

An Assessment of Information and Communication Technology (ICT) Utilization Status in Sustaining Public Sector Reforms in Oromia Regional State, Ethiopia

Nigussie Daba

Center for Public Policy Studies, Ethiopian Civil Service University , P. O. Box: 5648, Addis Ababa, Ethiopia

Anteneh Tilahun

Department of Information Technology, Public Service, College of Oromia, P. O. Box: 209, Ziway/ Batu, Oromia, Ethiopia

Abstract

The study investigated information and communication technology (ICT) accessibility and utilization of regional bureaus for sustaining public sector reform programs in Oromia Regional State. To examine the status of Information and Communication Technology (ICT) utilization to modernize the civil service, and sustain the reforms currently being implemented, the relevant data were collected both from primary and secondary sources. Instruments such as survey questionnaires, interviews and focus group discussions (FGDs) were used to gather data for this study. The study sampled 160 public sector employees in selected regional sectors in Oromia regional state. Besides, interviews and FGDs were conducted with officials, employees and ICT officers in the sectors, and policy documents, reports, and relevant secondary sources were also reviewed. The collected data were analyzed using the descriptive statistics, while Chi square-test was used to test the association between different variables at 0.05 level of significance. The findings revealed that at regional/bureau level, more than shortage of ICT facilities, mismanagement of resources is found to be critical problem; the process of implementing the ICT in the region is negatively affected by shortage of technical experts, lack of access to and the skill to use the technology, lack of understanding the technical contribution of this technology by leadership from top down to the lower level managers, high turnover and mismanagement of IT professionals, misunderstanding or communication barrier between ICT professionals and the sector leaders, and weak professional ICT support for employees on how to effectively utilize ICTs, were the challenges identified by the study. The reform programs such as BPR and BSC which are currently being implemented in the region are not also properly supported by IT. Attention for ICT offices/processes on the part of organizational leaders, improving employees' support on how to apply ICT on the part of IT officers, and designing mechanisms to reduce turnover of the ICT officers on the part of the government are among the recommendations of the study.

Keywords: ICT, public sector reform, utilization, accessibility, implementation, New Public Management

1. Introduction

Information and Communication Technologies (ICTs) are widely recognized these days by many developing countries as a critical tool in their efforts to eradicate poverty, enhance human development, modernize bureaucracy and achieve development goals. Recognizing this untapped potential, infrastructure initiatives and development strategies incorporating ICT are being increasingly promoted and launched across the many countries of the world.

While the potential advantages of ICT for good governance and development are enormous, national policies are yet to adequately reflect truly comprehensive and integrated strategies for harnessing and exploiting this potential. Much is said about a growing digital divide between countries. However, just as technology and knowledge gaps need to be bridged between countries, the increasing information and technology gap within

countries also requires critical attention. There is, perhaps, a directly attributable link between increasing inequality within nations and the intra-national digital and information divide.

Public sector ICT supported reforms are basically deep-rooted in combinations of political reforms and organizational changes, intended to perform, support and drive a profound transformation in the organization of the public sector. ICT in the public sector is also considered as a short cut to increase public sector efficiency and improve internal administration and management capabilities.

Since the late 1990s, following and being influenced by the experiences of private organizations, are adopting information technologies (ICTs). There is no doubt that for the success of public sector adoptions to streamline organizational procedures and support electronic mediated exchanges (e-commerce) has acted as a stimulus prompting to raise the engagement of ICTs within reforms. This trend has become evident when the wide adoption of ICT in the public sector organization has followed technical and strategic solutions -imported from private sector experiences- to improve and rationalize administrative and managerial practices. This is well aligned with the prescriptions, which recommend these same objectives to modernize public sector administration.

Information and communication technologies are now one of the best tools in governmental reform activities, business, teaching-learning and other service or product development and delivery environments. During the past 10 years, taking into account the benefits of such technologies by federal and regional government office become important but still there is a gap in utilizing ICT as enabler for public sector reform. Most of the studies in Ethiopia do not focus on ICT and sustainability of reforms rather they focus on the implementation of reform progress, ICT's contribution in enhancing administrative capacity (example, Tesfaye, 2009; Gebre, 2014). Therefore, this study fills this gap.

The overall purpose of the study is to examine the accessibility and level of utilization of ICTs in sustaining Public-Sector Reforms in Oromia Regional State. Hence, it provides a scientifically sound picture of the significance of ICT to today's organizations: the entire process of adoption, implementation, use and effects is analyzed. Based on this basic objective, the study addresses the following specific objectives.

- Identify the accessibility of ICT facilities in the study sectors.
- Examine the level of utilization of ICTs by government employees and officials.
- Identify perceived constraints to effective use of ICTs by the respondents
- To examine the role of ICT in enhancing and accelerating other reform initiatives and good governance packages.

2. Conceptual and theoretical issues

2.1. Information Communication Technology and Organizations

Many countries have been reforming and modernizing their public-sector systems. This involves putting in place ICT infrastructure and promoting the use of ICTs to maximize impact and increase public-sector efficiency. Indeed, while investment in infrastructure is necessary for the diffusion of ICTs, the impact will ultimately depend on the use that is being made of them. Therefore, in addition to connecting the local and federal government units and instituting websites and e-mail addresses, it is also necessary to concentrate on how governments employ ICTs to advance the provision of information and services to their communities.

The evolution of ICT (globally) dates back to 1823, when Charles Babbage, a professor of mathematics invented the Analytical Engine. The design comprised of four components for performing the basic functions of input, output, processing and storage. According to Bouwman et. al. (2005), the converging trend of telecommunication and computer technology has contributed to the growth of information and communication technology or ICT. Hence, the emergence of ICT has fundamentally changed a number of features of both the way we live and the way we work. In today's working environment, an organization without a personal computer (PC) is unlikely, and those of us who cannot be reached at work by e-mail have some explaining to do – as does a company that does not have its own website.

