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Practices and Challenges of Institutionalizing Information Communication Technology Assisted Service Delivery in the Ethiopian Public Service Sectors

Bereket Solomon[1]*

[1] ECSU, Addis Ababa, Ethiopia

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Abstract

The major objective of the study was to examine the practices and challenges of institutionalizing information communication technology (ICT) assisted service delivery in the Ethiopian public sector organizations. In order to achieve this objective, the study adopted a concurrent mixed research approach with descriptive and explanatory research designs. Data was collected from 853 sample respondents selected randomly. The data was analyzed with descriptive statistics, exploratory and confirmatory factor analysis. The findings of the study revealed that, the basic and necessary ICT materials (equipment) are available and accessible. These ICT facilities are also used frequently by employees in their day to day activities to deliver services for customers. The result of the study also confirmed public sector employees have the basic competencies to utilize these facilities. Moreover, the study also revealed that, the major challenges that impede the institutionalization of ICT assisted service delivery are; unreliability of ICT equipment, lack of sufficient capacity building training on utilizing ICT and lack of sufficient budget for ICT infrastructure. Based on the confirmatory factor analysis result, it was confirmed that, institutionalization of ICT in the service delivery has a positive and significant effect on perceived performance outcomes. Organizational structure need to be designed based on adequate research in a way that can sustain for a long period of time. Employee retention strategy needs to be implemented by the public sector organizations to reduce the high turnover rate of IT professionals..

Introduction

Information Communication has become the most critical element in the current global socio-economic affairs (Onu & Ezhim, 2019). The world is currently knowledge-based and information age has the center stage in virtually everything is becoming more integrated. Globalization and the dynamics of ICT expansion have forced public sector organizations to be more proactive and innovative. The use of ICT in organizations is a well-established phenomenon because: ICT support interaction and collaboration, workplace learning and performance. However, there is a significant difference between countries particularly developing states regarding the adoption and implementation of ICT (Demeke et al., 2016). This is largely dependent on the policy and strategy followed by a particular country.

A particular challenge in public organizations

is making initiatives perennial and more concerned with the state rather than the government, thereby avoiding constant unplanned changes every term. The same challenge accompanies Information and Communication Technology (ICT) initiatives, which should be crafted from a long-term perspective in order to support governments better address the demands of the population (Meijer & Bolívar, 2016; Wiedenhöft et al., 2020). Information Technology has long been touted as a way of boosting productivity in public sector organizations. However, according to McNabb (2009), there has been little empirical research to show that, without a doubt, productivity gains do occur with investments in technology. Still, governments continue to annually invest huge sums in purchases of hardware and software.

1. ICT plays a significant role in poverty reduction, quality service delivery and empowerment of the disadvantages, but for the successful utilization of ICT, first it has to be adopted and then implemented (Demeke et al., 2016). In the Ethiopian case, it has been suggested that, the adoption and implementation of ICT in service delivery in the public sector is weak (Gebre & Melessse, 2014). Although the government of Ethiopia has been implementing the National ICT policy throughout the country, there are many challenges that hinder its implementations. As pointed out by Gebre and Melessse (2014), lack of access and skill to use computer technology and poor ICT infrastructures are among the critical challenges that impede quality ICT assisted service delivery in the public sector.

   Even though there are numerous empirical researches that investigates the relationship between individual level acceptance and use of Information communication technology, there is still a call of empirical studies at the organizational level. Moreover, majority of the technology adoption and implementation models have been empirically tested/validates in more advanced/developed countries with some exceptions in developing countries. Finally, there is also a need to investigate practical challenges that impede the effective utilization of ICT in the public sector and the effect of ICT on the performance of public sector organizations.

   For these reasons, this study examined the current adoption and implementation of ICT in the public sector, the extent of ICT utilization for effective and efficient service delivery, the current stock of skill and knowledge of employees to operate/utilize ICT for service delivery, the major practical challenges of ICT adoption and implementation and the effect of ICT on service delivery in the Ethiopian public sector organizations.

