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E-government based land administration framework; trends, challenges and prospects

Abebe, Birtukan

BAHIR DAR UNIVERSITY

BAHIR DAR INSTITUTE OF TECHNOLOGY

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E-government based land administration framework; trends, challenges and prospects

Birtukan Abebe Yilma

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Birtukan Abebe Yilma

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Advisor Name: Gebeyehu Belay (PhD)

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DECLARATION

I, the undersigned, declare that the thesis comprises my own work. In compliance with internationally accepted practices, I have acknowledged and refereed all materials used in this work. I understand that non-adherence to the principles of academic honesty and integrity, misrepresentation/ fabrication of any idea/data/fact/source will constitute sufficient ground for disciplinary action by the University and can also evoke penal action from the sources which have not been properly cited or acknowledged.

Name of the student Birtukan Abebe Yilma Signature _____

Date of submission: October 2019

Place: Bahir Dar

This thesis has been submitted for examination with my approval as a university advisor.

Advisor Name: **Gebeyehu Belay (PhD)**

Advisor's Signature: _____

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Bahir Dar University

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School of Research and Graduate Studies

Faculty of Computing

THESIS APPROVAL SHEET

Student:

Birtukan Abebe — Signature — October 16, 2019 — Date

Name

The following graduate faculty members certify that this student has successfully presented the necessary written final thesis and oral presentation for partial fulfillment of the thesis requirements for the Degree of Master of Science in Information Technology

Approved By:

Advisor:

Gebeyehu Belay(PhD — Signature — October16,2019 — Date

Name

External Examiner:

Tibebe Beshah(PhD) — Signature — October16,2019 — Date

Name

Internal Examiner:

Tesfa Tegegne(PhD) — Signature — October16,2019 — Date

Name

Chair Holder:

Derejaw Lake — Signature — October16,2019 — Date

Name

Faculty Dean:

Belete Biazen — Signature — October16,2019 — Date

Name

ABSTRACT

E-Government brings to the public service delivery efficiency and effectiveness in government organizations. Not only efficiency and effectiveness but also cost savings and improved citizen participation. The Amhara national regional state land administration organization is one of government public service provider organization (ANRS LA). Because of urbanization and land administration is an important public service delivery organization, there is rising need for effective and efficient delivery of LA services. Howe ever the LA offices service delivery is time consuming, expensive, complicated generally inefficiency and ineffectiveness. These created difference (gaps) between the service users' expectation and the actual service provided by LA office. This study identifies current e-government status of LA organization. To identify e-government status core e-government indicators were used. That is listed by UN.

By using e-government core indicators survey questioner was developed. To conduct the research, both qualitative and quantitative research used. Primary and secondary data sources were used. Survey was the major data collection method. And the prepared questioner was distributed for the employees of selected ANRS urban land administration office (Bahirdar, Debirmarkos,Dessie,Gonder and Debirebirhan). From the total of 120 distributed questioner 110 collected. The collected 110 data on e-government status of LA organization was processed and analyzed using the SPSS.

The analysis of the collected data showed that only 16.6% of core e-government indicators are existed in selected ANRS LA organizations. That is from the total 100% of core e-government indicators only 83.4 % of core e-government indicators are not existed or available with insignificant amount in LA organizations.

The results showed that LA organizations e-Government status is low .which means from the asked lots of core e-government indicators very small number are available in the LA office. By using –government status and expectation of customers new e-government based LA frame work designed. The designed frame work also validated.

List of Abbreviations

Abbreviations	Full Representation
LA	Land Administration
ANRS	Amhara national regional state
ICT	Information communication technology
CEO	Chief executive officer
NGOs	Nongovernmental organizations
E- GOV	Electronic government
IT	Information Technology
MSc.	Master of Science
G2G	Government to government
G2C	Government to citizens
G2E	Government to employee
G2B	Government to business
UN	United nations
ANRS LA	Amhara national regional state land administration
GUI	Graphical User Interface

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CHAPTER ONE

INTRODUCTION

1.1 Background

Now days, concept of e-government has been increasing in a hurry because of Information and Communication Technology (ICT) advancement. Governments in different part of the world are now introducing e-government a strategic option to fine-tune the service delivery in different government sectors (Sara, Mohammed, & Mahmoud, 2016).Moreover, citizen empowerment through easy access to information, more efficient and effective government activities, reduction in administrative burden and cost, to promote transparency in the government processes are other goals of e-Governance. E-Governance would help to facilitate government to manage resources, implement plans and policies along with efficient service delivery to the citizens. Furthermore, e-Governance aims for easy dissemination of government information (between government-to-citizens (G2C), government-to-business (G2B) and government-to-government (G2G)) which consequently helps in improving the quality of government services and promotes participatory approach as well (Sarita , Susheel , Ganesh , 2015).

However, the concept of e-government differs among international agencies, governmental agencies (both at central or local level).Often, the term e-government refers to the use of information and communication technologies (ICT) inside and around government agencies with aim to provide better delivery of government services to citizens, improve interactions (between government-to-government (G2G), government-to-citizens (G2C) or government-to-business (G2B)), empower citizens or make agencies more efficient and democratic in general (TAM, 2010).

Land is a scarce natural resource that needs to be managed properly. The case is more so when it comes to urban areas where land serves as the platform for the provision of all social and economic services. This can be justified by the following arguments. First, land plays an important role for the manufacturing of goods and scenery. Second, it is a resource that provides in the form of rent, sale or harnessing its fruit from gains. Third, land as a resource provides public amenities and infrastructure and a range of functions. These activities may directly or

indirectly impact on the wealth of any nation, and its economic development relies on it. The World Bank (1999) asserts that urban land has become the base for socio-economic development serving as the main revenue source for Municipalities (Aklog, 2012).

So if land is such important resource it's very important to administrate as good as possible. So to have a good land administration we tried to identify the real situation in ARNS land administration office. Ones we identify all the challenge and prospects of ANRS land administration we proposed an e-government based land administration.

Land Administration is concerned with the processes of determining, recording and disseminating information about the ownership, value and use of land when implementing land management policies (UNECE, 2005). These processes or functions are organized into different agencies that are committed to serving a broad range of citizens with intensive interaction between government and citizen (TAM, 2010). These makes the task of land administration very complicated without the help of ICT. All the complexity, time taking and costly LA service delivery process can be handled by proper e-government implementation.

LA also provides land information and related data that are fundamental in political, economic and legal decisions for the best use of land and its management.

In general we designed an e-government based land administration framework work for the improvement of service delivery in addition with increased customer satisfaction and citizen participation and decision making.

1.2 Statement of the problem

Now a day's urban land administration is one of sensitive government public sectors with huge number of customers. And (Livang Qian, 2014) argue that urban land is one of the most valuable resources and it must be developed and managed carefully (Tesfaye, 2018).even thogh the LA organization is using ICT in some extent we observed that currently, difficulties are rising because of huge customers, complicated task, un able to serve the customers timely, corruption, inefficiency and ineffective service delivery.

Current service delivery in LA is not efficient with service related high cost. And there are number of organizational layers to process a single task. Customers are also face difficulties to find out supportive rules and procedures that can help them to follow up actions. This can highly increase transparency. Most of the activities of LA administrative transactions are not traceable and open to be challenged by customers. Generally there is less quality and in efficient service delivery with lots of delays and complicated and frequent visits to get one task done.