Reports show that states that had a website at the center and offered at least basic information to their citizens reached 189 at the end of 2009, from 173 in 2003. Also, in the majority of countries, government ministries and departments had a web presence, suggesting that by 2015 this part of the target will be achieved. The government sector also plays an important role in making relevant applications and content available online. Some countries, especially developed countries, have started to provide more sophisticated interactive and transactional online services. In most developing countries, however, such services are not yet provided online. By 2009, for example, only 21 (out of 192) countries worldwide offered tracking of (government provided) permits as an online service to their citizens. Much is therefore left to be done to achieve this aspect of the target. In developed countries, government departments tend to have access to the Internet, often through a broadband connection. Much less is known about Internet access for government departments in developing countries and in local government entities (Bouwman et.al, 2005).

Public sector, which depends largely on information exchange between and among employees, customers and a broad range of other actors, is an area in which ICT can have significant impact. Government employees can communicate directly with the service users through ICTs. Frontline workers, who are the direct link between customers and other actors in the service delivery knowledge and information system, are well positioned to make use of ICT to access expert knowledge or other types of information that could be beneficial to the citizens. Organizations are the context in which adoption, implementation and use of ICT are given shape. The effects of the adoption, implementation and use of ICT can be felt directly within the organization, but there is also an impact on the relationships between the organization and its environment: its suppliers, competitors and customers.

According to Navarra and Cornford (n.d.), ICT has different objectives in different countries and organizations. It may have an objective of integrating different computerizations and to make different business processes simple so that the benefits from technology can be maximized. ICT can also help to redesign services by applying mechanisms that can satisfy citizens and customers. In addition, ICT is powerful tool for modernization of bureaucracies and administrative procedures, and it can create knowledge-based environment for employees. Hence, many countries around the world, give priority for information communication technology for reforming their public administrations and attaining good governance goals..

Technology is the principal tool that enables humans to determine their destiny. It has evolved beyond a mere set of tools to assist the human race to build, travel, communicate, cure itself, or annihilate itself many times over. Technological tools have progressed to the point where the accumulation, storage, and manipulation of massive data may soon cross the threshold into knowledge. Knowledge, in turn, bestows unparalleled power on those capable of effectively wielding it.

As a result of New Public Management movement all over the world, different reform initiatives are encouraged both in developed and developing nations. However, because of the pervasiveness of broad gap in managerial competence, developed and developing nations do not implement the reforms and New Public Management at equal speed. Tesfaye (2009) argues that the managerial capacity of civil service organizations depends on the capacity of human resources and their effective utilization of information technology.

In the modern world, demanding society is being created in developing and developed economies. The services that are delivered to these informed society members are expected to be high quality, fast and reliable. Hence, governments recognized the ICT as a good fit (Gebre and Melese, 2014) to respond to public interest and since the 1990s, the ICT revolution has changed the way government operates and how government organs and public servants work together with each other and with the public at large. Governments in many parts of the world are making ICT a central agenda of reform and development, making efforts to make services closer to the public at grass roots level. As a result of expansion of information communication technologies, currently worldwide competition is increasing among companies and individuals. Innovation is also put at the heart of development currently more than ever.

The entire process of the adoption, implementation, use and effects of information technology is a process of mutual interaction. The interest of users in the new technology and what are they able to do with it, and what changes in the organization's processes and structures are brought about by the new technology shows interaction. This means that the use of ICT in organizations is a dynamic interaction between the process of technological innovation that leads to new ICT applications and reinvention of existing applications, and the process of organizational innovation that consists of the actual adoption and implementation of an ICT application in an organization, the use of these applications and the effect this has on the work and communication in the organization. The impact of ICT is becoming more pronounced worldwide. Such that rarely is anything mentioned in any area of human endeavors without reference to this type of technology.

The use of computer is frequently gaining foundation in many aspects of human endeavors. This shows that ICT's revolution is transforming the global perception on the way people think and day to day application of

tasks. Subsequently, the effects of ICT on every human endeavor are so dramatic in speed and performance that has been viewed as the back bone and information super highway of our modern lives. ICT services play essential roles in the economic sector such as micro, small and medium enterprises, agriculture, trade and industry. ICT also enables the aggregation of isolated demand into feasible markets. Even economies which depend on the manufacturing of unprocessed resources and on survival agriculture can attain efficiency enhancements by investing on ICT. ICT utilization also gives positive externalities, increasing innovation, gaining knowledge and problem-solving skills.

According to Africa Partnership Forum (2008), ICT can contribute to economic development in many ways: it can increase efficiency and outputs in different organizations, it can facilitate expansion of the market outside boundaries to harvest economies of scale; it may lower costs of and facilitate “access to services, notably in administration, education, health and banking”(pp 4), it also contributes in the areas of research and development, ICT products and services can be developed, ICT also plays a key role to enhance administration system, a precondition to development, by means of increased partaking of stakeholders, accountability and transparency.

This shows that the shift of many organizations towards utilizing ICTs is recognizing the strategic importance of new and empowering uses of information and communication technologies (ICTs) by government, citizens and business. To consolidate its democratic transition, the government needs to continue to move forward with public sector reforms. A better use of ICTs in the public sector can help achieve better socioeconomic goal.

The socioeconomic crises which African countries have been experiencing over the last two decades have also inspired governments to search for solutions, among other things, through studies and policy reforms on various critical issues of public sector management and administration. In modern governance, the public service is regarded as the nerve centre of the machinery of government. As such, regular revision of public service rules and procedures is necessary to enable the service conform with changing times and circumstances and to effectively reposition itself for higher levels of efficiency and effectiveness and enhance service delivery. This is because of the recognition that an effective state depends on an effective public sector capable of spearheading socioeconomic development and reducing poverty particularly in developing countries.

One area of the public sector which underwent reforms in many African countries since the late 1980s is the civil service. The essence of these reforms was to improve the effectiveness and efficiency of the civil service and to ensure its performance, capacity and sustainability over time. The ultimate goal being to raise the quality of public services delivered to citizens and to enhance their capacity to carry out core government functions, which are essential to promote sustained socioeconomic development.

According to Papadopoulos and Kanellis (2012), government offices at the present completely include, and civil servants utilize, modern information technology. There has been a decline in the positions of office workers, with a simultaneous rise in the positions of the information technology organization. Technology has sensitive nearness as a rising proportion of civil servants, especially higher-ranking administrators make use of different individual digital supporters, with the outcome that political leaders and employees are continuously available to

each other, the media, and general public in general. “Government websites are now the means of choice for the communication and accessing of government information” (pp). Citizens are using both authorized government information placed online and other information created by or about political leaders and accessible online in unexpected habits, some of which have confirmed to be intensely upsetting to governments and individual politicians.