The main research objectives of this study are:

1. To examine the institutionalization of ICT in service delivery mechanism in the Ethiopian public sector organization
2. To explore the level of employees' competency to utilize ICT in delivering public sector services
3. To identify the major practical challenges that impede the institutionalization of ICT in service delivery in the Ethiopian public sector organizations
4. To examine the effect of ICT on the performance of Ethiopian public sector organizations

Theorethical Framework

During the current globalized economy which is characterized by continuous technological innovations and increasing citizen's demand, organizations all over the world are striving to build competitive advantage. One of the most important tangible assets in organizational setting is its information communication technology (McNabb, 2009). Information and Telecommunication Technologies increasingly boost the service sector and have become one of the most important determinants of the competitiveness for both the public and the private sectors.

Information and communications technology (ICT) has had and continues to have a tremendous impact upon all aspects of the strategy and operations of public sector organizations. Technology helps shape the capabilities and capacities of the organization, and it helps integrate those capabilities into an operational context. Additionally, through its ability to collect, store, and disseminate knowledge and information in real time, technology makes elements of the organizational culture—including its strategies, capabilities, and capacities—available to all personnel at all organizational levels (Andersen, 2001; Lee & Perry, 2002; McNabb, 2009).

Information Communication Technology (ICT) refers to technologies that provide access to information. First and foremost it is concerned with the storage, retrieval, manipulation and transmission of digital data. Moreover, it has been argued that ICT refers to the use of computer hardware and telecommunications equipment, often in conjunction with software and a variety of related services, in order to store, process, retrieve, manipulate and share information (George, 2013).

Theoretical Foundations

The theories drawn upon for studying ICT, globalization, Digital Divide and e-government are diverse and no single theoretical approach has yet found favour (Imran & Gregor, 2005). However, in recent years, a variety of dominant theories and models have been developed to explain the relationship between user beliefs, attitudes and behavioral intention (BI) to use the technology (Tarhini et al., 2016).

From the stream of social psychology, innovation diffusion theory (IDT), theory of reasoned action (TRA), theory of planned behaviour (TPB), the social cognitive theory, the motivational model, the model of perceived credibility (PC) utilisation, technology acceptance models (TAM) and a hybrid model combining constructs from TAM and TPB, are only a few of the major modular approaches that have lead the way in analyses and results (Yousafzai, 2012).

Among the theories of ICT, the Technology Acceptance Model (TAM), Unified Technology Acceptance and Use Theory (UTAUT) and the Innovation Diffusion Theory are the most widely used models to describe consumer acceptance of information technology (Adeola & Evans, 2020). In the following sections the basic theoretical underpinnings of Information Communication Technology are discussed.

Theory of Reasoned Action

Drawn from social psychology, TRA is one of the most fundamental and influential theories of human behavior. It has been used to predict a wide range of behaviors (see Sheppard et al. 1988 for a review). Davis et al. (1989) applied TRA to indi-

vidual acceptance of technology and found that the variance explained was largely consistent with studies that had employed TRA in the context of other behaviors. The theory of Reasoned Action was developed by Martin Fishbein and Icek Ajzen as an improvement over Information Integration theory (Staats, 2004).

Basically, the TRA is a theory of attitude-behavior relationships which links attitudes, subjective norms, behavioral intentions and behavior in a fixed causal sequence (Sparks & Shepherd, 1992). Reasoned action theories propose that intention to perform a behavior follows reasonably—but not necessarily rationally—from specific attitudinal, normative, and control beliefs that people hold about the behavior, and that people act on their intentions when they have the skills that are needed to perform the behavior and when situational factors make behavioral performance possible (Yzer, 2017).

Theory of Planned Behavior

Theory of Planned Behavior/Reasoned Action was proposed by Ajzen and Fishbein and suggests that behavior is determined by intentions, attitudes (beliefs about a behavior), and subjective norms (beliefs about others' attitudes toward a behavior). The theory was later expanded to the Theory of Planned Behavior wherein perceived behavioral control (beliefs about one's ability to perform a behavior) and behavioral intentions predict behavior (Neighbors et al., 2013).