In land administration tenure insecurity, high transaction costs, land disputes, landlessness and inequitable land distribution, social instability, social exclusion and political instability, reduction in private sector investment, land grabbing and other problems will result (Abraha, 2018) will be familiar without handling it properly. When the government became unable to serve as good as possible, then illegal transfers, corruption, and inefficient service provision will be regular.

In the time pre-research period within selected ANRS Land administration offices observation and some review of compliant receiving note was made. From this observation we can see that Land administration offices have a huge number of customers (service recipients). All those customers came to the land administration office with different issues to obtain services of the office. From the pre research observation customers of the land administration gave repeated compliant about the situation of the office service delivery. It is routine that most service recipients came to the office repeatedly and waste their time to resolve unfinished cases, majority of services delivered with behind time.

The Above mentioned observations brings us to the reality that exist the gap among the expectations of customers from land administration services and what they are delivering by the land administration organization. Potential of e-government system has not been exploited yet to improve the transparency and efficiency of the service delivery of land administration offices in ANRS.

Government organizations are applying ICT to raise efficiency and effectiveness in the service delivery. e-Government can raise efficiency in service delivery, simple availability and accessibility of services and information to the customers, professional users as well as government organizations .

In the present context, efficient government service delivery, easy access to information and transparency are becoming important global agenda. Also these agenda are considered as the major goals of e-government. In order to achieve e-Governance goals many countries have introduced innovations in the field of Land administration. Since land is regarded as a major asset in most of the countries, land administration is a major sector of government. Therefore, effectiveness and efficiency in land service delivery and transparency in land transactions are most essential factors (Sarita , Susheel , Ganesh , 2015).

By taking into account the importance of e- government in general and particularly in land administration, we proposed to design e-government based land administration framework that can be able to fill the observed gap. We hope the proposed design will improve the efficiency and effectiveness of the land adumbration service delivery.

Some studies have been conducted on land ,All of them underlined on land policy, the impact of land policy on people's mobility, urban land lease policy, tenure security, urban land informality, land rights, Land valuations for expropriation, land registration, compensation, land use and management, and land certification in rural and urban land (Abraha, 2018).

All those mentioned researchers have not seen what the practice of e-government of the urban land looks like.

Hence, unlike the above mentioned studies, this study focused on the e-governance based land administration aspect of urban land administration town that are under ANRS, i.e.

- ✓ How e-government usage (status) in the selected urban land administration offices?
- ✓ What e-government framework is important to improve urban land administration?
- ✓ How to bring improved usage of e-government in the land administration offices?

Conceptual frame work

The following figure shows the conceptual framework that the study conducted in the inter life time of the research. The research first all will identify the status of e-government usage in the ANRS land administration organizations. To identify the status of the LA organization the study

used core e-government indicators which are listed out by UN. Then the study identified what gaps that are occurring among the requests of citizens on LA services, and the services being addressed by the LA organizations. And what challenges the workers faced to perform there job. The study designed design improved e-government based LA framework. In our study, the whole-organizational interaction (G2G), the interaction among the LA organization and employees (G2E) and the interaction among the LA organization and criticizes (G2C) are assessed to identify the gap (the need of customers and limits of LA not able to deliver). The whole-organizational (G2G) interaction represents the interaction among one land administration organization with the other. For example the interaction among regional LA office communicates with zonal LA office.

The identification of gap in terms of service delivery mechanism and interaction leads to identify the reasons behind the gap. Ones we find out e-government status of LA organization and the gap occurring, using those two us an input the study designed e-government based land administration frame work. Several practices of e-government and LA around the world are also be referenced throughout literature review to make out essential elements for the e-government based LA framework to be designed.

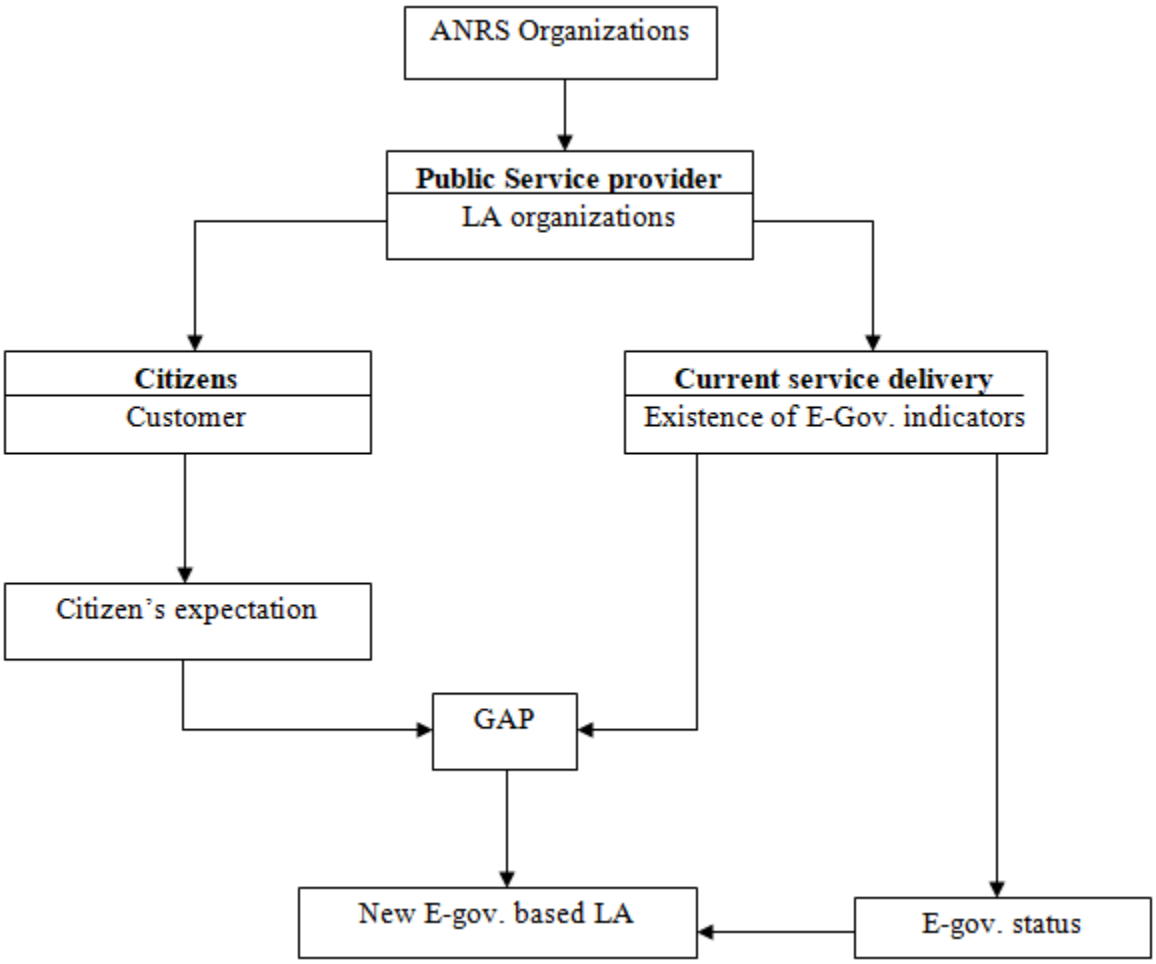


Figure 1.1: Conceptual frame work for designing an e-government based land administration framework

1.3 Objectives of the study

1.3.1 General objective

To design an e-government based urban land administration framework after assessing e-government (status) trend in the selected towns of ANRS urban land administration offices and identify challenges and prospects.

