution. The highly significant t-value of 44.30*** suggests that age is a crucial factor in the analysis. The gender distribution is heavily skewed towards males, who constitute 74.5% of the sample, while females make up only 25.5%. This disparity is reflected in the variance (0.191), skewness (1.127), and kurtosis (-0.733). The t-value of 56.34*** underscores the statistical significance of gender within the study. Education level data reveal that the majority of participants have at least a secondary education, with 34.9% up to secondary education, 41.7% retaining a bachelor's degree, 10.7% having a master's degree, and 12.8% falling into the 'Others' category. The variance (0.968), positive skewness (0.783), and negative kurtosis (-0.355) indicate a moderate spread with a slightly skewed distribution towards lower education levels. The employment status is varied, with 44.5% employed, 22.4% unemployed, and 33.1% students. This demographic exhibits a variance of 0.765, a skewness of 0.225, and a kurtosis of -1.659, suggesting a broad distribution with a slight concentration among employed and student participants. The significant t-value of 42.24*** emphasizes employment status as a critical factor influencing e-government engagement. Internet access is predominantly high among respondents, with 76.6% having access and 23.4% not having access. This high prevalence is associated with a low variance (0.180), high positive skewness (1.259), and negative kurtosis (-0.417). The t-value of 57.03*** highlights the crucial role of internet access in e-government participation. Regarding primary devices, 58.3% use smartphones, 20.6% use laptops, and 21.1% use desktop computers, with a variance of 0.657, positive skewness of 0.779, and a kurtosis of -1.037. The t-value of 39.34*** points to the significance of the type of device used for accessing e-government services. Digital proficiency levels indicate that

44.5% are proficient, 43.0% have average proficiency, and 12.5% are not proficient. The variance is 0.469, with a positive skewness of 0.508 and a negative kurtosis of -0.803, suggesting a slightly skewed distribution towards higher proficiency levels. The t-value of 48.07*** demonstrates the importance of digital proficiency in the effective use of these services. Experience with these services varies, with 9.6% having extensive experience, 43.0% moderate, 37.2% limited, and 10.2% none. The variance of 0.647, skewness of 0.098, and kurtosis of -0.458 indicate a relatively even distribution with a slight skew towards more experienced users. The highly significant t-value of 60.39*** suggests that prior experience with e-government services is a significant factor in evaluating the effectiveness and adoption of these services.

Table 2: Mean scores and their significance

Factors Assessed	Mean Score	t
Progress towards sustainable development goals (PSDG)	3.91 ± 0.83	92.25***
Policy outcomes (PO)	3.84 ± 0.82	91.74***
Implementation of e-government initiatives (EGI)	3.78 ± 0.70	105.27***
Transparency and accountability in e-government (TA)	3.86 ± 0.81	93.18***
Level of digital inclusion (DI)	3.93 ± 0.59	131.22***

The assessed factors range in mean score from 3.78 to 3.93 with a 5-point scale, indicating generally positive perceptions among the respondents (Table 2). In particular, the PSDG had a mean score of 3.91, showing progress toward the SDGs with a very strongly significant t-value of 92.252. The PO received a mean score of 3.84 ± 0.82, indicating effective policy implementation with a similarly very strongly significant t-value of 91.739. The implementation of EGI was rated slightly lower at 3.78 ± 0.70 but still positive, with a t-value of 105.272, indicating very strong confidence in such initiatives. Transparency and accountability of e-government had an average score of 3.86 ± 0.81, with a t-value of 93.184, which was significant and reflected the belief of the respondents in the integrity and openness of the processes of e-government. It is observed that among these means, DI had the maximum mean score of 3.93 with a very high t-value of 131.218. This again proves the crucial role digital inclusion

can play in realizing the stipulated goals of e-government initiatives and SDGs.