Theory of Planned Behavior (TPB) focuses mainly on predicting planned human behavior and incorporates the construct of perceived human behavior. This theory is an improvement on the Theory of Reasoned Action (TRA), which focuses at predicting individual behavior in volitional situations (Koul & Eydgahi, 2017). TPB is a revised version of TRA, which added perceived control as a new construct to the basic structure of TRA. This modification has been advanced in order to extend the domains of behavior covered in TRA to behaviors that are not totally under a person's control (Venkatesh et al., 2016).

Theory of Technology Acceptance Model (TAM)

The Technology Acceptance Model (TAM) is derived to apply to any specific domain of human-computer interactions (Davis et al., 1989). The main goal of TAM is to predict user acceptance and highlight potential design issues before users of the technology interact with the system (Koul & Eydgahi, 2017).

TAM is tailored to information systems (IS) contexts, and was designed to predict information technology acceptance and usage on the job. Unlike TRA, the final conceptualization of TAM excludes the attitude construct in order to better explain intention parsimoniously. TAM2 extended TAM by including subjective norm as an additional predictor of intention in the case of mandatory settings (Venkatesh & Davis, 2000). TAM has been widely applied to a diverse set of technologies and users.

Unified Theory of Acceptance and Use of Technology (UTAUT)

The unified theory of acceptance and use of technology is a recent development in the study of technology adoption and acceptance. The theory is developed by Venkatesh et al. (2003) by integrating eight technology acceptance and adoption models including (the Theory of Reasoned Action

(TRA) (Fishbein and Ajzen 1975), the Theory of Planned Behaviour (TPB) (Ajzen 1991), the Technology Acceptance Model (TAM) (Davis 1989), the Combined-TAM-TPB (Taylor and Todd 1995) , Model of PC Utilization (MPCU) (Thompson et al. 1991), Motivational Model (MM) (Davis et al., 1992), Social Cognitive Theory (SCT) (Bandura 1986) and Innovation Diffusion Theory (IDT) (Rogers 1995).

Despite the fact that the extensive replication, applications and integration of UTAUT have enabled many researchers to understand technology adoption, there is still a need for a systematic investigation and theorizing of the salient factors that apply to a context-based consumer technology use. Moreover, there is considerable debate among researchers who argue that the UTAUT's constructs may not be sufficient to explain user acceptance of new technology in a voluntary context as the initial UTAUT study focused on large organisations in the business environment which limit its explanatory power (Tarhini et al., 2016; Venkatesh et al., 2003; Venkatesh et al., 2012, 2016).

Empirical Review

Worldwide, information technology has become a key element in economic development of many countries. Different methods have been used for assessing the adoption, implementation of ICT and its impact organizational performance (Asil & Naralan, 2016). In the subsequent sections, previous empirical studies conducted in different contextual settings are discussed.

For example a study conducted by Chao (2019) adopted the UTAUT model and empirically tested to predict the factors affecting students' behavioral intentions toward using mobile learning (m-learning). By suing a cross-sectional online survey instrument, the study explored the behavioral intention to use m-learning from the perspective of consumers by applying the extended unified theory of acceptance and use of technology (UTAUT) model with the addition of perceived enjoyment, mobile self-efficacy, satisfaction, trust, and perceived risk moderators.

By using a structural equation modeling (SEM) and partial least square (PLS) the study tested the proposed hypotheses. Hence, the findings of the study revealed that, 1) behavioral intention was significantly and positively influenced by satisfaction, trust, performance expectancy, and effort expectancy; (2) perceived enjoyment, performance expectancy, and effort expectancy had positive associations with behavioral intention; (3) mobile self-efficacy had a significantly positive effect on perceived enjoyment; and (4) perceived risk had a significantly negative moderating effect on the relationship between performance expectancy and behavioral intention.