1.3.2 Specific objectives

To achieve the above stated general objective, we have specified the following specific objectives:

- ✓ To assess the trend (status) of usage of e-government in the ANRS urban land administration offices.
- ✓ To identify to challenges and prospects of e- government in ANRS urban land administration.
- ✓ To design e-government based land administration framework.
- ✓ To develop graphical user interface for the designed frame work

1.4 Scope and Limitation of the Study

The study was conducted under the ANRS selected towns urban land development and administration offices.

The main concern of the study was to assess e-government status under ANRS selected towns land administration office. The names of these towns are Bahir dar, Debiremarkos, Dessie, Debire birhan and Gonder. After finding the trend, challenge and prospect of the offices e-government status we designed appropriate e-government based urban land administration frame work. By this the organization will deliver a better service delivery to the customers.

1.5 Significance of the Study

The study will make contributions for ineffective and efficient service delivery of ANRS land management. The study seeks to identify the main challenges affecting the efficient and

effective land administration . The ANRS land administration officials will become aware of the status of e-government as well as they will be clear what challenge and prospects of e-government in their office. Ones they now the above issue they will strive to bring a better e-government implementation in their office to bring a better service delivery to their service recipients.

There is no research done on the implementation of e-government application in urban land administration office of ANRS. Hence, the academic significance of the study can be described as an input to professionals and other individuals who needs to conduct further studies to inspect and propos better and novel ideas to the improvement of land administration service delivery mechanisms.

Beneficiaries of the study

The study wills benefit Land administration offices, customers, and other governmental organizations use of this study to bring a better communication mechanism and to bring a better interaction.

CHAPTER TWO

LITERATURE REVIEW

2.1 E-government

E-government potentially enhances the social and economic development of countries by enabling improved access to government services. Examples range from better access to information on available services to complete online processing of requests for permits, certificates, payments, etc. Effective use of e-government can also improve the efficiency and effectiveness of the public sector and linkages between government agencies. Examples include the use of computers and networks to improve the personal productivity of government workers, and changes to more efficient business processes associated with a transition to electronic government services. In this context, an emerging imperative is to rethink e-government policies and programmers to exploit these capacities (UN, 2010).

2.1.1 Overview of e-government and e-governance

Despite the fact that many people use the term e-government, there is no clear consensus about what electronic government means (Kiflie, 2016).

According to (Reem, 2016) reasons why the differences in e-government definitions are as the following:

- ✓ Each country defines e-government differently from other countries relating to their political systems.
- ✓ Defining e-government from technical, culture, and managerial perspectives.
- ✓ Defining e-government depending on the stockholders in businesses.
- ✓ Some researchers define e-government regarding to its function, such as e-services, e-democracy, and e-governance.

While definitions of E-government by various sources may vary widely, there is a common theme that e-government involves using information technology, and especially the Internet, to improve the Delivery of government services to citizens, businesses, NGOs and other

government agencies. E-government enables citizens to interact and receive services from the federal, state or local governments twenty four hours a day, seven days a week (Nkwe, 2012).

E-government is a governance model focusing on the utilization of information and communication technologies (ICT) for the delivery of public services conveniently to citizens and other stakeholders (Heeks, 2006).

E-government combines various information and communication technologies (ICTs) to connect government agencies and institutions, promotes reorganization of governments internal and external information flows, activities and functions in order to provide effective service delivering, and offer a new improved interaction of citizens, business community with governments (Ciborra, 2016)

E-government is the government owned or operated systems of ICTs that transform relations with citizens, the private sector and/or other government agencies so as to promote citizens' empowerment, improve service delivery. Strengthen accountability, increase transparency, or improve government effectiveness and efficiency (World Bank, 2004).

E-government also refers to strategic use of ICT, in and around public administration, for the purpose of a 'wired' or a digital government (Homburg, 2008), or with aim to provide better delivery of government services to citizens, monitor government performance, improve interactions (between government-to-government (G2G), government-to-citizens (G2C) or government-to-business (G2B)), empower citizens or make agencies more efficient and democratic in general (Navarra & Cornford, 2003)

E-government has become a global phenomenon. The industrialized countries have used and continue to use it to provide effective, transparent and efficient public services (Bhatnagar, 2003).at the same time as the developing countries are initiating E-government policies and strategies with the support of bilateral and multi-lateral donor agencies . E-government promises the strengthening of government performance resulting in efficient and effective government and public administration, a necessary precondition for economic and social development (Hombur& Dijkshoorn, 2005)

E-governance is a broader concept and includes the use of ICT by government, business, NGOs, political parties and civil society to promote greater participation of citizens in the governance (Nkwe, 2012)

The above definitions encompass three critical transformation areas of e-government:

- ✓ **Internal** which refers to the use of E-governance platforms to improve the efficiency and effectiveness of internal functions and processes of government by interrelating different departments and agencies. By which, information can flow much faster and more easily among different governmental departments, reducing processing time, paperwork bottlenecks, and eliminating long, bureaucratic and inefficient approval procedures.
- ✓ **External** - it opens up new possibilities for governments to be more transparent to citizens and businesses, giving access to a greater range of information collected and generated by government. ICT creates also opportunities for partnership and collaboration among different governmental institutions, private sectors and other third parties in system of governance.
- ✓ **Relational** – ICT and E- government platform adoption may enable fundamental changes in the relationships between the citizens and the state, and between nation states, with implications for the democratic process and structures of government. Vertical and horizontal integration of services can be realized, enabling the integration of information and services from various government agencies to help citizens and other stakeholders get seamless services.

2.1.2 Classification of e-government

E-government brings customers (peoples, business, nongovernmental organizations (NGOs), and well as other governments) closer to their government, by these procedures become simplified and as the same time the privacy and security of its clients become safe. Therefore, there are four main, very wide, categories or models which e-government covers that symbolize the capacity of e-government

- ✓ **Government-to-Citizen E-government (G2C)**

  This categorization explains a citizen-centric approach to E-government. This model information will become available online to all customers. (Ebrahim &Irani, 2005).

  Objective: to provide satisfactory service to citizens in order to improve government to customers (citizen) relationship

  Activities:

  -information access, like benefits, loans, policies, and educational materials

  -individual business like, social services grants, loans, taxes

- ✓ **Government-to-Business E-government (G2B)**

  Government to business e-government heavily facilitates the private and government and sector business exchanges like tax as well as procurement evaluation in a technologically influenced environment.

  Objective: to provide better service to business such as eliminating redundancy of collection data and reducing transaction cost.

  Activities:

  -providing a single portal and an integrated database

  -Entering the e-market to gain cost-efficient benefits

- ✓ **Government-to-Employee E-government (G2E)**

  Government to employee e-government very heavily focuses on government and its employee. Hence, there are lots of peoples working under the government organization. So the model describes the technology-meditated interaction between government and its employees. And this will bring effective coordination of government operations therefore improvement in effectiveness and efficiency

of government business processes will happen. This embrace internal communications and inter and intra agency coordination.

Objective: to improve internal efficiency and effectiveness of government administration

Activities:

-reorganizing internal operational process to adopt the best commercial practices

-providing services to internal employees, such as training, payroll, travel and reimbursement.

- ✓ **Government-to-Government E-government (G2G)**

Government-to-Government e-government model refers to the interaction and provision of services between departments and government agencies facilitated through information and communication technologies (UN, UN Global E-governmentSurvey , 2003). This technology-enabled inter and intra-department relationships ensure the avoidance of duplication of efforts and resources (Lægreid & Christensen, 2007)

Objective: to enhance cooperation and collaboration between governments of different level and various physical locations

Activities:

-Sharing or integrating federal stage, local government database, as well as integrating separate system.