The change is less complete in the area of service delivery and organizational reform. Service delivery by online dealings has developed fast, but the older media, principally the telephone, stay accepted. Information technology has the possibility to reorganize government based on integrated service delivery at the front end, joined-up policy making in the middle, and integrated procurement and support service at the back end.

Restructuring initiatives have made some progress in that direction, but it is a reflection of their relative immaturity, that more needs doing in front-end integration and shared services. The organizational home and political reporting relationships of these initiatives are still unclear. Management consultants selling information technology-based solutions to governments have emphasized its potential to affect enormous cost savings. Supporters within government have forecasted transformative consequences stemming from these savings. In actuality, the result of such savings is felt principally on the twenty percent of government expenses accounted for by overhead costs. In addition, such reserves are at all times at peril of being undercut by cost overruns on the multifaceted information technology tasks on which they depend.

Given the urgent need for current public service knowledge and information system by employees and citizens the use of conventional communication channels such as office/home visit, personal letters, and use of contact customers, for disseminating public information is counterproductive. This calls for the adoption of Information and Communication Technologies (ICTs) by both professionals and administrative workers to transmit relevant information to the concerned bodies in a most efficient way.

As Sandor (n.d.) put it information society is created following the agrarian and industrial eras, which resulted in change of the mode of organization of society. This will also lead to the formation of quaternary sector in which knowledge goods and services are produced by knowledge workers. Education, healthcare, government, and manufactures such as electronics and paper are found in this sector.

Technology is the most important tool that enables human beings to decide their fate. It is considered an essential enabler. The utilization of technology is given shape in all types of societal practices, whereby economic and political thoughts play a key role both inside businesses and in real politics (Bouwman et. al. 2005). Yet, when we see it in isolation, it is a value-free product or service.

Technology has developed beyond a simple set of devices to support the human being to construct, move, exchange ideas, heal itself, or eradicate itself over many periods. Technological instruments have advanced to the point where the accumulation, storage, and manipulation of huge information can rapidly cross the threshold into comprehension. Knowledge, consecutively, passes on unmatched authority on those competent of successfully exerting it. The capacity to produce technology is an outstanding contribution commended only to

human beings. This endowment marks itself in the establishment of devices and innovative methods that intensify intellectual and physical abilities (David and Ronald 2007).

Technology increases the capacity to perform tasks, attain more multifarious objectives, discover and comprehend the material world, and overcome the challenges, obstacles, and threats of the day. Indeed, this application of practical innovative mastermind gives the potential for personal self-fulfillment, empowerment, and pleasure. However, technological miracles and ever-present devices of expediency bring a disturbing overreliance and susceptibility to interruption, criminality, mistreatment, and misconduct, and material and spiritual segregation. Here, the exact challenge is to establish managerial expertise proportionate with the physical capacities afforded by the continual advancement of technology (ibid).

Information technology has assumed a strategic role in the implementation of current managerialist public sector reforms such as the rationalization and decentralization of administrative organizations and performance-based answerability (Osborne & Gaebler, in Papadopoulos and Kanellis, 2012). However, some scholars have drawn attention to the malfunctions of information technology initiatives. Such a failure has been connected to the top-down approach of IT-led public sector reforms and New Public Management guidelines which do not explain for limitations caused by the present institutional situation. In particular, the disaggregation propensities of new public management matched with the discrepancies of overseas development programmes have contributed, in most cases, to the disintegration of information systems (Kimaro & Nhampossa in Papadopoulos and Kanellis, 2012), escalating rather than minimizing complication (Bellamy & Taylor, 1992 in Papadopoulos, 2012). Most of times IT solutions are envisaged and applied by foreign advisors who defend the software source code from local customizations. In addition, absence of local financial and human ability often contributes to the discontinuance of IT systems (Angelopoulos et. al in Papadopoulos and Kanellis (2012: 59-60).

Contrary to a top-down technology-centered approach, the sustainability of IT systems in developing countries has been related to other sociopolitical factors involving the inclusion of local stakeholders' privileges in the system design and implementation. An effective utilization and institutionalization of an IT system have been attributed to the participation of local actors in the implementation process. This should include users' creative adjustment of international IT products to their local situation along with change management capacity. If, on the one hand, the type of approach to IT implementation clearly influences its sustainable usage, on the other hand, less is known about the processes that shape and direct its usage and its transforming implications.

In particular, most of the problems to reorganize information communication systems and implement new public management public sector reforms are mostly related to the organizational complication of African public sector circumstances. These are in reality, described by the split between imported reforms and information technology proposals at the macro level and expectations and actions of implementers at the micro-level (Angelopoulos et. al in Papadopoulos and Kanellis, 2012: 59-60).

Acceptance of technology without understanding, adoption without analysis, and use without questioning demonstrate manners not too far removed from cultures where wonderful and the occult are a part of the fabric of daily life. As a result, we are societies increasingly flooded in technology. So, understanding of the terminology, realities, and ideas surrounding technology is important; however, wisdom, discernment, and

dialogue regarding the applications, implications, and ramifications of technology are vital for citizenries increasingly experiencing the byproducts (intended and unintended) of technology.

The disparity between the deep penetration of advanced technology throughout the general population and the fundamental lack of understanding of the principles and collateral effects emanating from these technological resources signifies a potentially volatile polity. This, together with burgeoning socio-technical systems, raises important public policy questions. Foremost among them is the matter of technological determinism. The presence of science discovering, technology directing, and man conforming must be avoided. B.F. Skinner aptly states, “The real problem is not whether machines think but whether men do.”

