Understanding the Extent of ICT Application in the Public Sector and its Relationship with Good Governance in Morogoro Municipal Council, Tanzania

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Abstract

Information and Communication Technologies (ICTs) have been recognized by developing countries as one of the tools needed to tackle many bottlenecks affecting the public sector of various governments today. The rationale of this study was to analyse the extent of ICT application in the public sector and its relationship with good governance in Morogoro Municipal Council, Tanzania. On one hand, good governance was measured in terms of accountability, openness, and citizen participation as well as corruption control while on the other hand, ICT application was limited to the use of social media, e-government, SMS, toll free call numbers, e-mailing, and video conferencing. The descriptive cross-sectional design was used to collect quantitative data from 31 civil servants in Morogoro Municipal Council using a structured questionnaire. A census sampling technique was used to select all civil servants as respondents. The overall findings of the study based on descriptive statistics show that civil servants agreed to a great extent that ICT application is implemented in government functions to enable good governance. Moreover, inferential results show that all ICT applications have a positive and significant relationship with good governance in terms of transparency, accountability, and community participation. However, e-government, e-mailing, and video conferencing were found to have a non-significant relationship with corruption control. Therefore, the study concluded that ICT application is a very crucial determinant of good governance. Based on the findings of this study it is recommended that the government develop user-friendly e-government websites and improve the use of e-mailing and video conferencing to allow government officials and citizens to share information easily and quickly. Also, it is recommended that the government create awareness of e-government among citizens. Practically, this study provides empirical suggestions for civil servants and citizens on ways they can use e-government platforms to effectively impact the provision of services by the government.

Keywords: *Digital government; e-government; public sector management; public value*

1.0 INTRODUCTION

In this era of fast technological development, the application of Information and Communications Technology (ICT) has become a typical occurrence on the global development agenda of nations worldwide. There is a link between ICT applications in government functions that provide an effective government-citizen interaction and good governance (Canedo, do Vale & Patrão et al., 2020). According to Wirajing and Nchofoung (2023), good governance is the proper management of public affairs and resources in a manner that ensures the protection of human rights and equality. ICT has widely been regarded as one of the key tools that various governments can utilise to effectively facilitate the provision of several civil and public services (da Silva, Ribeiro, Soares & do Nascimento, 2019). Thus, in recent times, governments have digitalized their services and functions by applying Information and Communication Technologies (ICTs) to create electronic Government (Asamoah, 2019). The electronic Government or e-government is essentially how government administrations adopt ICTs and make effective use of the ICT tools and systems at their disposal to provide citizens and other stakeholders with better and improved services (Adam, 2020).

According to Sika, Sambuli, Orwa, and Salim (2014), ICTs is forms of technologies such as telephones, computers, radio, television, and satellite, which are used by individuals or organisations to transmit, process, store, create, display, share or exchange information by electronic means (Graham, Avery & Park, 2015). The adoption and use of ICTs however refers to the application of ICTs, namely social media, short messaging services (SMS), and different digital applications such as video conferencing, e-mailing, and calling (Graham et al., 2015; Asamoah, 2019). Also, other ICT applications include databases, intranet, epicor, and specific software. The adoption and use of ICTs has enabled governments to transform and enhance the quality of their governance (Alfoul, 2022). The adoption of suitable and advanced ICT processes allows governments and their employees to provide services with quality and transparency (Asongu & Nwachukwu, 2019). In addition, the use of ICT allows governments to improve the supervision of different functions and accountability of civil servants at all levels (Canedo et al., 2020).

Given the significance of ICT for good governance and sustainable development, countries all over the world have in recent decades embraced the adoption of ICTs as a possible instrument to help them accomplish their goals (Asongu & Odhiambo, 2019). Therefore, ICT has evolved in the modern era to become a force and means of propulsion for developed and developing nations to achieve better delivery of public services (Alfoul, 2022). Worldwide, ICTs have

increasingly been used for citizens' interaction with the government to improve good governance (Tambouris, 2013). Due to high use of ICTs, e-governance is higher in Europe, North America and some Asian countries such as India, South Korea, Singapore, Malaysia and Hong Kong (Yadav, Saini & Yadav, 2019; Sabani, Farah & Dewi, 2019; Rodriguez-Hevia, Navio-Marco & Ruiz-Gomez, 2020; Bavoleo & del Valle, 2020; Chung, Choi & Cho, 2022). Thus, e-governance in these countries has improved accountability and transparency of the government, e-participation of the communities, and lower level of corruption among government officials (Chung, 2015).

Though there are higher levels of ICTs investments, according to Revinona and Galvez (2020), in Latin America ICT infrastructure remains poor, and because of this, Merke, Stuenkel, and Feldmann (2021) suggested that the e-government is not effective in providing the general public with the required level of good governance. Villoria (2018) reports that in most Latin American countries corruption is high and thus tends to reduce the level of government accountability and transparency. Moreover, a great effort of e-governance in Latin America was also observed in citizens' participation in government activities (Zurbriggen, 2021; Peters & Filgueiras, 2022). However, active participation is restricted in many countries, and thus government officials' accountability and government openness is constricted (Zovatto, 2018; International Institute for Democracy and Electoral Assistance [IDEA], 2022; 9). Therefore, in most South American and some Asian countries, the use of ICTs in governments and among citizens is relatively lower and thus there is a lower level of interaction between government and citizens compared to most European and North American countries.

In Africa, citizen-government interaction has increased due to the adoption and use of ICT, which has increased levels of community participation in the management of public services and other developmental projects (Hollington, 2022). With higher accountability, community participation, and transparency, ICT has created a platform for corruption control in the provision of government services (Wirajing & Nchofoung, 2023). ICT in governments has been implemented to reduce corruption through transparent financial mobilization, allocation, and reporting; proper management of public information; and management of public procurement and administration systems (Mofikoe, 2015). The level of corruption control in Africa has not been of a good standard due to the low adoption of ICT tools in public institutions (Ngouhouo et al., 2021). However, the impact of ICT on governance activities can be realized when the public or citizens, who are the end users of government services has adopted and is using ICT to interact and communicate with government and among citizens.