-enhancing collaboration as well as cooperation such as grants, law enforcements, public safety and emergency management

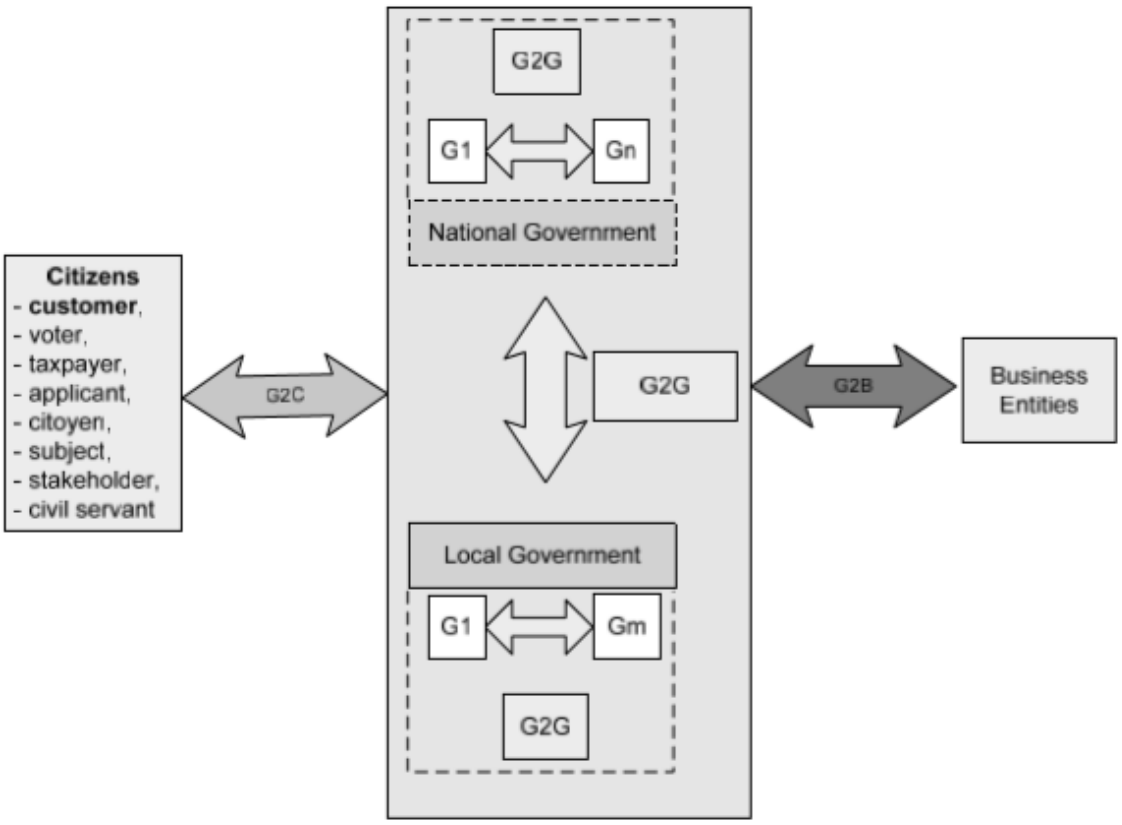


Figure 2.1: e-government concept Source (TAM, 2010)

2.1.3 Stages in e-government development

Stages of e-government are discussed as follows in reference with (Ramon & Ignacio, 2005):

Initial presence-: this happens when a country, state, or local government has a formal Presence on the Internet through a limited number of individual governmental pages (mostly developed by single governmental agencies). Governments in this stage normally offer static information about agencies and some of the services they provide to citizens and private organizations.

Extended presence-: In this stage, governments provide more dynamic, specialized information that is distributed and regularly updated in a great number of government sites. Sometimes a national government's official site serves as an entry point with links to pages of other branches of government, ministries, secretariats, departments, and sub national administrative bodies.

Some governments might start using electronic mail or search engines to interact with citizens, businesses and other stakeholders.

Interactive presence Governments use a statewide or national portal as the initial page providing access to services in multiple agencies. The interaction between citizens and different government agencies increases in this stage (e.g., e-mail, forums, etc.). Citizens and businesses can access information according to their different interests. In some cases, passwords are used to access more customized and secure services.

Transactional presence-: Governments begin to transform themselves by introducing two-way interactions between 'citizen and government'. It includes options for paying taxes, applying for ID cards, birth certificates, passports and license renewals, as well as other similar G to C interactions, and allows the citizen to access these services online 24/7. All transactions are conducted online (UN, United Nations e-Government Survey 2008 , 2008)

Connected presence -: Governments transform themselves into a connected entity that responds to the needs of its citizens by developing an integrated back office infrastructure (UN, United Nations e-Government Survey 2008 , 2008). This is the most sophisticated level of online e-government initiatives and is characterized by**:**

1. Horizontal connections (among government agencies)
2. Vertical connections (central and local government agencies)
3. Infrastructure connections (interoperability issues)
4. Connections between governments and citizens
5. Connections among stakeholders (government, private sector, academic institutions, NGOs and civil society)

Vertical integration this stage encompasses the integration of similar services provided by different levels of government. This integration can be virtual, physical, or both. Therefore, this stage does not refer solely to an incipient integration in the form of government websites, but to the change and reconstruction of the processes and/or governmental structures.

Horizontal integration in this stage governments need to cross organizational boundaries and develop a comprehensive and integral vision of the government as a whole. Vertical and horizontal integration do not necessarily happen together or sequentially.

2.1.4 Objectives of e-government

The objective of E-government is more than computerizing government offices; it includes gradually transforming the way the government works. But the process will take time and significant amount of re-engineering of processes. Hence, E-government is not just another way of doing existing activities; it is a transformation on a scale that will fundamentally alter the way public services are delivered. It does not have a time-line; rather it is evolutionary. The relationship is no longer just a one-way, government versus them citizens' proposition; rather it is about building a partnership between governments, and their citizens (Adeyemo, 2011).The most important anticipated benefits of E- government in developing countries are improved efficiency (citizens get connected to the government more easily using electronic means of communication. This results in better efficiency in public service delivery through faster dissemination of government information to a larger audience), increase in transparency and accountability of government functions, convenient and faster access to government services, improved democracy (Equal opportunity is given to all to access information irrespective of the person's physical location or disability and the elimination of the bureaucracy experienced in government offices), and lower costs of administrative services (interdepartmental exchange of information and merger of related services is enhanced among government agencies with an accompanying reduction of transaction costs, time, space and manpower) (Adeyemo, 2011)Through transformation/ re-engineering of processes using E-governance platforms, government should achieve the following(Al-Mushayt et al, 2009).

Efficiency

As with many information technology-related projects, one of the anticipated benefits is improve efficiency. It can be measured by reducing error and amount of time spent.so that will let them employees to develop on new skill.

New and Improved Services

This objective promoted by e-government supporters is the potential to improve the quality, range, and accessibility of services

Increased Citizen Participation

A third objective anticipated by some e-government advocates is increased citizen participation in government. One way this could occur is by connecting people who live in remote areas of the country so that they can send and receive information more easily.

Targeting Corruption

Open government can also support the fight against corruption, as electronic channels are easily inspected and controlled compared with personal interactions between citizens and officials.