A study conducted by Hoque et al. (2016) in Bangladesh Small and Medium scale enterprises revealed that, the use of ICT by small and medium enterprises has led to better performance of organizations in Bangladesh. The results of the study also showed that, awareness of benefits, government support, top management support, financial support are the major determinant factors of the adoption of ICT in SMEs in Bangladesh.

Moreover, in the developing countries context, Thomas et al. (2013) studied the Utility of the UTAUT model in explaining mobile learning adoption in higher education in Guyana. The data was obtained through online survey from universi-

ty students and the models are estimated by using structural equation modeling. The results suggest that culture and country level differences moderate the UTAUT effects; hence, a straightforward application of the model regardless of the context can lead to non-detection of important relationships and to suboptimal mobile learning promotion strategies. Including attitude in the model is also a prudent modification since it increases its explanatory power

In the African context, a study conducted by Ssewanyana and Busler (2007) examined the extent of adoption and use of ICT in developing countries in the case of Uganda. The research analyzed general characteristics, ICT usage, E-commerce, Internet usage and connectivity, perception on the contribution of ICT to the firm, government policies, and barriers to ICT access and usage. Accordingly, the findings of the study confirmed that, the adoption and use of ICT by firms in developing countries follow the same patter in developed countries, and they only differ on the level of usage and adoption.

In the Ethiopian context Demeke et al. (2016) conducted an empirical study that investigates the factors that affect the adoption of ICT in Ethiopian small hotels in the case of Addis Ababa city. The findings of the study revealed that, the factors that affect the adoption of ICT can be categorized into individual, organizational and national. Accordingly, the major factors are related to national issues including political, socio-economic, technological and legal factors play a critical role in the adoption or rejection of ICT in the sector.

Materials and Methods

Research Approach and Design

In this research a concurrent mixed research approach was used. Based on the mixed method research approach a descriptive and explanatory research was adopted in this research. Both designs are important in order to explain the characteristics of the sample and relationships between research variables.

Population and Sampling Procedures

The study was conducted at Addis Ababa and three selected regional states (Oromia Regional State, Amhara Regional State and Southern Nations, Nationalities and Peoples' Regional State) selected Civil Service Organizations. The study population comprises all employees and management officials of public sector organizations at the Addis Ababa and the three selected regional states (Oromia, Amhara and SNNPRS).

Both probability (random) and non-probability (purposive) sampling techniques were applied. The probability sampling techniques applied in this study are both stratified random sampling and simple random sampling techniques. Stratified random sampling was used in order to stratify the public sector organizations into some common characteristics. Consequently, in order to make the research more practicable, all public sector organizations are stratified into three strata. Hence, all public sector institutions are categorized as economic; financial and social sectors. On the other hand, non-probability (purposive) sampling technique was used in order to select key-informant interviewees for semi-structured interview questionnaires. This is because; key-informants are

more knowledgeable and can provide rich information about the issue under investigation.

The sample size is determined based on Yamane's (1967) formula and was distributed to each regional/federal/Addis Ababa/ public sector organizations based on the sample proportion. The precision level / confidence level / used in this research is 95%.

$$n = \frac{N}{1 + N(e)^2}$$

Where: n = the required sample size, N = total population e^2 = precision level (confidence interval)

Accordingly by using the above formula, the sample size is determined for federal, Addis Ababa, and three selected regions (Oromia, SNNPRS and Amhara regional states).