2.2. Information Technology and Public Sector Reforms

During the 1970s, the worldwide exhaustion and the shrinking quality of public resources added to a high social dissatisfaction, led to the end to the fruitful age of the “Welfare State”, and the beginning of a new stage in the production and provision of public services. Even when the timing of the transformations was different among countries, extensive changes occurred in the political and social structures of the western world leading to a radical public sector reforms and government transformation agenda all over the world during the last two decades. Inside this wave of changes, new modes and forms of management in the public administration were gaining predominance in the public sector scenario across many liberal democratic governments. These reforms were found to have a series of common characteristics, grouped and labeled under the notion of New Public Management (Hood 1991). Articulated as a policy framework, the reforms under the NPM agenda were seeking to solve the problems of a public administration that was too big, too inefficient and too expensive and therefore unable to serve public services as it was supposed to do.

In many developed economies, information and communication technology is seen as a means through which governments can address issues of social segregation (Greisler and Stupak, 2007). According to Njihia in Papadopoulos and Kanellis (2012) public sector services based on information technology focus on satisfying and empowering citizens, services to business, industry, e-communication and document processing, through access to information. “Services may be availed online by departments, through conveniently located service centers or through a portal and today through mobile phones, termed M-Government (pp. 19)”.

Bernardi in Papadopoulos and Kanellis (2012) found out that there is no strong link between information and communication technologies and organizational results in public service organizations of developing countries such as in Africa. According to the author, the utilization and implementation of information communication technologies are essentially affected by environmental factors. Poor human resource in information communication technology sectors is one critical problem for ICT implementation in most developing countries. In addition, the restructuring, redesigning, and innovations of public sector management in these countries are based on change models and information technology designs which are imported from developed countries which may not much users in the local conditions.

As a result, public policy makers and public managers may not develop satisfactory level of confidence with ICT tools. This will also negatively affect the intensity of commitment of policy makers and public managers to information communication technology innovations. The contextual factors which affect innovations in the

public sector cannot be changed easily due to different interests and different levels of organizations in the public sector of most developing countries. This makes it hard to have successful reform programmes in which organizational and information communication technology systems can easily be aligned. Hence, contextual factors need to be considered in implementing any reform program and ICT systems.

Despite the fact that some NPM approaches are less explicit, the use of ICT is a transversal and a crucial element in many of the key components identified in the NPM governmental reforms. Indeed, e-government initiatives became embedded as part of NPM political and managerial reforms in many countries around the world (Cordella 2007). Yet, even when we might be facing the end of NPM as a public sector reform driver (Dunleavy et al. 2006), there are still important implications for the use of ICT and the definition of E-government policies; “NPM practices are extensively institutionalized and will continue” (2006, p.2). This makes mandatory to explore how NPM ideas have shaped e-government policies and to study what are their consequences in terms of the political agendas that are deeply committed to e-government initiatives.

3. Research design

This study follows descriptive survey and tries to depict changes realized and challenges encountered in relation to information communication technology utilization in the study areas. The researchers preferred to use this research methodology as it enables them disclose the contribution of ICT for the sectors/offices in the eyes of government officials and employees.

The population for the study comprises Oromia regional level sectors/offices. As complete enumeration of all sectors and offices is not feasible in terms of cost, time, and energy, this study uses sampling method. Simple random sampling technique is employed to select the sectors and the agencies and institutions found under each sector. And a total sample of eight sectors was taken. A total of one hundred sixty (160) government employees were also selected using systematic sampling from all the selected sectors for the study. In addition, two ICT officers and one senior official of each organization whose activities are related with ICT was purposely selected from all clusters for interview.

Questionnaires were prepared in English and translated in to Afan Oromo (Oromo language) so as to increase the clarity of intention or ease of understanding by respondents. The researchers collected two types of data-primary and secondary data. The former were collected from regional level government employees of sampled sectors/offices, sector leaders and ICT officers of the offices.

On the other hand, the latter types of data were gathered from books, journals, newspapers, on-line services, different manuals, performance reports, and working papers. The tools used for primary data collection by researchers include questionnaire, structured interview and observation in selected sectors. Pilot test was conducted to confirm the appropriateness of the instrument. The questionnaires comprised of three parts.

4. Discussion, Results and Analysis

4.1. The Legal Ground of Implementing ICT as a reform sustaining Strategy in Oromia regional state

The legal base of ICT is clearly defined in the ICT policy of Ethiopia when it states the objectives as creating “IT driven country and knowledge-based society”. The policy also aims at encouraging and assisting the utilization of information communication technology in all government offices for nurturing democratic values, good governance, transparency and accountability. In addition, the Federal Government of Ethiopia incorporated IT education as one of the subjects to be offered at different levels of the educational system. The national curriculum on IT Education also stipulates the various objectives to be attained at these levels.

The Ethiopian government in general and that of Oromia regional state in particular initiated ICT to support the ongoing democratization and good governance agenda. The ICT revolution in Ethiopia is intentionally to strengthen the implementation of public sector reform programs such as civil service reform program, justice system reform program, tax system reform program, and the district level decentralization program among others. As part of the Ethiopian GTP, the Ethiopian government launched the ICT to ensure all citizens have equal access to government services and equitable access to knowledge and information (Adam, 2009/2010).

According to the Growth and Transformation Plan (GTP) evaluation report of ICTDA of Oromia (2007 E.C.), the role ICT can play in social, economic and political setting of the region is recognized by the regional government and the agency for managing all the activities of ICT in the region is established under the civil service and good governance bureau. According to the document, ICT is given a strategic place in the region because it is believed by the regional state that ICT can be used as a tool to build good governance and democratic system, improve service delivery, enhance productivity and reduce poverty in the region. Besides, the regional government focuses on promoting the use of ICT to modernize the civil service to enhance public service delivery effectiveness and competency. ICTDA of Oromia also envisions to create competitive and knowledge society in the region by utilizing opportunities created by ICT.

The regional government commitment was also shown in establishing ICT training centers at all zonal offices. Interviews and focus group discussions results show that, even though their size is small, there are ICT centers equivalent to each zone and City administrations in the region. The same interviews and FGDs, and ICTDA report also reveal that, the ICT network has reached most of the areas of the region which are found far away from the center. However, the researchers’ objective was not to look into the overall ICT status in the region at all levels, but to focus on the issues only at bureau level. The ICT functions as a supporting strategy to implement the reform programs, the role of ICT in sustaining the reform programs will be rational to discuss in relation to access and skill to use computer technology, and the function of Woreda-Net as an exclusive promoter to implement the reform programs in Oromia Region bureaus.