2.1.6 E-government opportunity

In reference with (Kiflie, 2016) the fundamental opportunities of e-government in developing countries; embrace improved efficiency, boost in transparency and accountability of government functions, proper and earlier access to government services and minor costs for administrative services at last ensuring good governance. These benefits are realized in the following service quality coverage.

As (Ndou, 2004)pointed out the following Listed points are main opportunities of e- government for developing countries:

Cost reduction and Efficiency gains: The appropriate application of e-government may possibly reduce the number of inefficiencies in processes by allowing file and data sharing a cross government ministries/ departments, so contributing to the elimination of mistakes from manual procedures, reduced the required time for transactions.

Quality of service delivery to business and citizens: public service delivery of the manual model, the processes (procedures) are long, time consuming and lack of transparency.

Transparency, anti-corruption, accountability: e-government helps to improve the transparency of the decision-making process. E-government enables opportunities for customers to directly participate in decision-making, by allowing them to express their own ideas and suggestions in forums and online.

Increase the chance of government capacity: the application of e-government platforms for the reform of internal management transactions, communications and interrelationships and simple information exchange, enables significant chance to increase government capacity.

Networked community creation: e-government initiative platform needs a complex web of interrelationships among government, citizens, NGOs, businesses, employees and public sectors.

Enhanced decision-makings quality: e-government enables to create linked community, nonstop interaction and communication among government and its citizens and also other stakeholders contribute to the decision-making process.

Encourage application of ICT in other sectors: nonstop interaction and communication among government and its citizens encourages to the formation of awareness about the potential application of ICT to activities of local community. E-government plays a vital role in initiating the process of capability building and in managing the actions of a huge number of interested stakeholders.

2.1.7 Potential benefits of e-government

E-government has become a global phenomenon. The industrialized countries have used and continue to use it to provide effective, transparent and efficient public services (Bhatnagar, 2003).Here are some main potential benefits of e-government in reference with (TAM, 2010):

Increasing efficiency: The most outstanding advantage of e-government is the reduction of costs associated to services provided to citizens, businesses. An additional advantage is reducing layers of organizational processes by re-engineering and reforming operating procedures. Governments can shrink number of staff if suitable or reorganize staff in more helpful tasks. Internet-based application can generate savings on data collection and transmission, provision of information

and communication with customers. Significant future efficiencies are likely through greater sharing of data within and between governments.

Improve service delivery: here is another possible advantage of e-government, improving the quality, range and accessibility of services provided by governments to citizens and businesses. E-government can help customer by minimizing delays, merging multiple services under one roof, removing the need for frequent appointments to government offices, standing in queues, and enhancing geographic coverage to reach huge number of population. The use of ICT enables faster transactions and advanced information and data.

Increasing transparency, accountability: once we have put the right procedure, e-government can make financial or administrative transactions traceable and open to challenges by customers. Those who are in charge for particular decisions or task can be gladly indentified. By publishing rules and procedures online we can increase transparency. Customers can access and understand government rules and procedures to obtain a service by having better documentation for follow-up action.

Empower citizen or increase citizen participation: E-government give citizen's direct chance for feedback and discussion. E-government makes possible a better involvement of citizens leading to their empowerment.

Reducing corruptions: E-government has been used by a number of public agencies as an enabling tool that can help achieve broader goals of improving governance (Ciborra, 2016). E-government by itself cannot stop corruptions but it can bring a meaningful impact on reduction of it.

2.1.8 Challenges of successful implementation of e-government initiatives

E-Government and ICTs, in general, are powerful drivers of wealth creation and growth, but it continue with many confronts which slow down the examination and utilization of its prospect. The multidimensionality and difficulty of e-government initiatives mean the reality of a numerous of challenge and difficulty to its realization and administration. Here is some study of identified e-government challenges in developing country. Here is the brief introduction of each of the challenges according to (Ndou, 2004) research paper.

ICT Infrastructure

ICT infrastructure is documented the major challenges for government. For a shift to electronic government, structural design, that is, a direct set of principles, models and standards, is needed. Many developing countries experience from the digital divide, and they are not able to deploy the suitable ICT infrastructure for e-Government deployment.

Policy issues

Dealing out of e-Government main beliefs and functions needs a series of original rules, policies, laws and legislative transform to deal with electronic activities together with electronic signatures, electronic archiving, and freedom of information, data protection, computer crime, intellectual property rights and copyright issues. Commerce with e-Government means signing a contract or a digital agreement, which has to be protected and documented by an official law, which keep and secure these kinds of actions or procedure. In several developing countries, e-business and e-Government laws are not accessible.

Human Capital Development and Life Long Learning

A most important challenge of an e-Government initiative is the lack of ICT skills in the public sector. This is an exacting problem in developing countries, where the continual lack of skilled staff and insufficient human resources preparation has been a problem for years. The accessibility of suitable skills is essential for winning e-Government execution. E-Government obligate hybrid human capacity: technological, commercial and management. Technical skills for installation, maintenance, designing and implementation of ICT infrastructure, as well as skills for using and managing online processes, functions and customers, are necessary. To deal with human capital expansion issues, knowledge management project are mandatory focusing on staff preparation, seminar, workshops in order to produce the fundamental skills for e-Government management.

Change Management

Change management concern must be deal with as new work performs new habits of processing and performing tasks are established. E-Government properly designed doesn't simply save

costs and improve service quality; instead it modernizes and recreates the government processes and functions.

Partnership and Collaboration

In the e-Government expansion practice teamwork and assistance at neighborhood, district and countrywide levels, as the same time between public and private organizations, are essential elements. On the other hand, collaboration and cooperation are not easy to realize. Governments frequently display significant confrontation to open and clear systems as they try to protect their power, control and hierarchical status.

Strategy

The process of putting the right and context tailored strategy is one of the major challenge s for an e-Government project. Every project or initiative desires to be deep-rooted in a very careful, logical and active strategy. It looks very challenging task; that needs a focus on many features and processes, a holistic vision, long-term focus and objectives. A lot of public institutions restrict their actions to an easy move of their information and services online without taking into consideration the re-engineering process desired to grasp the whole benefits.

Leadership Role

The public sector present exclusive confront for leadership. Leadership is one of the major motivating forces of every new and novel project or project. Because e-Government is a difficult process, it comes by means of high expenses, risk and challenge, public organizations are in general difficult to establish of change. An important actor (organization, institution), which is able to recognize the actual expenses and benefits of the project, to inspire, pressure, embrace and maintain other organizations and institutions, is essential. Leadership is essential before, throughout and behind project realization. earlier than the project is initiated, leadership is preferred in order to explain the concept, the model and make consciousness; throughout the project, leadership is required to manage change and maintain the project; and after the project, it is desired to secure the essential elasticity and adaptability of the project.

2.1.9 Major objectives of Ethiopian E-government

According to reports of (Lishan Adam, 2012) in Ethiopia the E-government strategy has four objectives, these are:

Bring the government closer to the people (building a good relationship between government citizens): one of the objective of e-government approach is to boost the consciousness levels of the people regarding the services make available by the government and also their rights as citizens as well as build it easy for the citizens to pressure and participate in development of government policies. This participation is anticipated to build a sense of possession and culture of huge accomplishment leading to closer ties between the people and the government.

Effective governance: implementing e-government approach will guide to backend automation to a familiar collections of policies and standards showing to enhanced integration and information sharing among them and in turn making the public-sectors more effective and efficient in delivering their services and duties. And again, potental building to offer training to public service employees on skills that will allow them to serve the customers in more effective way is an important part of the general e-government strategy.