According to Bankole and Mimbi (2017), the adoption and use of ICTs among citizens exist in practices such as receiving and sharing information from government ministries, departments, and agencies (DMAs) regarding government functions and citizen accountability, calling or texting toll-free numbers to report events or requesting help, posting texts on social media platforms and uploading videos to report governance actions that need improvements due to poor quality of service or acclamation for a job well done (Sika et al., 2014). With the use of ICTs, citizens are motivated to interact with the government in reporting issues affecting them. Thus, the use of ICT by governments and citizens creates a communication link that enables good governance through structural and institutional transformation that leads to political, social, and economic development (Bankole & Mimbi, 2017). Thus, government-citizens interaction through the use of ICT has assured transparency, community involvement, effectiveness, and efficiency in government functions, which are characteristics of high-quality governance (Mukhtarov et al., 2018; Kouladoum et al., 2022).

Thus, in Africa, ICT adoption and use have significant implications on political, social, economic, and institutions of governance (Asongu & Odhiambo, 2019; Beecroft et al., 2020). However, according to Wirajing and Nchofoung (2023), ICT applications are not fully utilized in Africa in the provision of public services to guarantee the efficient operation of the public sector. Kirlidog, van der Vyver, Zeeman and Coetzee (2018), Matimbwa (2021), Nchake and Shuaibu (2022) identified lower ICT investment and technical know-how as the main reasons for the partial application of ICT. The World Bank (2021) reported that Africa was lagging behind with a 30% adoption and use rate of ICT in 2020, while the world rate stands at 60% with higher rates being recorded in the USA, China, South Korea, Canada, India and Europe. Despite lower levels of adoption and use of ICT in Africa, little effort has been undertaken to understand the implications of ICTs on governance, especially in local government authorities [LGAs].

Tanzania, like most African countries, faces a similar situation since the effectiveness of e-government is questionable due to low transparency of government activities which prevents citizens and other stakeholders from participating in the management of government activities (Muro & Namusonge, 2015). Also, there is a low level of accountability of both government officials and citizens (Chaligha, 2014; Mdee & Thorley, 2016), and corruption control among government officials in doing their civic functions to provide public services to citizens is low (Muro & Namusonge, 2015). In the last two decades, Gillwald and Stork (2008) and Materu-Behitsa and Diyamett (2010) found that the necessary electronic network to facilitate the delivery of government business

to the public is insufficient in Tanzania. According to Manda and Mkhai (2016), the country was characterized by the absence of internet connection in a significant number of public offices; where present there was sporadic internet connection and frequent power disconnection and rationing. Also, despite the presence of Fiber Cable Broadband connections, the country was characterised by poor ICT infrastructures. The presence of strong infrastructure and equipment could help to create an effective and efficient public sector governance system.

In realizing this, the government of the United Republic of Tanzania through its National Broadband Strategy took a critical step to ensure that everyone in the nation, especially those living in rural areas, has access to the internet. This was done by planning to increase broadband penetration from 0.2% in 2010 to a penetration of 50% in 2015 through the expansion of broadband bandwidth from 256 kilobits per second (kbps) to 2 Megabit per second (Mbps), lower the cost of broadband and connect all government offices with internet services (United Republic of Tanzania, 2010). Although the strategy was commendable, the project did not produce the expected results to enable the government to use the internet as a platform for offering services to the general public (Materu-Behitsa & Diyamett, 2010; United Nations Economic Commission for Africa, 2017). It was determined that there was still insufficient and unstable access to a broadband internet network for the government to transmit information (the United Republic of Tanzania, 2010) and most government offices especially local government authorities were still not connected to internet services (Manda & Mkhai, 2016).

Then, to ensure quick and powerful connections a 3 Megabit per second (Mbps) bandwidth, 4 Megabit per second (Mbps) bandwidth, and currently 5 Megabit per second (Mbps) bandwidth were implemented in different timelines (United Nations Economic Commission for Africa, 2017). As of now the 4 and 5 Megabit per second (Mbps) bandwidths, which are fast and capable of conveying information effectively from the source or one user to another are in operation (Christopher, 2023). However, since the introduction of 4 and 5 Megabit per second (Mbps) bandwidth, a comprehensive study to link ICT use in government activities (e-government) and good governance is missing in the Tanzanian context. Therefore, this study examined the extent of ICT applications in the Public Sector and its relationship with good governance in Morogoro Municipal Council, Tanzania.

Specifically, the study examined the use of ICT applications in terms of social media, SMS, e-government, toll free calls, video conferencing, and e-mailing and their relationship with governance in local government authorities. The

governance is measured in terms of; transparency, accountability, community participation, and corruption control. Thus the specific objectives of the study are: to examine the influence of ICT applications in government functions on government transparency; to assess the influence of ICT applications in government functions on accountability of government officials; to examine the association between ICT applications in government functions and community or citizen participation in government activities; and to investigate the influence of ICT applications in government functions on corruption control among government officials. The study was conducted in Morogoro Municipal Council, Tanzania. Morogoro Municipal Council was chosen as a characteristic representative of all local government authorities in Tanzania.

2.0 LITERATURE REVIEW
2.1 Theoretical framework
There are considerable theoretical foundations on the ICT application in the perspective of enhancing the quality of governance in ensuring transparency, community participation, corruption control, and accountability. Hayek (1973) established that the evolutionary institutional change theory announces that the actions of humans and social behaviours with technological and human capital advancement can influence the quality of governance in institutions. The evolutionary institutional change theory established that the changing behaviours of humans affect the behaviour of the whole society and the established social institutions, and hence the quality of its governance processes. Thus, social changes impose adverse consequences on institutions that are not able to adapt whereas the institutions that can adapt to the new rules and put them into practice become successful (Hayek, 1973; Yun, Won & Park, 2016).