Demographic Characteristics of Respondents

Table 1: Demographic Variables

Variables	Category	Frequency	Percentage	
Gender	Male	508	59.6	
	Female	345	40.4	
Education	Diploma	46	5.4	
	Degree	635	74.4	
	Master	172	20.2	
Position	Expert	567	66.5	
	Team Leader	221	25.9	
	Director	49	5.7	
	Head	16	1.9	
	Mean	SD	Min	Max
Experience	10.38	5.67	1	33
Age	33	6.04	22	59

The above table displays the results of demographic characteristics of respondents. Based on the findings, the majority of the respondents were male with a frequency of 508 (59.6%) and

Data Analysis Techniques

Both inferential and descriptive statistics were applied for quantitative data analysis. Descriptive statistical analysis was used to describe the current adoption and implementation of ICT in the service delivery in the selected Federal, Addis Ababa City Administration and regional public sector organizations. In addition, exploratory factor analysis was applied in order to uncover the underlying factor structure of large set of variables and to examine the underlying relationships between measured variables (Costello & Osborne, 2005). Finally, confirmatory was used as a quantitative data analysis technique. On the other hand, qualitative data was analysed by using narrative data analysis technique.

Results and Discussion

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about 74.4% of the respondents were degree holders. More than half of the respondents were experts followed by team leaders with a frequency of 567 and 221 respectively. The average work experience of respondents was 10 years and the average age was 33 years.

Competency of Employees to Utilize ICT

Table 2: Competency of employees to utilize ICT facilities

Items	Response	Freq.	N %
The organization provided workshops and other learning activities on technological skill	Strongly Disagree	115	13.5%
	Disagree	132	15.5%
	Neutral	202	23.7%
	Agree	313	36.7%
	Strongly Agree	91	10.7%
I can easily access e-mails and other related issues	Strongly Disagree	55	6.4%
	Disagree	72	8.4%
	Neutral	204	23.9%
	Agree	337	39.5%
	Strongly Agree	185	21.7%
I can apply ICT for problem-solving in a digital thinking	Strongly Disagree	50	5.9%
	Disagree	116	13.6%
	Neutral	194	22.7%
	Agree	354	41.5%
	Strongly Agree	139	16.3%
I can prepare and process Microsoft word and power points	Strongly Disagree	66	7.7%
	Disagree	62	7.3%
	Neutral	161	18.9%
	Agree	411	48.2%
	Strongly Agree	153	17.9%
I can communicate with relatives, friends, colleagues over the Internet	Strongly Disagree	53	6.2%
	Disagree	102	12.0%
	Neutral	182	21.3%
	Agree	331	38.8%
	Strongly Agree	185	21.7%
I can protect my computer from virus or other computer infection	Strongly Disagree	84	9.8%
	Disagree	129	15.1%
	Neutral	177	20.8%
	Agree	343	40.2%
	Strongly Agree	120	14.1%

ICT skills are an essential requirement for the majority of job roles. Having these skills will help you to organize your workload, streamline processes and access digital information. When applying for jobs, improving your ICT skills is a sensible way to give you a competitive advantage over other candidates. Based on this rationale, the study tried to understand the current competency level of employees to utilize ICT facilities.

Hence, the results of the study revealed that, employees of the public sector have basic skills to utilize ICT facilities. For example; they can use ICT easily access emails, to solve problems, to prepare Microsoft PowerPoint and word, to communicate with colleagues, to scan and protect their computers from virus. In order to perform such activities, their respective organizations have provided training and prepared also workshops and seminars.

Task ICT is used for

Table 3: Tasks ICT was used for

Tasks ICT used for	Not at all Freq.	Rarely Freq.	Occasionally Freq.	Always Freq.	Vey Often Freq.
Internet	10	50	210	292	291
Gaming	230	81	228	167	139
Data Collection_	48	169	333	158	140
Statistical Analysis	118	86	349	149	147
Word Processing	13	75	252	298	214
Information Search	24	33	361	252	181
Research	40	111	325	215	158
Communication	112	197	359	113	69
Scanning Documents	96	110	242	260	143
Faxing Documents	81	92	285	222	171

The study also tried to investigate the tasks in which ICT was used for. Based on the findings of the study, ICT was used for internet browsing to search information, word processing, scanning and faxing documents. Additionally, ICT was also used to some extent for research, communication, data collection and gaming purpose.