Service delivery of improvement: one aspire of e-government approach is the electronic enablement of 219 services to be delivered via alternate delivery channels such as: internet, mobile, call center and the citizen facilitation centers. Using these alternate channels will allow the citizens with the another of how, when and where they cooperate with the government to facilitate customer satisfaction levels with the government services. At the same time It is also showing that electronically enabled services would be not only faster and easier to access therefore; it leads to a visible improvement in quality of service delivery.

Growth of socio-Economic: private-sector involvement and deployment of its capital, entrepreneurship and competence will promote the realization of the E-government projects. On the same way, the private-sector would also beneficial from e-government program such as: government services will be delivered faster at the lower cost to the citizens therefore, resulting

in lower costs of doing business. This promotes economic growth and sustainability of the e-government initiatives.

2.1.10 E-government Stakeholders

The implementation of E-governance needs the active participation of key stakeholders in the whole procedure. Here are some of major stakeholders as each of them are listed and discussed under (Kiflie, 2016);

Political Leaders

Political leadership is extremely necessary whatever the statues of E-government initiative belongs. This is true for almost all nations and it is vital that the top leadership in the country is responsive enough towards the need for electronic governance.

Government Ministries/Departments/Agencies

The E- government awareness between the government employees and their motivation to hold transformation shall play a key role in the entire procedure. Public sector ministries/agencies integration have essential responsibility in providing their services simply synchronized way and potentially reducing tediousness and tiredness of service users here to there in accessing services from different agencies and organizations.

Legislative Bodies

Formulation and performance of well-crafted IT laws and policies is a requirement for the achievement of an e-government project and the role of law making bodies thinks dominant significance in this regard.

Citizens

Being the key beneficiaries of the whole process, the citizens play a crucial role as they are the ones to expect a fast and convenient delivery of online information and services from the government and would also contribute effectively to the process of policy making by voicing their opinion and views electronically.

Private Sectors

A healthy teamwork and partnership among the government and the industry/ private division entities shall direct to an easy completion of E-government goals as equally the parties can sketch help out of the project.

International Organizations and NGOs

These can take part in a vital role by being facilitators and motivators for the projects.

2.1.11 Shifting paradigms in public delivery

Paradigm shift of public sector administration and change of patterns as discussed in (Ho, 2002) .

Table 2.1: Shows paradigm shift of public sector administration and change of pattern

Paradigm Shift in Public administration		
	Bureaucratic Paradigm	E-government Paradigm
Orientation	Production cost-efficiency	User satisfaction, control and Flexibility led to efficiency
Leadership Style	Command and control	Facilitation and coordination, innovative entrepreneurship
Management Principle	Management by rule and mandate	Flexible management interdepartmental team work with central coordination
Process Organization	Functional rationality, departmentalization, vertical hierarchy of control	Horizontal hierarchy, network organization, information sharing

Internal Communication	Top down, Hierarchical	Multidirectional network with central coordination, direct communication and seamless channels
External Communication	Centralized, formal, limited Channels	Formal and informal direct And fast feedback, multiple channels
Mode of Service Delivery	Documentary mode and interpersonal interaction	Electronic exchange, non-face to face interaction
Principles of Service Delivery	Standardization, impartiality, equity	User customization, Personalization and citizen oriented

2.1.12 E-government in different countries experience

E-government in Botswana

Botswana's commitment towards is said by its president. Its government invests US$76 million on its grand, but very achievable E-government endeavor for 2011-2016 E-governance platform implementations (Nkwe, 2012).

Botswana is investing heavily on E-government. There is an increasing interest in the use of E-services by the public. The government has a website which provides a lot of information on different aspects of Botswana; on the website one can download the requirements and application forms of services without being in physical Contact with the government departments (Nkwe, 2012).

E-government in Kenya

The adoption of ICTs, Kenya has come a long way from the era of using mainframe computers to the modern world of wireless and mobile technology. In particular the e-government strategy outlines the objectives and process for the modernization of government that cover the entire range of government operations, impacting C2G, B2G and G2G as a means towards enhancement of transparency, accountability and good governance, hence making government more efficient, result oriented and citizen focused (SIAMBI, 2008).

Increased employees satisfaction through introduction of new work methods and removal of tedious and redundant processes (SIAMBI, 2008).

Table 2.2: Processing time statistics

Year	**No. of applications**	**Maximum processing time(months)**	**Number appointed**
2005	13,563	12	1,925
2006	53,617	5	3,517
2007	47,747	2	3,095

The Kenyan experience is well articulated by (Okong'o, 2005)where both studies show that the following factors are critical to the successful implementation of e-government project: First, senior Management Commitment and Leadership are essential for the participation of other government employees in the E-government objectives. Secondly, the government is poised to make adequate budgetary provisions and forge viable PPP will be useful for the implementation and roll-out and to invest in E-government projects. Thirdly, the

development of a regulatory framework for public-private partnerships in Kenya is ongoing. The fourth issue is the ICT Personnel: The recruitment, raining, re-training and retention of ICT professionals is critical to the success of any E-government strategy. The Fifth issue is in regard to management and process re-engineering. The Sixth issue touches on the need for an enabling legislation is required to achieve some of the objectives defined in the E-government strategy and finally, there is need for monitoring and evaluation.

E-government in Malaysia

Malaysian government has made concerted and sustained efforts towards ensuring the successful implementation of E-government. Apart from the implementation of various E-government platform flagships, it has developed and put in place institutional frameworks of integration and coordination mechanisms all these supported by necessary guidelines and ICT policies and legislations (Siddiquee, 2005).In line with the objective of providing efficient and quality services to the public electronically, various ministries and agencies within the government have introduced websites often allow the members of the public to express their views and opinions about the quality of services provided and lodge their complaints/grievances, these also serve as effective tools for public consultation and engagement which is signature of Good governance .

Status of E-Government in Ethiopia

The evaluation of e-government readiness index that embraces 191 countries was undertaken by the United Nations in 2001, 2003, 2004, 2005, 2006, 2008, 2010, 2011, 2012 of Ethiopia. The successive studies used the premise that the state of e-government readiness is a function of the combined level of a country's state of readiness, economic, technological development and human resource development. Final products of their analysis were the construction of a synthetic indicator named the e-Government Index and e-Government Readiness Index of Ethiopia is composite measurement of the capacity and willingness comparisons of 191 countries to use e-government for ICT4D (Kiflie, 2016).

-The Web Measure Index

The Telecommunication Infrastructure Index is a composite weighted average index of six primary measures of a country's ICT infrastructure capacity. These are: PCs/1000 persons; Internet users/1000 persons; Telephone Lines/1000 persons; online population; Mobile phones/1000persons; and TV's/1000 persons Web Measure Index 2005 is based upon a five stage model of e-government framework. These five stages are; emerging, enhanced presence, interactive presence, transactional presence and networked presence. These stages are similar to those described in an earlier framework.

-Telecommunications Infrastructure Index

The Telecommunication Infrastructure Index is a composite weighted average index of six primary measures of a country's ICT infrastructure capacity. These are: PCs/1000 persons; Internet users/1000 persons; Telephone Lines/1000 persons; online population; Mobile phones/1000 persons; and TV's/1000 persons.

-Human Capital Index

The data for the Human Capital Index relies on the UNDP 'education index' which is a composite of the adult literacy rate and the combined primary, secondary and tertiary gross enrollment ratio with two third weight given to adult literacy and one third to gross enrollment ratio

-E-Participation Index

The E-Participation Indexes used to assess the quality and usefulness of information and services provided by a country's government for the purpose of engaging its citizens in public policy issues. This index is indicative of both the capacity and the willingness of the country's government in encouraging the citizens in promoting deliberative and participatory decision-making and of the reach of its own socially inclusive governance program.