However, the Hayek's evolutionary institutional change theory did not consider the effect of the application of ICT on changes in human and societal behaviours that influence institutional change. Despite this, the theory has been useful in this study as it explicates the importance of social change as an ingredient of good governance through transparency, accountability, community participation, and corruption control. Studies (Liu, Huang, Fang, Tsai & Chen, 2015; da Silva, Guevara, Joao, Oliveira & Fernandez, 2016) show that resistance to change induced by technological advancement has detrimental effects on organizational performance in the delivery of services to citizens and other stakeholders. In the era of ICTs, governments that do not embrace the application of ICTs as necessary changes in their functions will be left behind. Thus, it was imperative to consider a theory that connects technological innovation and good governance. As a result, 'business process re-engineering theory' was thought out since it focuses on the use of technology to enhance the management of organizations.

Business process re-engineering theory is based on the fact that technological innovation assists management decisions and activities (Hammer and Champy, 1993). The theory purports that changes in the managerial process is a factor that defines institutional performance and change. According to Guha et al. (1993) and Yun et al. (2016), technological advancement facilitates change processes executed to improve the quality of institutions. Researchers (Shishkin, 2010; Wintjes, 2016) have undoubtedly proved that the structural and performance changes in institutions are technology-driven. Investigating the technology's role in the quality and the performance of institutions suffices a thorough examination of the ICT-governance nexus which is the main purpose of this study. Thus, business process re-engineering theory is relevant to the current study since it has established the prominence of ICTs in influencing good governance in local government authorities as government institutions. In general, the use of evolutionary change theory and business process re-engineering has provided this study with ICT applications (social media, e-government, short messaging services, toll free calls, e-mailing, and video conferencing), transparency, accountability, community participation, and corruption control as variables.

2.2 Empirical Literature Review

The ICTs help to improve managerial effectiveness and to promote democratic values and mechanisms; as well as a regulatory framework that facilitates information-intensive initiatives and fosters the knowledge society and economy (Gil-Garcia, Dawes & Pardo, 2018). Thus, the majority of public organizations are giving much attention to ICT and a large number of countries are making efforts to formulate national e-government strategies. According to Iqbal and Bagga (2015), governments all over the world embrace Internet technologies for e-government. While some nations adopt it more quickly others do it more slowly especially developing countries of Sub-Saharan Africa (United Nations Economic Commission for Africa, 2017). As such, the impact of e-government differs from country to country, especially among continents, with the African continent lagging behind (Obasa, 2019). In the developed nations citizens are given access to ICTs and helped become used to a variety of online services, which has helped advance the use of e-government in governance and improve service delivery (Halmos, Misuraca & Viscusi, 2019). In Africa and other less developed countries, the application of ICT in government activities is limited due to among others lack of funds for proper investment in ICTs and skilled manpower to operate e-government effectively (Ibrahim, Simbanegavi, Prakash et al., 2019; Nchake & Shuaibu, 2022).

Transparency and accountability can be jointly supporting each other, permitting citizens to have a voice about matters that touch them and regarding their ability to influence decision-making and hold decision-makers to account (Asongu & Nwachukwu, 2019). Positive signals in the form of accountability will lead local governments to be more transparent (Sofyani et al., 2020). The rationale behind ICT application in governance is that ICTs would make service delivery effective and efficient, and increase transparency and accountability of public officials (Sika et al., 2014). The introduction of ICT in government functions has considerably changed the way citizens and public servants relate. With ICTs application, a stronger link between public servants and citizens is created based on transparency and accountability (Canedo et al., 2020). Similar results were given by Aguboshim et al. (2019) who investigated the effect of ICT and big data on Sustainable Governance in Nigeria. The authors found that ICT has influenced breakthrough innovations in data governance and increased transparency in both governmental and business organisations. Also, Donina and Hasanefendic (2019), and Asongu and Odhiambo (2019), acknowledge the importance of ICT in facilitating transparency in government institutions in trade and foreign direct investments.

Stoiciu (2018) emphasized the development of the public sector that is directly linked to the active involvement of citizens in decision-making, planning, and implementation as well as in the monitoring of government activities to ensure good governance in the provision of public services. The author added that there is a need for the consideration of stakeholders in actively participating in decision-making for better understanding and support of the public sector process. According to Mukhtarov et al. (2018), ICT application in government activities is to improve the delivery of public services, increase the democratic participation of citizens, and enhance the governance of public institutions. Sika et al. (2014) focused on four areas of governance: access to information, service delivery, tracking corruption, and community participation. The findings show that community participation was the dominant area for the application of ICTs in ensuring good governance. Authors identified community participation in forms such as receiving and sharing information via cellular phones, e-mail, or social media and calling or texting toll-free numbers or during radio shows/programs. Also, Conroy & Evans-Cowley (2006), Misuraca and Viscusi (2015) found similar results that ICT application has a positive effect on community participation in the management of public affairs.

Hollington (2022) examined the effect of internet penetration on the perceptions of corruption in African countries. The author was motivated by the increased level of corruption and misappropriation of public financial resources during the

Covid-19 period. The author revealed that in most African countries corruption had been reduced through larger investment and application of ICTs. Bhattacherjee and Shrivastava (2018) revealed that ICT reduces corruption by increasing the certainty and celerity of laws to be followed by citizens and the sanctions related to corrupt practices. Adam (2020) after investigating the effect of ICT on governance revealed a linear relationship between ICT investment and the control of corruption. The study however found the non-significant effect of e-government on corruption control. Similarly, Sabani et al. (2019) investigated the role of ICT on governance in Indonesia. The findings of the study indicate that ICT improves the quality of institutions and enables good governance in assisting the elimination of corruption in the public sector. Also, the studies of Aguboshim et al. (2019), Oliveira et al. (2020), and Wirajing and Nchofoung (2023) found positive effects of ICT application in controlling corruption in public services.