Challenges that impede Institutionalization of ICT in service delivery

The results of the survey confirmed that, the following are the major challenges that impede the institutionalization of ICT assisted service delivery

- Unreliability of ICT equipment
- Lack of sufficient capacity building training on utilizing ICT

- Lack of sufficient budget for ICT infrastructure

From the interview result, the following are also the major challenges

- Most developed software are unable to be implemented on the ground due to lack of infrastructure
- The repetitive change of organizational structure creates instability in the automation utilization
- Organizations are negligent in keeping their employees who have good experience in ICT and reducing turnover, thus there is high level of turnover in this field.
- The interruption of electric power, telecommunication and other infrastructures are the main problems that inhibit the ICT operation
- Most organizations operations are performed using outdated software due to budget constraint

The Effect of ICT Institutionalization on Organizational Performance

Exploratory factor analysis was performed on both ICT institutionalization and performance items. The results confirmed the unidimensionality and factorability of the two constructs. The result EFA produced a one factor component for both constructs. Based on this finding, a CFA was performed.

Table 4: Results of EFA on ICT Institutionalization

Component Matrix [a]	
Items	**Component**
There are user manuals for technological devices I use	.638
The organizational structure supports the adoption & utilization of ICT	.787
There are rules and regulations that support the utilization of ICT	.781
There are norms that support the utilization of ICT in service delivery	.767
Extraction Method: Principal Component Analysis. a. 1 components extracted.	

Exploratory factor analysis (EFA) is a statistical method used to uncover the underlying structure of a relatively large set of variables. EFA is a technique within factor analysis whose overarching goal is to identify the underlying relationships between measured variables. Thus, the results displayed in table 4 above shows the results of exploratory factor analysis on ICT institutionalization items. As it can be seen from the table, the results of EFA produced a one factor model which explained 60% of the variance in institutionalization.

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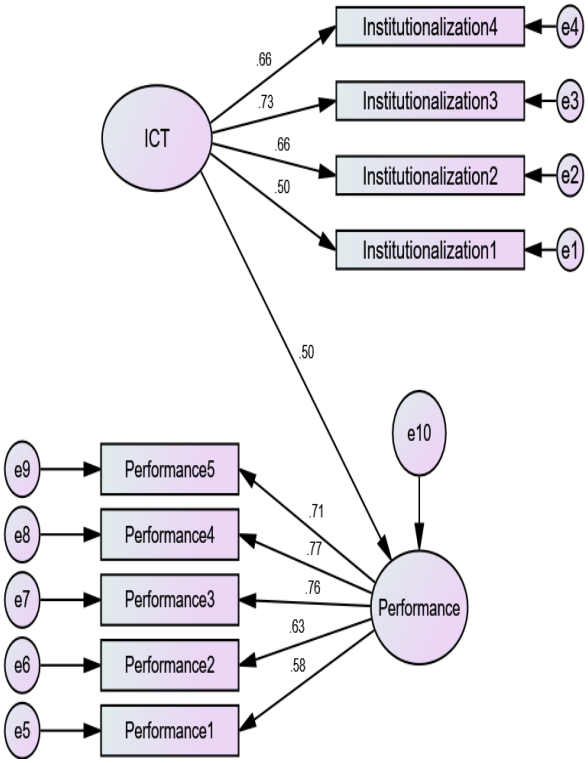
Table 5: Results of EFA on organizational performance

Component Matrix [a]	
Items	**Component**
The adoption of ICT helped to be innovative in service delivery	.725
ICT has increased speed in product / service delivery	.826
ICT helped to reduce cost in service delivery	.831
ICT helped to improve customer satisfaction	.794
Extraction Method: Principal Component Analysis. a. 1 components extracted.	

Table 5 above displays the result of EFA on organizational performance scale items. The result of EFA produced a one factor component model which explained 63% of the variance in organizational performance. After all these processes, the next step was to confirm the effect of ICT institutionalization on organizational performance by confirmatory factor analysis.