Table 3: Correlation matrix

	PSDG	PO	EGI	TA	DI
PSDG	1				
PO	.754**	1			
EGI	.599**	.734**	1		
TA	.753**	.906**	.698**	1	
DI	.204**	.224**	.188**	.183**	1

Table 3 identifies some key positive correlations among these variables. There are strong positive correlations between PSDG and PO, with a correlation coefficient of .754**, and between PSDG and TA, with a correlation coefficient of .753**. This implies that progress toward the attainment of sustainable development goals goes with desirable policy outcome variables and increased transparency and accountability within e-government. It also registers high correlations with PSDG, $r = .599^{**}$, with PO, $r = .734^{**}$, and TA, $r = .698^{**}$. This goes to prove that effectively implemented e-government initiatives are definitely necessary for the achievement of progress on SDGs, success of policies, and maintenance of transparency and accountability. TA has a strong correlation with PO, $r = .906^{**}$, that goes to underscore the fact that transparency and accountability have a critical role in successful policy outcomes. In contrast, the level of DI shows relatively weaker yet significant correlations with the other factors: PSDG, $r = .204^{**}$, PO, $r = .224^{**}$, EGI, $r = .188^{**}$, and TA, $r = .183^{**}$. This would then imply that as much as digital inclusion plays a role, its impact is not as strong as other factors like policy outcome and transparency.

Table 4: Pathway analysis between e-government initiatives and progress in SDGs.

Pathway	Estimate	S.E.	C.R.	P
Progress towards sustainable development goals (PSDG) <-- Implementation of e-government initiatives (EGI)	0.706	0.048	14.647	***

Table 4 provides an estimate of the connection between implementation of initiatives and progress towards SDG in Tanzania in support of Hypothesis 1. The result is the estimated value of 0.706, which specifies that EGI has a strong favourable outcome on PSDG. It, therefore, shows that an enhanced implementation of e-government initiatives significantly contributes to the progress of attaining the SDG's. The S.E. of this estimate is 0.048, which is relatively low and thus gives an indication of the precision of the estimated effect. With a critical ratio of 14.647, the estimate divided by the standard error is overwhelmingly large, compared to normally accepted significant threshold, further confirmation of this relationship. Here, the p-value is represented as ***; this means it is less than 0.001, hence indicating that the effect observed is of statistical significance at a very high level of confidence. Therefore, the analysis strongly supports Hypothesis 1 (H1): There is a positive significant correlation between the application of e-government initiatives and the progress on SDGs in Tanzania.

Table 5: Pathway analysis between e-government initiatives and policy outcomes.

Policy Outcomes (PO)	<--	Implementation of e-government initiatives (EGI)	0.23	0.033	6.951	***
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Table 5 presents the relationship between the implementation of e-government initiatives (EGI) and policy outcomes (PO) in the context of Hypothesis 2 (H2), which posits that effective alignment of e-government strategies with sustainable development goals (SDGs) leads to better policy outcomes in Tanzania. The estimate value of 0.23 indicates a positive effect of EGI on PO, suggesting that the implementation of these initiatives subsidizes to improved policy outcomes. The standard error (S.E.) for this evaluation is 0.033, demonstrating a elevated degree of accuracy in the measuring. The critical ratio (C.R.), calculated as the estimate divided by the standard error, is 6.951. This value is substantially above the threshold of 1.96, typically used to determine statistical significance at the 95% confidence level, underscoring the strength and reliability of this relationship. The p-value (P), marked as ***, indicates it is less than 0.001, confirming the result's statistical significance at the highest confidence level. These findings support Hypothesis 2 (H2), providing robust evidence that effective alignment of e-government strategies with SDGs significantly enhances policy outcomes in Tanzania.

Table 6: Moderation effect of digital inclusion

Predictor Variables	β	SE	t-value	p-value	Significance
Implementation of e-government initiatives (EGI)	2.39	0.34	7.03	0	***
Level of digital inclusion (DI)	1.97	0.37	5.38	0	***
Interaction Term (EGI * DI)	-0.46	0.09	-5.07	0	***
Model Fit Statistics:					
R-squared	0.41				
F-statistic	87.23				