2.3 Conceptual framework
Figure 1 is the conceptual framework that depicts how ICT application influences governance in LGAs in Tanzania. The conceptual framework was developed from evolutionary change theory, designed-based theory, and business process re-engineering theory. The framework hypothesises that a higher level of ICT application for governance in terms of using social media, e-government websites, SMS, toll free calls, emailing, and video conferencing can result in good governance in the form of transparency, accountability, community participation, and corruption control in the provision of public goods and services.
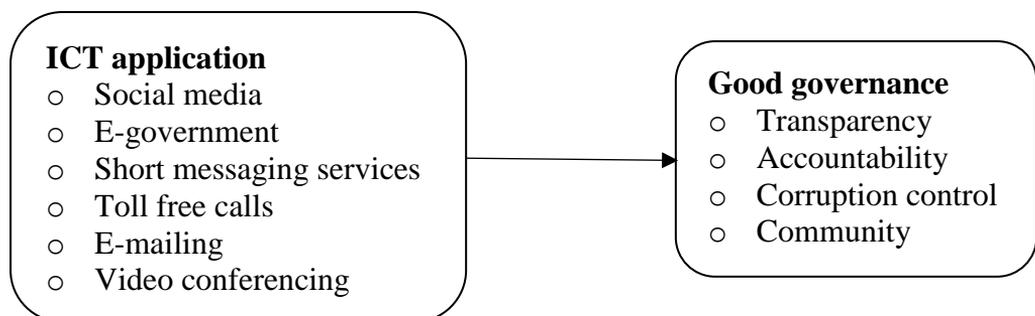

ICT application
o Social media
o E-government
o Short messaging services
o Toll free calls
o E-mailing
o Video conferencing

Good governance
o Transparency
o Accountability
o Corruption control
o Community

Figure 1: Conceptual Framework for ICT application and Good Governance in LGAs
Source: Oliveira et al. (2020), Adam (2020), Hollington (2022), Wiranjing & Nchofoung (2023)

2.4 Research Hypothesis

In order to attain the objectives of the study, the hypotheses were developed based on a review of relevant and related empirical literature on the impact of ICT applications on good governance. Also, the hypotheses of the study stand out from evolutionary institution theory and business process re-engineering theory. Four hypotheses were formulated based on the independent variables of the study. The following hypotheses have been developed and tested;

H_1: There is a positive and significant association between ICT application in government activities and transparency

H_2: There is a direct and significant link between ICT application in government functions and accountability

H_3: ICT application in government activities has a positive and significant association with corruption control

H_4: ICT application in government has a positive and significant link with community participation

3.0 RESEARCH METHODOLOGY
3.1 Research area, design, and approach
This study was conducted in Morogoro Municipal Council in the United Republic of Tanzania. The Municipal was chosen because it serves as one of the implementing bodies for the IT infrastructure and services being used in government toward good governance in LGAs. This study employed a descriptive cross-sectional survey design. The application of descriptive design was informed by the purpose of the study, which is to describe the relationship between ICT application in government activities and good governance. Moreover, a cross-sectional survey design was used because in this study data were collected only once. The strategy also costs less in terms of time, money, and energy. Importantly, cross-sectional design was preferred since it allows researchers to investigate multiple variables at the same time (Setia, 2016; Wang & Cheng, 2020). This study investigates many variables of ICT application in e-government in Tanzania. Moreover, this study employed a quantitative approach, where only quantitative data were collected. The quantitative approach was adopted because this study intended to estimate the relationship between ICT application in government activities and good governance in terms of accountability, transparency/openness, community/citizen participation, and corruption control. According to Creswell (2014), the use of the quantitative method allows for the description of the association between ICT application in government and good governance and produces more useful results.

3.2 Target Population, Sampling methods, and Sample size
The target population of this study included all civil servants in Tanzania. However, the target population for the study consisted of all workers in the

Administration and Human Resources Management (HRM) Department, Policy and Planning Department, ICT Unit, and Communication Unit in the Morogoro Municipal Council. In total workers in these units were 31. Due to the smaller number of the target population, this study adopts a census sampling technique to select all workers as respondents of this study. Thus, the sample size for this study was 31 respondents.

Table 1: Target Population

S/N	Department/Unit	Total
1	Administration and HRM Department	6
2	Policy and Planning Department	7
3	ICT Unit	10
4	Communication Unit	8
Total		**31**

3.3 Data collection

The survey questionnaire method was used to capture primary quantitative data of which a structured questionnaire was used as an instrument for data collection with closed-ended questions in a five-point Likert scale. The five-point scale used was; 1=strongly disagreed, 2=disagreed, 3=neither agree nor disagree (neutral), 4=agree, and 5=strongly agree. This helped to collect data related to demographic characteristics and ICT applications in government activities such as social media, e-government websites, SMS, toll free calls, emailing, and video conferencing. Moreover, the questionnaire was used to collect data regarding good governance in the form of transparency, accountability, community participation, and corruption control in the provision of public goods and services.

The five-point Likert scale allowed the researcher to cover a wider geographical area using less time and cost as proposed by Kothari and Garg (2014) that closed-ended questions are quick to answer and thus a researcher can use less time in data collection. A total of 31 structured questionnaires were administered by the researcher to civil servants at Morogoro Municipal Council in Tanzania. All 31 questionnaires were very well completed and thus utilised for data analysis. This is equivalent to a response rate of 100.0%; and according to Kothari and Garg (2014), this return rate of questionnaires is taken as excellent.

3.4 Data analysis

Descriptive and inferential statistics were used for analysis. Basic descriptive statistics such as mean and frequency were used to describe the sample and the characteristics of the respondents. The inferential statistics based on chi-square

and Kendall's tau-b correlation coefficient was applied to analyse the association between ICT applications in government activities and good governance. According to Wadhawan (2019), the chi-square test is an inferential statistic since it analyzes categorical data, providing insight into observed versus expected outcomes. Also, correlation or hypothesis tests such as Kendal's tau b and Phi allow us to establish the level of significance and understand the degree to which two variables are truly associated (Orús-Lacort, 2014; Turney, 2023). In this study, the chi-square test was interpreted as a test of independence. The chi-square test was conducted to have a rough estimate of two variables are related. Then, Kendall's tau-b correlation coefficients were applied to test the strength and direction of the association. The analyzed data were presented in Tables.