4.2. Accessibility of ICT facilities in the civil service institutions

Governments reform their administration and civil service organizations to shorten the administrative bureaucracy and to provide quality service, to make the public administrative system more efficient, streamlined, and consistent (Hood & Lodge, 2006) among others. However, the results expected from the reform agenda are unthinkable if they are not supported by information technology (ICT) and the reform may not be as successful

as expected. The adoption of information systems is frequently conceived as a powerful solution to help in achieving public sector reform goals. Therefore, to implement the reform effectively, civil service organizations should have an access to ICT facilities such as computer technology.

Reforming of the bureaucracy is one critical issue for modernizing of the public-sector systems. This involves putting in place ICT infrastructure and promoting the use of ICTs to maximize impact and increase public-sector efficiency. Indeed, while investment in infrastructure is necessary for the diffusion of ICTs, the result will eventually depend on the application that is being made of them. Therefore, information communication technologies (ICTs) facilitate organizational changes that can be made from hierarchical to more horizontal structure, and to network or even virtual organizations. The movement for the entire government in general is also from classic bureaucracy, to New Public Management, and to network and digital governance.

Therefore, in addition to connecting different sectors and levels of government units and instituting websites and e-mail addresses, it is also necessary to concentrate on how governments employ ICTs to advance the provision of information and services to their communities.

It is worth mentioning that, the discussion on ICT is also related with accessibility of computer technology because without accessibility of computers we can talk no more about ICT. The main objective of ICT in Oromia is to provide Video-Conferencing and to link sector offices with internet connection and making information exchanges easier. In doing so, sector offices were also expected to make their departments easily accessible for computer technology. In this regard, according to the information obtained through interview, high resistance and lack of interest on the part of sector offices to establish suitable environment for information systems were cited as a serious problem. Problem of allocating appropriate budget for information technology activities, challenges of manning the IT structure with the right IT professionals, lack of awareness and in general low attention for the IT units were repeatedly raised during interview.

In addition, shortage of computers was also observed in the civil service organizations in Oromia at regional/bureau level in general. Shortage of budget was also raised by respondents as a problem to equip the bureaus with the necessary ICT facilities. As it is also indicated in the Growth and Transformation Plan (GTP) evaluation report of ICTDA of Oromia (2007 E.C.), even though it was planned to establish 322 community ICT centers in the region, only 46 of them were successfully completed due to budget constraint.

However, according to the information obtained from sample sectors through observation and interview, ICT facilities shortage is not as such a serious problem, except mismanagement and sometimes underutilization of resources, for many bureaus at regional levels, especially for those sectors which are labeled as “priority sectors”. Computer shortage is a serious problem at the local (woreda) level rather than at the regional level. This may be due to the vastness of the regional state so that it is impossible for the regional state to equip all sectors at all levels including the woredas. Information from ICTDA of Oromia also reveals that all computers at regional level are made part of woreda-net and this can be considered as a good achievement at the regional level. Besides, infrastructures are almost fulfilled in these priority sectors.

This was also confirmed by respondents of the questionnaires when they were asked about availability of internet service, network-based soft ware, database and network based service in their respective offices. Accordingly, 93.7% and 71.2% of the respondents agreed that there is internet service and network based service respectively. In addition, 85.6% and 77.5% of them also said that there are network based service and different data bases in their offices respectively. This can also facilitate communication and the processing and transition of information among different sectors by electronic means. This also simplifies information exchange between and among employees, customers and a broad range of other actors.

Procurement problem was also mentioned by interview and FGD participants, which caused delay in the provision of inputs and ICT facilities for different ICT related activities like the purchase of computers, machines etc. According to the information obtained through interview, the procurement system which is currently centralized to be performed by one agency is also considered as a reason for shortage of information communication technologies facilities. The long procedure that is currently followed, according to the information of interviews, exacerbated the problem. Some of the interview participants also consider the centralized system of procurement as against the reform principle/thinking.

4.3. Employees' Information Communication Technology Utilization

To observe the ICT utilization, sample respondents were asked to share their utilization experience and the following tables illustrates the practical condition of IT utilization.

Table 1: ICT utilization by Age

		ICT utilization		
		Yes	No	Total
Age	18-25	9 (8.1%)	1 (.9%)	10 (9.0%)
	26-35	36 (32.4%)	2 (1.8%)	38 (34.2%)
	36-45	39(35.1%)	5(4.5%)	44(39.6%)
	46-55	16(14.4%)	3(2.7%)	19(17.1%)
Total		100 (90.1%)	11 (9.9%)	111 (100.0%)

When the respondents were asked whether they use ICT or not in their respective offices, majority (90.1%) of them replied that they are utilizing ICT in their offices. As the above Kruskal Wallis test indicates there is no significant difference between the different age groups of employees in ICT utilization indicated by (Chi-Square = 1.743; p=0.627). This indicates that all the age groups use IT in their offices. The cross-tabulation table 4.2 below also supports this condition.

Table 2: ICT utilization by Gender

		ICT utilization		
		Yes	No	Total
Gender	Male	71(64.0%)	9(8.1%)	80(72.1%)
	Female	29(26.1%)	2(1.8%)	31(27.9%)
Total		100(90.1%)	11(9.9%)	111(100.0%)

Table 4.2 above also depicts ICT utilization practice of employees and Mann-Whitney test was conducted to see if there is a difference between the two sex groups. The result (Mann-Whitney U = 1180.50; p=0.450) indicates that there is no significant difference between the two groups. This means both male and female respondents believe that they are currently using information communication technology in their bureaus.

4.4. Educational level, work experience, and ICT utilization

The other important point to bring to attention in this sub section is the educational status and work experience of the respondents. Likewise, the ICT utilization capability could also be related to the educational levels of civil servants. In reality, the more the employees are educated and participated in trainings, the more they can utilize the information communication technology resources. Hence, to examine the association between ICT utilization and the different educational levels, respondents were requested to determine their ICT utilization condition and table 3 and figure-1 below summarize the result. As indicated in the table below, the Kruskal Wallis test result (Chi-Square =0.203; P=0.904) which is >0.05 shows that there is no significant difference between the different groups with different educational levels. From the data one can deduce that all employees with different educational levels equally use information technology at their offices.