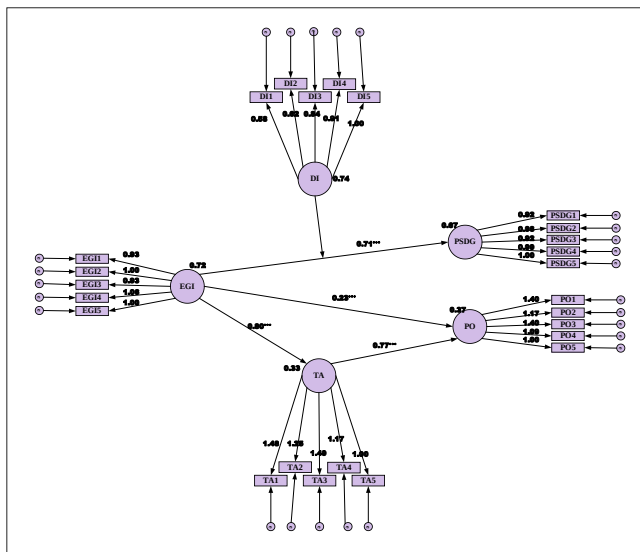
The regression analysis results (Table 6) provide strong support for Hypothesis 3, which posits that the level of digital inclusion moderates the connection between e-government implementation and the attainment of SDGs in Tanzania. The interaction term between e-government initiatives (EGI) and digital inclusion (DI) has a significant negative beta coefficient ($\beta = -0.46$, $p < 0.001$), indicating that the impact of EGI on SDG achievement diminishes as the level of digital inclusion increases. Both EGI ($\beta = 2.39$, $p < 0.001$) and DI ($\beta = 1.97$, $p < 0.001$) independently have significant positive effects on SDG achievement, suggesting that both factors are crucial. The model elucidates a substantial portion of the adjustment in SDG progress (R-squared = 0.41, F-statistic = 87.23, $p < 0.001$), underscoring the importance of considering digital inclusion when assessing the effectiveness of e-government initiatives in promoting sustainable development in Tanzania.

Table 7: Mediating role of transparency and accountability in e-government initiatives

	Effect	BootSE	BootLLCI	BootULCI	P-value
Implementation of e-government initiatives (EGI) → Transparency and Accountability (TA) → Policy Outcomes (PO)	0.6233	0.0586	0.5087	0.7380	0.000

Mediation analysis results (Table 7) strongly support Hypothesis 4 that transparency and accountability mediate the association among e-government initiatives and public policy outcomes in Tanzania. Indeed, the indirect effect of EGI on PO through TA is important: its effect size is 0.6233 ($p < 0.001$). It is accompanied by a bootstrapped standard error of 0.0586, and the 95% confidence interval for the indirect effect excludes zero, thus establishing the significance of the mediation effect: BootLLCI = 0.5087, BootULCI = 0.7380. The findings indicate that e-government initiatives are very effective in improving the output of public policy by increasing transparency and accountability, hence underpinning the integral role that these mediators could play in realizing the benefits of e-government in Tanzania.

Figure 2 displays about the pathway coefficient of the decomposed constructs (factors) for this study and the pathway coefficients shows positive significant relationship between the factors.

**Figure 2:** Pathway coefficients of the decomposed constructs

5. Discussion

The assessment of e-government projects in Tanzania shows that the e-government initiatives are favourable to the respondents, where positive perception is seen in multitude of aspects that include, progress towards the achievement of the SDGs, policy impacts, and implementation of e-government. This is maybe due to the ease of use and perceived usefulness of technology, as postulated in the TAM by Davis et al., (1989). Following TAM, the higher the users' perceived benefit in terms of e-government system as well as user friendly, the higher their readiness to accept the use of these