3.5 Assumptions of Chi-square and Kendall's tau-b
The use of different correlation coefficients was dictated by the differences in requirements (assumptions) for each correlation coefficient. For chi-square the study ensured the assumption that the two related variables should be measured at an ordinal or nominal level (i.e., categorical data) is fulfilled. Thus, only data measured at nominal and ordinal level were run. Also, two variables should consist of two or more categorical, independent groups. Thus, every variable used in the chi-square had two or more categories. For Kendall's tau-b the assumption that two variables should be measured on "**at least**" an ordinal or continuous scale was fulfilled. The "at least" relaxes the assumption that the variables must strictly be ordinal. Therefore, in case of association between an ordinal and nominal variable, the Kendall's tau-b can be used. Thus, in this study Kendall's tau-b was also applied to measure correlation between two ordinal variables but also an ordinal and a nominal variable.

3.6 Reliability
The results show that, the overall Cronbach's Alpha Coefficient of the six ICT applications items is 0.84, and for the four good governance items is 0.79 which indicates that, the data collection instrument was reliable and so was the collected data (Cronbach, 1951). As such, independent variables of ICT applications in government activities are excellent measures of good governance in Morogoro Municipal Council.

4.0 RESULTS AND DISCUSSION
4.1 Demographic characteristics of civil servants
4.1.1 Sex of surveyed civil servants
The results in Table 4.2 indicate that, 61.29% (n=19) of surveyed civil servants were males and 38.71% (n=12) were females. This suggests that, most of civil servants are males. The difference between male and female is significant

(61.29%-38.71%=22.58%). The difference is greater since more men than women have attained higher education qualifications that make them to be more likely employable than women (Anyanwu, 2013). In this study it was important to be aware of sex distribution among civil servants since equal gender representation is one among the world's agendas on social, economic and political activities. However, the world is yet to realize this target due to religious and traditional practices that discriminate women in education attainment (Ekundayo, 2019).

Table 4.2: Distribution of Demographic Characteristics of Respondents (n=31)

Variable/parameter	Measurement	Frequency	Percentage
Sex	Male	19	61.29
	Female	12	38.71
Age	18-28 Years	4	12.90
	29-39 Years	18	58.06
	40-50 Years	6	19.35
	51-60 Years	2	6.45
Work experience	<1 Year	2	6.45
	1-5 Years	5	16.13
	6-10 Years	7	22.58
	11+ Years	14	45.16
Education level	Certificate/Diploma	2	6.45
	Bachelor	20	64.52
	Masters	9	29.03

4.1.2 Age of Civil servants

The results in Table 2 indicate that about 58.06% (n=18) of the civil servants who were surveyed were aged between 29-39 years followed by those aged 40-50 years who were 19.35% (n=06). The lower end comprises of civil servants between 51-60 years of age, who were 6.45% (n=2) of all respondents. The implication of these findings is that the majority of civil servants are middle aged people who have highest predisposition to innovation and are open for change (Venkatesh et al., 2003). People in this age group are flexible and ready to adapt and use new technologies including ICTs, which is now widely used in performing different activities in the governments and other social, economic and political undertakings (Wadhawan & Sinha, 2018). Moreover, the ICT applications are widely applied by governments to communicate with the general public through collection and dissemination of information. The findings of this study are in line with the study conducted by Huang, Pan and Hsieh (2012) and Ojo et al., (2021) that younger ICT users are more likely to use a new technology

effectively than older ones. Therefore, recognising the importance of age in the propensity to use new technologies, the Government of Tanzania has retained young civil servants in strategic areas in order to enhance e-government toward good governance.

4.1.3 Education level of civil servants

The findings in Table 2 show that, majority 64.52% (n=20) of civil servants possess Bachelor's degree education followed by those who have Master's degree 29.03% (n=9) and lastly those with Certificate or Diploma level 6.45% (n=2). The implication of the finding is that most of the civil servants have enough skills and knowledge to use ICT, and knowledgeable enough to answer the questions in the questionnaire to inform this study. The level of education suggests that civil servants were able to read, understand and respond to the questions asked in the questionnaire. Therefore, the data provided by the respondents is considered reliable and appropriate to produce correct findings. These results were also found by Matimbwa & Masue (2019) and Matimbwa (2021). Moreover, Mshanga (2020) and Malekano (2021) found that people with higher levels of education are likely to use ICT in different undertakings. So, e-government is likely to succeed since most of civil servants possess higher education levels of Bachelor and Master's degrees.

4.1.4 Work experience of civil servants

Table 2 shows that 45.16% (n=14) of surveyed civil servants have job experience of more than 11 years, followed by civil servants with 6-10 years of experience who comprised 22.58% (n=7) of surveyed civil servants. Also, those with experience between 1-5 years were 16.13% (n=72) and about 6.45% (n=2) had less than one-year job experience. A saying goes that 'experience is a great teacher'. The most important resources of any organisation including local government authorities is experienced human resources. It is very important in any kind of occupation to have corresponding experience because people learn more through hands-on activities than in classrooms in colleges and universities. Therefore, it has been argued that civil servants with more than five years experience are far better in handling government activities and are likely to work efficiently than less experienced ones.

4.2 Extent of ICT application of civil servants in government activities

The section presents results on the extent civil servants agree or not the government applies ICTs to enhance good governance in local government authorities. The results show that the ICT application in government activities in terms of e-government website recorded high average of 4.86 (SD=.3652; range 4-5) indicating that there is very small data variability around the mean. The

finding implies that civil servants strongly agreed that e-government website is highly used to offer different services to people. This might affect good governance in a positive way. Also, findings in Table 3 show that, to a greater extent government uses SMS to disseminate and collect information from citizens. The mean score was 4.84 (SD=0.3801: range 4-5) on average, which represents consistency data toward population mean. This implies that ICT application through SMS has enhanced engagement and participation of citizens in government activities.

The e-government website is used to offer different services to people and provide an opportunity to citizens to acquire the services without even going to the government offices, most of which are located in urban areas, far from rural people. Moreover, through SMS people are able to report unethical issues of government officials, praise their performance and question government seriousness regarding the implementation of different projects in their areas. ICT application through SMS has enhanced inclusiveness and participation of rural people in management of their government. The findings are similar to Canedo et al. (2020) and Wirajing and Nchofoung (2023) who reported that ICT applications in government functions are largely in the use of e-government and short messaging services.