Table 3: ICT utilization by Education Level

		ICT utilization		
		Yes	No	Total
Education Level	Diploma	17(15.3%)	2(1.8%)	19(17.1%)
	BA/BSC	69(62.2%)	8(7.2%)	77(69.4%)
	MA and Above	14(12.6%)	1(.9%)	15(13.5%)
Total		100(90.1%)	11(9.9%)	111(100.0%)

Table 4: Education Level of employees

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Diploma	19	17.1	17.1	17.1
	BA/BSC	77	69.4	69.4	86.5
	MA and Above	15	13.5	13.5	100.0
	Total	111	100.0	100.0	

Table 4 above also shows that majority of the employees who are working at regional (bureau) levels are diploma, first degree (BA/BSC holders), and second degree (MA/MSC holders). As the table depicts, majority (69.4%) of the respondents are BA/BSC holders, 17.1% of them are diploma holders and the rest 13.5% of them are MA/MSC holders. This implies that all the employees are capable of using the information communication technology. This could be the reason for why significant difference is not observed among the groups in utilization of information communication technology in the regional sectors. From the above data, therefore, it is apparent that the range of the educational status of the respondents does significantly vary and most of the respondents are educated people with at least diploma level. Hence, it is possible to infer that most of the employees could have better understanding of the application of the ICTs in their offices.

On the other hand interviews conducted with ICT officers of sample sectors reveal that employees, both professionals and administrative, as well as leaders are not properly using the information communication technologies as desired. “Many of them are carrying laptops but they do not apply beyond word” (response of an interviewee). “They take two or three laptops and give for their children for they cannot use all and bring back for repair when they fail to work” (an idea raised by another interviewee). This may indicate mismanagement of resources, as there is serious problem of resources, especially shortage of computers at the local/woreda level.

Whether the work experience of employees has an effect on using the information communication technology or not is also investigated by gathering information from the respondents. Accordingly, the Kruskal Wallis test (Chi-Square =0.615; p=0.893) in Table 5 below indicates that there is no significant difference among all the groups i.e. those with the long years of service and short years of service in the regional offices all replied that they are utilizing information communication technologies at their offices.

Table 5: ICT utilization by Work Experience

		ICT utilization		
		Yes	No	Total
Work Experience	1-5	18(16.2%)	2(1.8%)	20(18.0%)
	6-10	31(27.9%)	3(2.7%)	34(30.6%)
	11-15	4(3.6%)	1(.9%)	5(4.5%)
	>15	47(42.3%)	5(4.5%)	52(46.8%)
Total			11(9.9%)	111(100.0%)

Whether there is a significant difference in information communication technology utilization between different employees of different job categories was also tested. The Mann-Whitney test result U (Mann-Whitney U =693.000; p=0.653 which is >0.05) shows that there is no significant difference between officers and managers in ICT utilization at the bureau level. This means that the difference observed in the sample employees cannot be generalized to the whole population.

Table 6: ICT utilization by Job Category

		ICT utilization		
		Yes	No	Total
Job Category	Manager	14(12.6%)	1(.9%)	15(13.5%)
	Officer	86(77.5%)	10(9.0%)	96(86.5%)
Total		100(90.1%)	11(9.9%)	111(100.0%)

But as the non-parametric test result (Mann-Whitney $U= 471.50$; $p=0.028$) shows, there is a significant difference between officers and managers in utilizing video films. According to the result, video films are utilized more by officers than by managers. The cross-tabulation table 4.7 below also supports this condition.

Table 7: Utilization of video films by Job Category

		Utilization of video films					Total
		Very Low	Low	No Comment	High	Very High	
Job Category	Manager	6(5.4%)	1(0.9%)	3(2.7%)	4(3.6%)	1(0.9%)	15(13.5%)
	Officer	9(8.1%)	16(14.4%)	22(19.8%)	24(21.6%)	25(22.5%)	96(86.5%)
Total		15(13.5%)	17(15.3%)	25(22.5%)	28(25.2%)	26(23.4%)	111(100.0%)

According to Hanna (2010), to facilitate the effective implementation of public sector reforms and to provide quality service, building the civil service to access and use Information and Communication Technology is imperative. This is because e-governance has the potential to improve service delivery and customer satisfaction. However, as interview report of ICTDA of Oromia indicated, the process of implementing the ICT in the region is negatively affected by shortage of technical experts, lack of access to and the skill to use the technology, lack of understanding the technical contribution of this technology by leadership from top down to the lower level managers, high turnover and mismanagement of IT professionals, misunderstanding or communication barrier between ICT professionals and the sector leaders, weak professional ICT support for employees on how to effectively utilize ICTs, failure of network and disconnection of electric power, and in general attitude problem on the part of employees and leaders were the serious problems encountered the sectors.

In addition, resistance of employees, low attention of leaders, and resistance of end users/customers for information communication technologies utilization were also cited as a challenge for effective utilization of information technologies in the bureaus by sample sector survey respondents and interview participants. Information technologies are also resisted by those who do not want transparent system. Those managers and employees with rent seeking attitude directly or indirectly resist the implementation of different ICT soft ware and data bases. For example, utilizing video conference for meeting, reporting, training, etc. can solve many

problems that are caused due to distance of different sectors and levels of government, especially in the presence of critical shortage of resources and budget. However, it was known during interview that there are many sectors that do not use video conference. They want to go far for training rather than using technology.

The tables below also indicate the implementation of ICT reform in the bureaus. Majority (74.8%) of the respondents believe that ICT reform is well implemented in their respective offices. The rest (25.2%) of them said that the reform is not well implemented. This also indicates that in many offices information communication technology reform is practiced at the regional bureaus. According to the information, still there is a gap in some regional offices in implementing ICT reform.

As observed in the following table, majority of the sample sectors' employees believe that information communication technology reforms are being well implemented in their bureaus. However, respondents from some bureaus (example 55.6% from agriculture sector) responded that the ICT reform is not well implemented in their offices. This may also show that the implementation of ICT reform varies from sector to sector. It is not implemented in similar manner across the sectors in the regional bureaus.