Table 2. 3: Ethiopian e-government status

Year	Indices Indicators	Rank of 191 Countries
2005	0.128	166
2004	0.1365	170
2005	0.1360	171
2008	0.1857	172
2010	0.2033	172
2012	0.2306	172
2014	0.25 and above	Middle E-government indexes

Source from (UN, 2010)

From the above table we can inferred that, Ethiopia is far reaching in use and apply internet which is pre request for interactive E-governance platforms, compared to its population and other African countries (Kiflie, 2016).

2.2 E-government for land administration

2.2.1 Land administration concept

"Land administration" as a term has been defined in many publications and in several vocabularies and different from country to country. For thesis research, a definition of selected publications was referred.

According to Williamson and Steudler (2002) Land Administration is defined as 'the processes of determining, recording and disseminating information about the tenure, value and use of land when implementing land management policies. It is considered to include land registration, cadastral surveying and mapping, fiscal, legal and multi-purpose cadastres and land information systems.

In order to tackle the difficulty of land-related troubles, government has introduced e-government practice in land administration

As well According (UNECE, 2005) Land administration is defined as "the process of determining, recording and disseminating information about the tenure, value, and use of land when implementing land management policies. It is considered to include land registration, cadastral surveying and mapping, fiscal, legal and multi-purpose cadastres and land information systems".

While this definition healthy for UNECE context, but not always just to apply to developing countries, which often have variety of tenure rule than just freehold (UNCE, 2015).

The explanation of land administration provided by FAO2 better responds to the realities of developing countries. FAO defines land administration as the way in which the rules of land tenure are applied and made operational (UNCE, 2015):

Land rights: the allocation of rights in land; the delimitation of boundaries of parcels for which the rights are allocated; the transfer from one party to another through sale, lease, loan, gift or inheritance; and the adjudication of doubts and disputes regarding rights and parcel boundaries.

Land-use regulation: land-use planning and enforcement and the adjudication of land use conflicts.

Land valuation and taxation: the gathering of revenues through forms of land valuation and taxation, and the adjudication of land valuation and taxation disputes

2.2.2 E-Government in Land Administration System: Challenges

Some of the challenges of implementing land administration systems in e-Government environment are discussed as follows in reference with (UNECE, 2005)

Land Administration System: Challenges from Government perspective and from citizens and business perspective

From Government perspective:

- Land delivery theory**:** shortage of theoretical basis to form their primary policy of land taking.

-Land delivery procedures are cross-cutting (unable to deliver sustainable development)

- Land parcellation: shortage of capacity to re-organize land parcels

From citizens and business perspective:

- Government sometimes has the opportunities for compulsory acquisition of private land for public purposes

- Land acquisition is a difficult cross-cutting matter, which sometimes makes developing countries to depend on NGOs for consultation expertise

- Land parcellation issue particularly in establishment of the limits of the development area, coherent arrangements with neighboring parcels, identification of the tenure of the developer, and the provision of facilities.

2.2.3 E-Government in Land Administration System: benefits

Regardless of the challenges mentioned above of implementing land administration systems in e-Government environment have the following benefits in reference with (UNECE, 2005)

From Government perspective:

-maintain land and property taxation

- Develop and monitor land markets

- defend land resources and maintain environmental monitoring

- smooth the progress of the management of State-owned land

- maintain rural land reorganization

- advance urban planning and infrastructure expansion

- generate statistical data

From citizens and business perspective:

-assurance ownership and security of tenure

- grant security for credit

- decrease land disputes

- advance urban planning and infrastructure development

2.2.4 Related work

According to (TAM, 2010) e-government was exercised in land administration to bring a better service delivery.

Netherlands

The Dutch Kadaster is the cadastre and land registry agency of the Netherlands. To observe the implementation success of e-government in land administration the following case study is presented with the presented quality.

- The system guarantees quality of data and products by ISO standards and by implementing national triangulation network and ensuring authentic registration procedure.

- The system adopts a computerized registration procedures and simplifiers the retrieval and process of data access, thus it can provide up to date information and timely available data to customers.

- The system has a sound product distribution strategy based on the one-stop-shop strategy providing ease and access to customers.

- Kadaster implements a coordination strategy and ensures good relationship with council of users maintains linkages with municipalities and maintains a Kadaster network.

- The Kadaster also institutes a program for capacity building and warrants that staffs have open and flexible attitude.

- The system is protected and officially upheld by the Kadaster Organizational act, Kadaster act and the Land Development act.

- Compulsory registration of real estate transaction that assurance the system is entirety and consistently.

- Updates are based on brief performance and land surveys.

Nepal

In Nepal current efforts are focused with the transfer from paper based system of land administration to digital system of land administration. As an initiative towards e-Land administration, different systems have been developed for different purposes. For example, Parcel Editor (PE) has been developed for the processing of the cadastral data acquired from the field. It was a system developed for first registration. And there are two different applications developed to manage regular activities of land administration.

CHAPTER THREE

RESEARCH METHODOLOGY

In order to achieve our stated objectives, we have employed the following methods.

The study worked on assessing the trend, challenges and prospects of e-government practice in urban land administration in the case of ANRS selected towns'. The research is carried out in Bahirdar, Gonder, Debremarkos, Debirebirhan, and Dessie, selected of urban land administration towns. Both qualitative and quantitative research methods have been applied for this study. Survey consists of questionnaire (close ended and open ended questions), interview (semi structured interview) and observations are also used. Accordingly, the study cross -checked data in order to answer study objectives. Through the survey question and other data collection mechanism the e- government status identified. After getting the extent e-government status through the collected data, researchers designed an appropriate e-government based urban land administration.

The researchers selected those listed towns land administration office after critical observation and aimed identify the extent of e-government in those offices and to design e-government land administration based framework that can bring better public service delivery to the office and to fill gap that exist in urban land administration. Starting from the beginning to the accomplishment of the research, the researchers used a both qualitative and quantitative research because this would enable them to collect data from lots of peoples at one particular point in time.

3.1 Study area

The study area covers Land administration offices that are under ANRS selected towns .the selected towns are Bahir dar, Gonder, Debire markos, Dessie and Debire birhan which are located at different geographic place of the region. 110 Employees under these land administration offices are asked to fill a questioner. From the target population of the study we have selected only professionals and ICT experts, this is because the we suppose that these employees have better academic knowledge and information with reference to the issues of the study.

3.2 Research design type

The study was conducted by employing both qualitative and quantitative research approach. And Survey was employed as a research strategy. And questioners, direct observation, and interviews and verities of documented used under the research method.

Here are four main phases that the research designed. It's described below.

Phase 1: Research proposal and preparation phase. This phase Started by reviewing literatures. The major actions of this phase are development of research proposal, and preparation for data collection. Under the research proposal research problem, objective and research questions and methodology are included. The activity of preparation for data collection includes preparation of survey questioner, communicating with ANRS selected urban land administration towns.

Phase 2: before distributing to the whole respondent, we performed pilot study. To fill the questioner the study selected LA employees. From them ICT experts, CEOs and ICT trend employees are the one who participated to fill the questionnaire. Employees are he one working under the selected LA office. Relevant reports, legal documents and policy documents were collected as the secondary data.