Figure 1: The effect of ICT institutionalization on organizational performance



Conclusion and implications

Conclusions

During the current globalized economy which is characterized by continuous technological innovations and increasing citizen's demand, organizations all over the world are striving to build competitive advantage. One of the most important tangible assets in organizational setting is its information communication technology. Information and Telecommunication Technologies increasingly boost the service sector and have become one of the most important determinants of the competitiveness for both the public and the private sectors.

Information and communications technology (ICT) has had and continues to have a tremendous impact upon all aspects of the strategy and operations of public sector organizations. Technology helps shape the capabilities and capacities of the organization, and it helps integrate those capabilities into an operational context. Additionally, through its ability to collect, store, and disseminate knowledge and information in real time, technology makes elements of the organizational culture— including its strategies, capabilities, and capacities—available to all personnel at all organizational levels.

Despite the rapid diffusion of ICT assisted service delivery and innovation, the rate of failure of e-government development project is high. For successful service delivery in the public sector, it requires the design of sound and effective ICT infrastructures and the creation of institutionally embedded communication systems. Institutionalization is the action of establishing something as a convention or norm in an organization or culture. Institutionalizing ICT in the service delivery involves the integration of ICT assisted services in the day to day activities of the public sector operations. However, there is the problem of institutionalizing ICT in the service delivery in developing countries in general and in the public sector in particular.

Based on this theoretical background, the study tried to explore the practices and challenges of institutionalizing ICT assisted service delivery in the public sector. Based on the results of the study it can be concluded that the public sector is equipped with the necessary ICT facilities such as desk top computers, photocopy, printers, laptops and internet connectivity. The availability and accessibility of these ICT facilities has provided a number of ad-

vantages for the public sector in the service delivery. ICT facilities are used in the public sector for delivering basic services such as research, communication, statistical analysis, data collection. It has been also confirmed that, employees in the public sector are equipped with the basic skills to operate ICT facilities. Some challenges have been identified such as unreliability of the systems, budget and infrastructure issues, leadership support and commitment.

The qualitative data analysis also produced interesting findings. For example, the key informants confirmed that there is lack of relevant software the necessary to conduct some operational tasks. There is also lack of continuous monitoring and support from the top leadership regarding the utilization and institutionalization of ICT assisted service delivery.

On the other hand, from the interview result it was confirmed that the utilization and institutionalization of ICT assisted service delivery has a number of advantages. Among these the major is; it minimizes cost, accelerates services, improves the controlling system, maintain accountability, saves human power, provide to access information easily, serve to minimize customers grievances, improve the quality-of-service delivery, avoids bureaucratic procedures, improves creativity and increases customers satisfaction.

Recommendations

1. Institutionalization of ICT service delivery requires the development of infrastructure that supports ICT utilization. Thus, in order to realize the government's aspiration to build digital economy, the development of advanced ICT infrastructure must be continued
2. One of the major challenges in the current digitalized economy is cyber-attack. Ethiopia is no exception from this attack from national and international arena. Thus, building cyber security and data protection management should be given high priority. One method can be to share or exchange organizational information using organizational email address. Thus, public sector organizations need to prohibit employees from sharing organizational documents with their personal email; rather it should be shared using the organizational email need to be controlled centrally.
3. One of the major factors affecting ICT institutionalization is frequent change of organizational structure. Thus, organizational structure must be designed based on adequate research in a way that can sustain for a long period of time
4. There is high level of employee turnover of IT professional. Thus, retention strategy should be implemented by the public sector organizations to reduce the high turnover rate of IT professionals
5. Organizations should adapt to this continuously changing environment. This dynamism has its own advantages and disadvantages. In order to compete and survive, new and modern software packages should be utilized in order to adapt to the rapidly changing environment.

As most software are developed and provided from the top, at the federal level, they failed to realize the main problem of the existing one as they don't gather feedback from employees who operate the software at the regional level, thus there should be close consultation with the regional governments while developing new software.

Conflict of Interests

The authors declare that there's no conflict of interest concerning to the publication of this article

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