Moreover, the findings in Table 3 show that, to the greater extent the government applies social media to report and receive feedback on different government projects and activities from the general public. The mean score for social media application is positive 4.79 (SD=0.3922; range 4-5). The finding implies that civil servants strongly agreed that the government uses social media to report and receive feedback from the general public. This might also influence governance positively. Though the use of video conferencing to communicate with people scored the minimum average among all ICTs, it is in the category of agree. The mean average was 3.67 (SD=0.8010; range 1-4) signifying that the item possesses consistency data. Similarly, Sika et al. (2014) found that application of social media in government management has largely been implemented in Tanzanian local governments, but using low equipments and infrastructures.

Table 3: Extent of ICT Applications in Morogoro Municipal Council (n=31)

Variables	N	Min.	Max.	Mean	Std. Deviation
Government uses social media to report and receive feedback from general public	31	4.00	5.00	4.79	.3922
Government uses its e-government website to offer different services to people	31	4.00	5.00	4.86	.3652
Government uses SMS to disseminate and collect information from citizens	31	4.00	5.00	4.84	.3801

Toll free calls are widely used to collect information and receive feedback	31	3.00	5.00	4.63	.5264
Government officials share information using e-mailing	31	4.00	5.00	4.69	.5033
Government uses video conferencing to communicate with people	31	1.00	4.00	3.67	.8010
Overall statistics of ICT applications in government	**31**	**3.00**	**5.00**	**4.49**	**.6321**

Similarly, the results in Table 3 show that, the overall ICT applications construct scored an average mean of 4.49 (SD=.6321; range 3-5). This means the construct ICT application has little dispersion and variability around the mean of the data set, on average. So, the values in statistical data set are close to the mean of a sample population. And since every ICT enabled application in this construct scored mean average above 4.00 except for one (M=3.67), the average mean falls in the strongly agree category in five-point Likert scale. This implies that most if not all civil servants agreed to a great extent that ICT applications in terms of e-governance website, social media, SMS, toll free calls, emailing and video conferencing are applied by the government to increase good governance.

Thus, ICT application helps government interact with citizens whereby the public or citizens helps government to be more responsive and effective in serving them. Citizens can share useful information with each other in real time format, and this potentially presents a substitute for traditional government responsibilities to protect and help citizens, including in the times of crises such as floods, outbreak of communicable diseases and earthquakes (Young, Kuligowski & Pradhan, 2020; Ogie, James, Moore et al., 2022). Also, through ICT applications information and knowledge passes from the government to citizens thus helping citizens to improve their efficiency and effectively achieve their goals, such as better healthcare, education, and water and electricity consumption. This increases government openness and transparency, and increases trust in government. Furthermore, video conferencing enhances good governance through ICT-induced participatory forms of planning and implementation of government activities. This is face-to-face interaction between citizens and government representatives through real time video streaming using visual technologies.

4.3   Correlation between ICT application and good governance in Morogoro Municipal Council
4.3.1 ICT application and transparency
Regarding ICT applications and transparency, findings in Table 4 shows that government use of social media to report to and receive feedback from general public significantly (χ^2 (1, N=31) = 34.749, p=.001) related to transparency, and the link based on Kendall's tau b correlation coefficient is positive and strong (τ_b=.378, ρ=.000). This signifies that, application of social media is an essential

determinant of good governance in terms of transparency in Morogoro Municipal Council. Besides, all other ICTs applications in government activities show positive, significant and strong relationship with transparency as indicated in Table 4. This means that e-government website, toll free calls, SMS, emailing and video conferencing are good predictors of transparency. In other words, these ICTs applications have greatly influenced transparency in local governments of Tanzania. Similar results are found by Bankole and Mimbi (2017), Clara, Canedo and de Souza (2018) and Canedo et al. (2020).

Table 4: Correlation of ICT Applications and Transparency (n=31)

Variables	Chi square-value	Chi square ρ value	Df	Kendall's tau b Value	Kendall's tau b p value
Use of social media to report and receive feedback	24.749	0.001	1	0.378	0.000
use of e-government website to offer different services	39.843	0.000	1	0.386	0.000
use of SMS to disseminate and collect information	59.129	0.000	1	0.394	0.000
Toll free calls used to collect information	56.892	0.000	2	0.392	0.000
Information sharing using e-mailing	57.913	0.000	1	0.393	0.000
Use of video conferencing to communicate with people	41.732	0.000	3	0.387	0.000
Overall ICT applications	**43.948**	**0.000**	**2**	**0.388**	**0.000**

Generally, the findings in Table 4 show that, overall correlation of ICT application is highly significant (χ^2 (2, N=31) = 43.948, p=.000) with transparency. The Kendall's' tau b correlation coefficient also shows high significant association between ICT applications and transparency. The association is positive and strong (τ_b =.388, ρ=.000). Therefore, we fail to reject the hypothesis *H_1: There is positive and significant association between ICT application in government activities and transparency of the government.* This result entails that government transparency is enhanced by the application of ICTs in government functions. So, ICT application is a good determinant of good governance. The finding is in line with Ewuim et al. (2016), Adam (2020) and Kavuma et al. (2021). Essentially, ICT application is intended to render the government process more transparent for citizens. Electronic governance can make the government administration process both transparent and effective.

Adam (2020) found similar results that the level of ICT in Africa is still very low for it to ensure transparency and good governance. Kavuma et al. (2021) examined the level of access and use of ICT in budget transparency and accountability in local governments of Uganda. The authors fond that the state and non-state actors such as CSOs and the media equally play vital roles of creating inclusive, flexible and transparent environment for citizens to engage in the budgeting process. Also, Ewuim et al. (2016), Bankole and Mimbi (2017) found positive and significant effects of ICT application on local government transparency and accountability. The rationale behind usage and introduction of e-governance is that e-governance would increase transparency and public accountability. ICT in government should be implemented to facilitate a more effective and efficient use of development resources by fostering greater transparency through better financial, procurement and administration systems.