Table 8: ICT Reform Implementation by sector

Name of the Organization	ICT Reform		Total
	Well implemented	Not well implemented	
supreme Court	8	1	9
Health	6	2	8
Revenue	10	1	11
civil service	44	18	62
Agriculture	4	5	9
trade and Market development	11	1	12
Total	83	28	111

Public sector largely depends on information exchange between and among employees, customers and a wide range of other actors. This is also an area in which ICT can have major influence. Government employees can communicate directly with the service users through ICTs. Frontline workers, who are the direct link between customers and other actors in the service delivery knowledge and information system, are well positioned to make use of ICT to access expert knowledge or other types of information that could benefit the citizens.

In addition, respondents were also made to give responses on the role of information communication technology in strengthening their organizational capacity, in improving organizational information management in their offices, in expanding alternative service delivery strategies in their respective organizations, in providing timely service for their customers, in integrating/connecting service providers and service users, and in addressing large stakeholders. Accordingly, 78.4% of the respondents said the role of ICT in strengthening the capacity of their

organizations is high and very high. As regards to improvement of organizational information management as a result of the implementation of ICT, 80% of the officers and 86.7% of the managers opined either high or very high role that the ICT played in their offices. About 88.3% of the respondents also believe that information communication technology in their respective offices played high and very high roles in expanding service delivery strategies.

When the respondents were asked about the role of information communication technology in improving the timely service delivery, 85.6% of them depicted that it is either high or very high. With regards to ICT's role in creating integration of service users and providers, 68.5% of the respondents replied that by utilizing information communication technologies the integration of service providers and service users has improved. The rest 31.5% of them said that the integration of the service providers and service users is not strengthened. This indicates that much remains to integrate service users and service providers through utilization of information communication technology.

In general, it is possible to say that ICT is improving the capacity of organizations in managing information and delivering timely and better services. This is also confirmed by the ICTDA of Oromia's GTP evaluation report (2007 E.C.). According to the report, the establishment of remote data back up and research center, optimization activities to improve the quality of ICT infrastructure, and expansion of woreda-net and video conference services can be mentioned as the achievements of the region. Furthermore, document management system, information gathering system, court case management system, interactive voice recorder, electronic health management information system (EHMIS), Market information system, and management information systems are the softwares developed in the region and majority of them are actively implemented in the respective bureaus.

However, Tesfaye (2009) underlined the difficulty of measuring the effect of ICT on the efficiency of an organization vis-à-vis its expenses on ICT and the amount of earnings that it creates. First, spending on ICT may not be directly related to the products'/services' expenses. Second, the organization may incur further expenditure for employees' training and education on ICT. As a result of this additional cost may also be incurred for adjusting their salaries for the newly acquired skill. Finally, organizational capacity to minimize their operation expenses as a result of the expansion of network technology has facilitated customers' efforts to take price advantage.

Table 9: ICT roles in Addressing Large stakeholders in sectors

		ICT roles in Addressing Large stakeholders					
		Very Low	Low	No comment	High	Very High	Total
Name of the Organization	supreme Court	0	0	0	3	6	9
	Health	0	1	1	3	3	8
	Revenue	0	1	0	5	5	11
	civil service	1	12	1	23	25	62
	Agriculture	1	2	1	1	4	9
	trade and Market development	0	1	0	4	7	12
Total		2	17	3	39	50	111

4.5. Information and Communication Technologies and Other Reform Programs

Information Communication Technologies (ICTs) support other public sector reform programs such as business process reengineering (BPR), balanced scorecard (BSC), and enhance service delivery systems of organizations. Information Communication Technology also plays an enabling role for other public sectors and processes. Hence, the ICTs also aim to make efficient and transparent online services that will in turn help to reduce the waiting time of customers at the offices and improve information dissemination with respect to different services, enhance good governance which will help attract investments.

As information and communication technology (ICT) is generally appropriate to all kinds of organizations, it is important to assess the public sector reforms implemented in developing countries in relation to the utilization of information and communication technology (ICT) in improving the administrative capacity of government organizations. According to Tesfaye (2009), good lessons can be drawn from developed countries such as USA and Canada in this regard. They focused on integrating of services, utilization of information and communication technology, redesigning of business processes, and empowering of employees and the public. The utilization of information communication technologies (ICTs) played a crucial role, among others, for the effective realization of public sector reforms in those countries.

Advances in technology are changing the workplace and affecting the work lives of personnel. The rapid growth of information technology such as internet and web based systems is creating changes in the processes in many institutions. Information technology also plays a crucial role in business process reengineering. It is an essential enabler of the reengineering effort. Hammer and Champy (1993) note that misuse of technology can obstruct the reengineering effort in total by reinforcing old ways of thinking and old behavior patterns.

Information communication technology can also contribute effectively to creating an enabling environment for development, by enhancing transparency and accountability and promoting good governance in the public sector. As such, e-government is a major tool for public-sector reform towards better governance. It promotes more

efficient and cost-effective government, facilitates more convenient government services, allows greater public access to information, and makes government more transparent and accountable to citizens. In its five-year GTP plan evaluation (2007 E.C.), ICTDA of Oromia reported that by understanding the role that ICT can play in development and good governance, awareness creation programs for the community were put in place. In addition, according to the report, capacity building trainings on ICT were delivered for more than 61,000 employees and managers in the last five years. This shows the effort made to link ICT with development and good governance.

Based on the above arguments respondents were also asked to rate their information communication technology utilization status as reform and as educational tool. Majority (73%) and (75.7%) of the respondents said that employees of the regional offices are utilizing information communication technologies as reform and educational tools respectively.

However, interviews conducted with different officials and information communication technology (ICT) officers reveal that reform programs currently being implemented in the regional state are not supported by appropriate information technologies' soft ware. Business process reengineering which is currently being implemented in the offices is not fully supported by information communication technology. The effort made to automate business processes also encountered resistance both from employees and leaders. There was also technical problems encountered the implementation of the automated business processes, and this also led to the failure of the effort. In general, values of employees are not changed as desired.