systems leading to the realization of the governmental and development goals set (Mayasari et al., 2017). This theoretical framework assists in understanding why there is a connection between the favourable attitudes towards e-government initiatives, the enhancement of the SDGs, and proper policy enactment. The results of this study have been supported by Institutional Theory that views institutional factors as critical in determining the success of the e-government initiatives (Zucker, 1987). This theory seems to indicate that professional structures, standards, and regulations play a central role in the receptiveness and success of e-government services in the policy and achievement of the orchestrated SDG objectives (Carpenter & Feroz, 2001). This study's findings align with this position as they reveal that the degree of digitalisation acts as a moderator to the link between e-government and SDG outcomes. This seems to support the postulates of Institutional Theory which described that the forces in the institution and the regulations, which are affecting the effectiveness of e-government projects (Gil-García & Pardo, 2005). Furthermore, the high positive significant relations between e-government implementation, transparency, accountability and favourable policy suggest that these factors play a very important role in improving governance and policy impacts. The Institutional Theory holds that to attain transparency, and accountability to foster the execution of policies that will further developmentally aims, organizational and normative structures' requirements need to be followed (Benkhadra, 2022). This supports the general premise of this paper that betterment of these aspects through e-government can to enhance policy results. However, the correlation with digital inclusion is somewhat low for most of the factors, which may indicate that while it is an important related factor, its influence is less significant compared to transparency and policy results. The negative moderating effect of digital inclusion ($\beta = -0.46$) suggests that unequal access dilutes e-government's benefits. For instance, urban elites may disproportionately benefit while rural populations lag, exacerbating perceived inequities (Laskar, 2023). This aligns with Tanzania's urban-rural digital divide, where only 23% of rural households have internet access (TCRA, 2023), creating a paradoxical scenario where expanded digital infrastructure alone cannot guarantee equitable SDG progress. This a clear indication that there is need for a systematic approach to a exploit the dimensions of e-government since while advocating for digital inclusion other dimensions like transparency and accountability must also be enhanced for improved impacts. The combination of the two models- TAM and Institutional Theory offers an enrich theoretical background in explaining the success of e-government initiatives in Tanzania. TAM acknowledges the significance of perceived usefulness and ease of use while IT looks at the general environment that these initiatives occupy. Therefore, the two frameworks combined provide a clear understanding of how e-government can aid in the attainment of SDG and the improvement of public policy outcome if these problems are well handled (Zeebaree et al., 2022; Othman et al., 2020; Wong & Welch, 2004). According to Mashaka et al. (2019), citizens are eager to utilise e-government resources despite their limited availability. It also became apparent that there was a lack of computational resources; local populations lacked the minimal equipment and assistance needed for using e-government services, while the central government possessed both. When contrasted to

other methods, citizens favoured using smartphones to utilise e-government resources because they tend to be more unique and easier which gives them a sense of possession. The problems of underutilisation of mobile phones for e-government services, government officials' insufficient expertise in administrative and growth matters, and the unavailability of essential e-government amenities in remote regions must all be addressed if the advantages of e-government amenities are to reach indigenous communities (Mashaka et al., 2019). The worldwide environment can only be improved by e-government, in line with a study conducted by Lipatkova et al. (2019) that examined the elements impacting the digitalisation of sustainability in 157 countries with varying sociocultural levels of prosperity.

5.1 Policy Implications

On the basis of the study's findings, three critical policy recommendations are offered. First, broadband expansion must first target rural areas to tackle the digital divide as rural populations are currently underrepresented ($\beta = -0.46$), where urban populations currently benefit disproportionately (Laskar, 2023). Tanzania's National ICT Policy (Government of Tanzania, 2023) provides a framework, but requires urgent implementation through public-private partnerships.

Second, their effectiveness varies; hence, transparency tools such as open data platforms should be implemented and leveraged on their strong mediation effect (0.6233) between e-government and policy outcomes. For instance, Tanzania's Open Government Partnership commitments could include real-time tracking of the budget.

Third, our data shows 58.3% rely on smartphones for access, yet 12.5% lack digital proficiency (Table 1). Services should adopt: (1) mobile-first designs with Kiswahili support, (2) community-led literacy programs, and (3) offline service kiosks, as successfully piloted in Kenya's Huduma Centres (World Bank, 2022).

6. Conclusion

The study offers general and extended understanding of the effects that e-government policies and services bring about in attaining the set SDGs and the general improvement of public policy in Tanzania. This research establishes that citizens respond positively to e-government projects and view them as usefulness in advancing the SDGs and policies' performance. In this paper, the proposition of a hybrid model derived from the Technology Acceptance Model (TAM) and the Institutional Theory helps explain these dynamics. TAM rationalizes the enhanced perceptions of ease of use and perceived usefulness in the reception and effectiveness of e-government systems among the study's respondents. Therefore, based on the information received and analysed, Institutional Theory offers more context for these findings considering the impact of the legal requirements and normative pulls within the context of e-government initiatives. The analysis of literature shows that the role of digital inclusion is quite important, but its effectiveness seems to be lower than such factors as transparency and accountability. Thus, the latter suggests the need for a multi-faceted approach to addressing the problem of digital divide

while paying attention to the issue of trust and accountability in the field of e-governance. This approach will make it possible to ascertain that the e-government services support the achievement of SDGs and better policy outcomes. Through the assessment of both technological and institutional elements, Tanzania will need to work on to achieve better results, it is argued that e-government can be a useful tool for Tanzanian development achievements and improvement of the country's governance systems. Thus, the outcome highlights the need to localize the e-government plans and action with the more general standards of the institutions in a given country to foster the greatest impact on sustainable development goals.

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