4.3.2 ICT application and accountability

Regarding accountability of government to its citizens, Table 5 shows that the relationship between application of SMS and accountability has the strongest correlation than all ICTs applications. The relationship is significant χ^2 (1, N=31) = 44.624, p=.000), and Kendall's tau b coefficient of correlation depict a positive and strong association (τ_b=.394, ρ=.000). This means that the use of SMS to disseminate and collect information from citizens is a determinant of accountability. Similar results were found for the remaining ICT applications. In addition, the findings in Table 5 show that, overall correlation of construct ICT application is highly significant (χ^2 (1, N=379) = 42.675, p=.000) with accountability. The Kendall's' tau b correlation coefficient also shows high significant association between ICT application and accountability. The association is positive and strong (τ_b =.388, ρ=.000).

Based on the overall results, we failed to reject the hypothesis *H₂: There is direct and significant link between ICT application in government functions and government accountability*. Therefore, this result entails that accountability of government officials depends on the application of ICTs in government activities. So, ICT application in government functions is a good determinant of accountability of government officials, and thus increases good governance in local governments in Tanzania. The findings are in line with Clara, Canedo and de Souza (2018) who found that ICT application in doing government business can enhance accountability of government officials in delivery of social and economic services.

Table 5: Correlation of ICT Applications and Accountability (n=31)

Variables	Chi square-value	Chi square ρ value	df	Kendall's tau b Value	Kendall's tau b p value
Use of social media to report and receive feedback	38.684	0.000	1	0.391	0.000
use of e-government website to offer different services	13.461	0.011	1	0.268	0.001
use of SMS to disseminate and collect information	44.624	0.000	1	0.394	0.000
Toll free calls used to collect information	52.162	0.000	2	0.390	0.000
Information sharing using e-mailing	51.906	0.000	1	0.392	0.000
Use of video conferencing to communicate with people	49.192	0.000	3	0.392	0.000
Overall ICT applications	**39.311**	**0.000**	**2**	**0.388**	**0.000**

Social media, toll free calls, and SMS have been developed to monitor public service delivery and hold governments accountable to citizens. Social media is being driven by the potential of e-Government to enable stakeholders and government to communicate, collaborate, and engage in governance for effective government functioning. Through social media ICTs are used to involve the public in government decision processes, to foster participatory dialogue and policy formulation and implementation. Thus, the government becomes transparent concerning its functions to build trust and enhance accountability. However, in most African countries Tanzania included, the focus of e-government projects is less on the objectives of ensuring accountability of the government officials (Rorissa & Demissie, 2010; Verkijika & De Wet, 2018). However, ICT applications have been reported to enhance the accountability of government officials in the delivery of services (Clara, Canedo & de Souza, 2018).

4.3.3 ICT applications and corruption control

Table 6 shows that the use of social media to report and receive feedback was significantly related χ^2 (1, N=31) = 54.776, p=.000) to corruption control in government activities. Moreover, Kendall's tau b coefficient of correlation depicts a positive and strong association between the use of social media and corruption control, which was statistically significant (τ_b=.399, ρ=.000). This means that the use of social media to report and receive feedback is a determinant of corruption control. Similar results were found for the item 'use of SMS to disseminate and collect information' (χ^2 (1, N=31) = 28.926, p=.000; τ_b=.392,

ρ=.000) and 'use of toll-free calls to collect information' (χ^2 (2, N=31) = 55.542, p=.000; τ_b=.398, ρ=.000). Thus, the result implies that e-governance enhances good governance in terms of controlling corruption among government officials. Also, Adam (2020), Hollington (2022) and Wirajing and Nchofoung (2023) found similar results.

Table 5: Correlation of ICT Application and Corruption Control (n=31)

Variables	Chi square-value	Chi square ρ value	df	Kendall's tau b Value	Kendall's tau b p value
Use of social media to report and receive feedback	54.776	0.000	1	0.399	0.000
use of e-government website to offer different services	1.486	0.073	1	0.068	0.074
use of SMS to disseminate and collect information	28.926	0.000	1	0.392	0.000
Toll free calls used to collect information	55.542	0.000	2	0.398	0.000
Information sharing using e-mailing	1.944	0.066	1	0.099	0.062
Use of video conferencing to communicate with people	2.022	0.059	3	0.106	0.058
Overall ICT applications	**19.311**	**0.024**	**2**	**0.259**	**0.022**

On the contrary, the relationship between the use of e-government websites to offer different services and corruption control has a statistically non-significant association χ^2 (1, N=31) = 1.486, p=.073; τ_b=.068, ρ=.074). Also, the influence of information sharing using e-mailing and use of video conferencing to communicate with people on corruption control is not significant. This implies that there is no adequate evidence to say that government websites, information sharing using e-mailing, and the use of video conferencing to communicate with people can or cannot increase government-citizen interaction on corruption control among government officials. Though research in ICT and good governance have acknowledged the importance of video conferencing, government websites, and e-mails as means to enhance government accountability and corruption control by reporting corrupt officials, in this study little evidence cannot be used to substantiate this assertion.

Regarding the overall correlation, the results show that ICT application has a low significant relationship (χ^2 (2, N=31) = 19.311, p=.024) with corruption control. The Kendall's' tau b correlation coefficient also shows a low significant association between ICT application and corruption control. The association is

positive and moderate (τ_b =.259, ρ=.022). Despite the low significance, there is enough evidence to substantiate that corruption reduction among government officials can result when ICT is applied in government activities to allow citizens to report those who are corrupt. As such, we fail to reject the hypothesis ***H₃: ICT application in government activities has a positive and significant association with corruption control.*** This result entails that corruption control in government offices can be effective if there is application of ICTs in government functions. This implies that ICT application is a good determinant of corruption control in public offices. Citizens use ICT to report corrupt officials.