Even though the effort is made to support balanced scorecard (BSC) with excel, it is not fully automated and it is not effective. One of the interviewees raised in the interview that "how can an excel support balanced scorecard? Soft ware must have been developed". Hence, this may also affect the sustainability of the reform programs currently being implemented in the sectors. However, the current effort of the information communication technology development agency (ICTDA) of Oromia to automate BSC through web-based application is worth mentioning.

4.6. Information Technology and Leadership

Organizational leaders must assertively and actively engage the information technology function by owning decisions about information technology instead of just making them and assuming someone else will be accountable. Civil service managers are expected to realize and contribute to the effectiveness of any change in the organization including the information communication technologies. Hence, the civil services have to show appreciation for high quality leadership and further efforts will be encouraged.

Leaders at any level of civil service organization should be well informed about the implementation of ICT programs and should have the ability to harmonize strategic participatory planning, inter-organizational communication, effective monitoring and evaluation system, set clear vision and provide reliable and relevance reporting system (Ali, 2004). For this reason, to investigate the role middle and lower level civil service officials play in managing information communication systems at their offices, i.e. whether the information communication technologies are properly managed in organizations or not, participants were asked to share their surveillance and the following paragraph summarizes the result.

Management resistance and lack of commitment on the part of organizational leaders were repeatedly raised by interview participants. Lack of interest and knowledge on information communication technologies on the part of the leaders resulted in poor support for the information communication technologies' (ICTs') officers and ICT in general. Organizational leaders have been largely ineffective in administering the information technology function with the same rigor they bring to running business generally. The management of information technology is still left to information technology officers, who struggle to balance the changing, multiple demands of the companies for which they work.

Poor structure of information communication processes, units and sections, mismanagement of information technology professionals which also exacerbated the turnover of the IT professionals, inadequate budget allocation for the program, in general not giving attention and priority for program could be considered as the leadership problem. Employees also raised poor support of the ICT officers in utilization information technologies.

5. Summary and Conclusion

In Oromia regional state, government network infrastructures were in place as a supporting strategy to implement the public sector reforms and the School-Net, Health-Net, Agricultural-Net and Woreda-Net as well as Development Data Base (DDB), Integrated Budget Administration and Government Expenditure (IBEX) among other things were in practice. The government initiative in doing so was remarkable. The effort of the government in developing ICT infrastructure for enhancing good governance and development in the region is worth mentioning. Even though ICT utilization is improving at the regional level, it is not satisfactory. Much remains to be done to enhance the information communication technology services.

The role ICT can play in social, economic and political setting of the region is recognized by the regional government and the agency for managing all the activities of ICT in the region is established under the civil service and good governance bureau. ICT is given a strategic place in the region because it is believed by the regional state that ICT can be used as a tool to build good governance and democratic system, improve service delivery, enhance productivity and reduce poverty in the region. Besides, the regional government focuses on promoting the use of ICT to modernize the civil service to enhance public service delivery effectiveness and competency.

ICTDA of Oromia also envisions to create competitive and knowledge society in the region by utilizing opportunities created by ICT. The ICT network has reached most of the areas of the region which are found far away from the center. It was also found out that all computers at regional level are made part of woreda-net and this can be considered as a good achievement at the regional level. Besides, infrastructures are almost fulfilled in the sectors which are labeled "priority sectors". ICT is improving the capacity of organizations in managing information and delivering timely and better services.

By understanding the role that ICT can play in development and good governance, awareness creation programs for the community were put in place. In addition, according to the report, capacity building trainings on ICT

were delivered for more than 61,000 employees and managers in the last five years. This shows the effort made to link ICT with development and good governance.

The main objective of ICT in Oromia is to provide Video-Conferencing and to link sector offices with intranet and internet connection and making information exchanges easier. In this regard, high resistance and lack of interest on the part of sector offices to establish suitable environment for information systems were cited as a serious problem. Problem of allocating appropriate budget for information technology activities, challenges of manning the IT structure with the right IT professionals, lack of awareness and in general low attention for the IT units were repeatedly raised during interview.

It was also found that more than ICT facilities shortage, mismanagement of resources is critical problem for many bureaus at regional levels, especially for those sectors which are labeled as “priority sectors”. Computer shortage is a serious problem at the local (woreda) level rather than at the regional level. The lengthy procurement procedure as a result of centralization of the activity by one agency was also cited a challenge to fulfill the ICT facilities.

The process of implementing the ICT in the region is negatively affected by shortage of technical experts, lack of access to and the skill to use the technology, lack of understanding the technical contribution of this technology by leadership from top down to the lower level managers, high turnover and mismanagement of IT professionals, misunderstanding or communication barrier between ICT professionals and the sector leaders, weak professional ICT support for employees on how to effectively utilize ICTs, failure of network and disconnection of electric power, and in general attitude problem on the part of employees and leaders were the serious problems encountered the sectors.

In addition, resistance of employees, low attention of leaders, and resistance of end users/customers for information communication technologies utilization were also cited as a challenge for effective utilization of information technologies in the bureaus by sample sector survey respondents and interview participants. Information technologies are also resisted by those who do not want transparent system. Those managers and employees with rent seeking attitude directly or indirectly resist the implementation of different ICT soft ware and data bases. For example, utilizing video conference for meeting, reporting, training, etc. can solve many problems that are caused due to distance of different sectors and levels of government, especially in the presence of critical shortage of resources and budget. However, it was known during interview that there are many sectors that do not use video conference. They want to go far for training rather than using technology.

Reform programs currently being implemented in the regional state are not supported by appropriate information technologies soft ware. Business process reengineering which is currently being implemented in the offices is not fully supported by information communication technology. The effort made to automate business processes also encountered resistance both from employees and leaders. There was also technical problems encountered the implementation of the automated business processes, and this also led to the failure of the effort. In general, values of employees are not changed as desired. Even though the effort is made to support balanced scorecard (BSC) with excel, it is not fully automated and it is not effective.

Management resistance and lack of commitment on the part of organizational leaders were repeatedly raised by interview participants. Lack of interest and knowledge on information communication technologies on the part of the leaders resulted in poor support for the information communication technologies' (ICTs') officers and ICT in general. Organizational leaders have been largely ineffective in administering the information technology function with the same rigor they bring to running business generally. The management of information technology is still left to information technology officers, who struggle to balance the changing, multiple demands of the companies for which they work.

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