The role of ICT in corruption control is also confirmed in the studies conducted by Sika et al. (2014), Efobi (2015), and Asongu and Nwachukwu (2017) who argued that ICT application has increased transparency in governments and businesses, in turn has reduced corruption and illegal activities. Among others, the aim of social media, SMS, and toll-free call numbers is to report corruption cases or to get advice on how to handle corruption incidents that a citizen has experienced. These ICT applications are used because citizens often are afraid to report due to victimization fears. ICT has made it easy for people to report issues affecting them though challenges remain. The leveraging of ICTs to report corruption cases has minimized the fear of getting victimized. However, people become discouraged from reporting corruption if no action is taken against it. When actions are taken against these incidents of corruption, citizens are motivated to use ICT tools to report corruption incidences, as their contribution does not go in vain. This has provoked apprehension among government officials who do not want their corrupt ways made public.

4.3.4 ICT application and community participation

Regarding community participation, findings in Table 7 show that the item 'use of social media to report and receive feedback' has the strongest relationship with good governance in terms of community development. The relationship was significant χ^2 (1, N=31) = 58.655, p=.000). Moreover, Kendall's tau b coefficient of correlation depicts a positive and strong association, which was statistically significant (τ_b =.397, ρ=.000). The remaining ICT applications show similar results. This means that all ICT applications namely, the use of e-government websites, SMS, toll free calls, e-mailing, and video conferencing are determinants of community participation in management of the government activities. The findings are in line with Stoiciu (2018) and Hollington (2022)

In general, the findings in Table 7 show that, the overall correlation of construct ICT application is highly significant (χ^2 (2, N=31) = 34.391, p=.000) with good governance in terms of community participation. The Kendall's' tau b correlation

coefficient also shows a high significant association that is positive and strong (τ_b =.362, ρ=.000). Thus, we failed to reject hypothesis *H_4: ICT application in government has a positive and significant link with community participation.* This result entails that effective community participation in the management of government depends on the application of ICTs. So, ICT application is a good determinant of community participation. The results corroborate with Sika et al. (2014) and Mukhtarov et al. (2018) who iterated that ICT application enhances community participation in helping government fulfill its functions effectively.

Table 5: Correlation of ICT Application and Community Participation (n=31)

Variables	Chi square-value	Chi square ρ value	df	Kendall's tau b Value	Kendall's tau b p value
Use of social media to report and receive feedback	58.655	0.000	1	0.397	0.000
Use of e-government website to offer services	57.641	0.000	1	0.396	0.001
Use of SMS to disseminate and collect information	42.629	0.000	1	0.375	0.000
Toll free calls used to collect information	54.001	0.000	2	0.379	0.000
Information sharing using e-mailing	21.834	0.000	1	0.324	0.000
Use of video conferencing to communicate with people	29.209	0.000	3	0.333	0.000
Overall ICT applications	**34.391**	**0.000**	**2**	**0.362**	**0.000**

Community participation in the context of ICT-facilitated public service provision can be in terms of information flows from a citizen to a government (C2G), from a government to a citizen (G2C), and from a citizen to a citizen (C2C). According to Gil-Garcia, Dawes & Pardo (2018), the application of ICTs in government functions provides the public sector an opportunity to help improve the managerial effectiveness of the government and to promote democratic values and mechanisms; as well as a regulatory framework that facilitates information-intensive initiatives and fosters the participation of society in governance. Sika et al. (2014) findings show that community participation is the dominant area for the application of ICTs in ensuring good governance.

Through the use of social media and toll-free calls, citizens have an opportunity to report but also to receive information regarding government activities in their areas and beyond. They can also use the ICTs to communicate with each other

and share important information regarding government performance. Authors identified community participation in ways such as receiving and sharing information via cellular phones, e-mail, or social media and calling or texting to toll-free numbers or during radio shows/programs to have an effective impact on good governance.

5.0 CONCLUSION AND RECOMMENDATIONS
5.1 Conclusion
Based on the findings, this study concludes that ICT application in government functions encourages good governance in the public sector, particularly in the Morogoro Municipal Council. The ICT applications are important determinants of good governance in terms of transparency, corruption control, accountability, and community participation in the provision of services. It has become evident that ICT applications affect the transparency and accountability of government officials in performing their duties, which enhances the performance of government functions. The ICTs facilitate quick access to information, and feedback gathering and aid citizens' communication with the government, which increases transparency and accountability of the government. Furthermore, it is concluded that ICTs applications have enhanced community participation in the delivery of services helping the government effectively fulfil its duties to the public. Citizen participation fosters a sense of ownership and commitment and ensures good governance. In addition, the study concludes that corruption control is enhanced when the government applies social media, SMS, and toll-free call numbers to interact with citizens to inform and collect information and feedback. Therefore, this study concludes that ICT applications are important factors influencing good governance in the public sector.

5.2 Theoretical implications
Theoretically, the study contributes to evolutionary change theory and business process re-engineering theory since they are useful frameworks to explain the association between ICT application and good governance. The use of the two theories together has provided this study with a premise to examine a vivid link between ICT application and good governance. The theories have provided this study with a framework to analyse the impact of change instilled in the actions of humans and social behaviours when paired with technological advancements. According to evolutionary change and business re-engineering theories, accountability, transparency and corruption among civil servants are human behaviours that can be controlled with the application of ICTs in government. The resultant behavioural change can influence actions that can increase the quality of institutions toward efficient governance in government institutions. The actions have to be collectively decided and agreed upon in order to lessen

stiffness and struggles among the groups in the particular society. This enhances the participation of the community members in the management of social services provision and other government functions. So, the findings illustrate the value of these theories in enhancing understanding of ICT application in government functions.

5.3 Recommendations

Based on the findings of this study it is recommended that the government develop user-friendly e-government websites to allow government officials and citizens to share information easily and quickly regarding corruption incidences and other unethical practices in the government. Sending or receiving information should be a click away for citizens and government officials to quickly share information. The government is recommended to focus on improving the use of e-mailing and video conferencing for citizens to be able to use them to report evil practices of government officials. Also, it is recommended that the government take initiatives to create awareness of e-government among citizens. This will enhance good governance. Furthermore, the findings from this research may help enhance the application of ICTs in government from the civil servants' and citizens' perspectives. Given that the study is framed within a governance context, understanding the level of ICT application in the government as well as the significance level with good governance was paramount for the government departments, ministries, and agencies, and especially local government authorities to enhance the use and implementation of e-government, thereby improving good governance

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