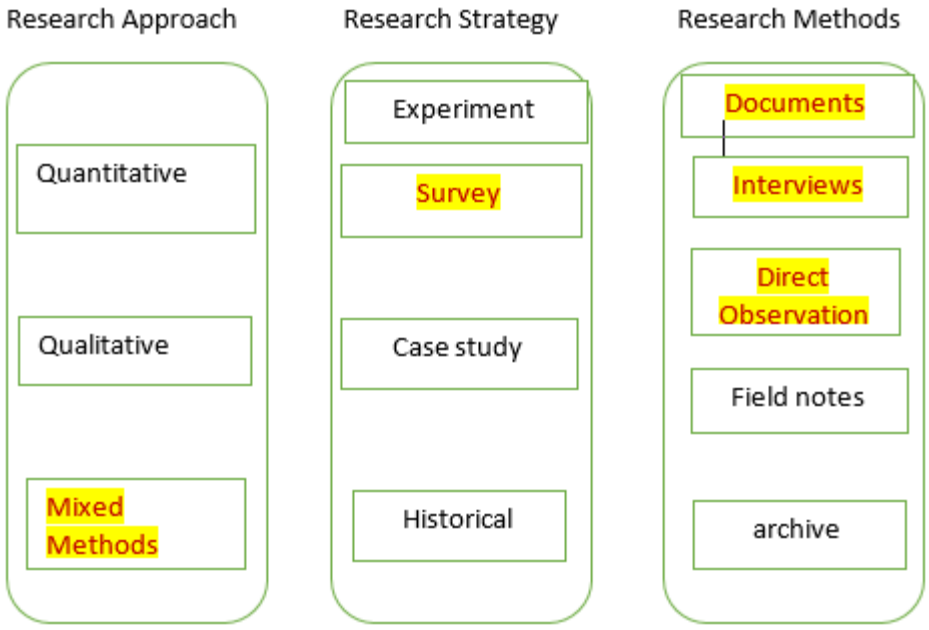
Phase 3: the data collected through survey and other methods stated to be Analyzed and Designed. Analysis is done to identify status of e-government in the LA organazation and the gap of citizen expectation with the actual service delivery mentioned in the conceptual framework. The study used SPSS (Statistical Package for Social Science) software for quantitatively analyses the data. In (Glasow, 2005) Survey research is described as a method that can be used "to answer questions that have been raised, to solve problems that have been posed or observed, to assess needs and set goals, to determine whether or not specific objectives have been met, to establish baselines against which future comparisons can be made, to analyze trends across time, and generally, to describe what exists, in what amount, and in what context". Applying Survey method for the study is considered to be important for articulating actual community settings, uniqueness of a population and community opinion. As Pinsonneault and Kraemer defined a survey as a "means for gathering information about the characteristics, actions, or opinions of a large group of people" (Glasow, 2005).Surveys can also be used to

assess needs, evaluate demand, and examine impact (Glasow, 2005). Using the result of analyzed data the researchers guided to design e-government based LA framework. To perform the design phase Literature review was required.

Phase 4: the researchers validated and discussed on deigned frame work. The system designed at this stage is validated through developing a prototype. And at last, conclusion is drawn and some recommendations are made.

To guarantee the validity of instruments for data collection, expertise view was asked for from different scholars concerning the development of the questionnaires. The pilot study was conducted on 8 employees of Bahir dar town land administration office employees and IT experts. After observing the pilot study we translated the questioner into Amharic language. We also worked questionnaires to be simple to be answered. Respondents were convinced to answer the survey questioners that the research was used only for academic purposes. We worked hard to avoid ambiguity in the survey questioner they believed to answer.

The designed e-government based land administration frame work is validated on the basis of scientific knowledge acquired from literature reviews, and by developing a system graphical user interface prototype. The survey data collected from the selected ANRS urban land administration towns was used to simulate the prototype.



Source (yigzaw, 2018)

Figure 3.1: Research Methodology Selection

3.3 Data source and data collection techniques

The data required the study was collected from selected ANRS selected land administration organizations. A primary and secondary source of data was collected to this study. Observations primary data were collected through questionnaires, interviews.

The questioners were designed both close ended and open-ended questions. The prepared questioners were distributed for the selected land administration organizations employees who are under ANRS. The questionnaires were distributed for 120 employees. The distributed questioner was filled (answered) by 110 employees. The mentioned employees were the one who are employed and working under the ANRS land administration organization under the. Interviewees were performed with the selected land administration CEO and the organizations IT experts.

The collected data from secondary data sources were from written articles, internet sources, reports (like UN reports), public sector's documents (organizational diaries), published and unpublished materials and other relevant materials which are important for the topic understudy.

3.4 Sampling techniques and sample size

We used purposive sampling technique; we purposively selected the mentioned five (Bahirdar, Gonder, Debremarkos, Debirebirhan, and Dessie) urban land administration towns. From those selected towns we used equal number of participants to fill the survey questioner.

The pilot test was conducted that aimed to refine the questionnaire to ensure that respondents have no problems answering the questions. It assesses, also, the validity and reliability of the questionnaire. A pilot study was conducted prior to the beginning of the full study. The responses showed the general easiness of completion of the questionnaire. There were some comments for improvement from the respondents. Then we distributed 120 questionnaires but we collected 110 questionnaires. Then responses have entered into SPSS version 23 windows for the statistical analysis.

3.5 E-government core indicators

For the assessment of e-government, core e-government indicators are prepared by UN. Indicators have been developed by international organizations, academic establishments and individual countries.

In order to measure and compare the status of e-government, a set of feasible, relevant and comparable indicators is required. Such indicators are useful inputs to the formulation of policies and strategies for effective government. (ECA, 2012)

Because of the ability of E-government to enhances social and economic development of countries by enabling improved access to government services. It's very important to identify the status of e-government in any level (ECA, 2012).

E-government has been growing rapidly over the past 17 years since the first attempt of the United Nations to benchmark the state of e-government in 2001. The 2018 Survey highlights a persistent positive global trend towards higher levels of e-government development. In this

edition, 40 countries score “Very-High”, with EGDI values in the range of 0.75 to 1.00, as compared to only 10 countries in 2003, and 29 countries in 2016. Since 2014, all 193 Member States have been delivering some form of online presence (UN, UNITED NATIONS E-GOVERNMENT SURVEY , 2018).

Therefore, the analysis of public administration is essential and a way for e-Government development assessment. Such assessment assists public sector organizations to determine their web strategy, achieve resilient and sustainable policies and operations, and inform policy-makers and agencies about how e-Government has performed from a citizen’s point of view. Since local government has the greatest direct contact with citizens, it is critical to collect and exploit regional and local-level data, as the more resources that are allocated at the sub national level, the more value its citizens obtain (UN, UNITED NATIONS E-GOVERNMENT SURVEY , 2018).

Consequently, a need to move the focus of assessment of e-Government development to different levels of public administration emerges. It is expected that local level e-Government assessment will improve public services, citizen engagement and authorities’ transparency and accountability. Local e-government could also be used as a tool to propel resiliency and sustainability goals and align local government operation with national digital strategy plans. Assessment results could produce useful benchmarks, which can lead to further improvement and application of best practices (UN, UNITED NATIONS E-GOVERNMENT SURVEY , 2018).

To assess the LA organization e-government status we need to identify existence and implementation of core e-government indicators.

To identify a particular local government organization as “very high”, “high” ,“middle” and “low” the list of core e-government indicators existence in the organization service delivery process matters. If 75%-100%(o.75-1.0) and above e-government core indicators are existed and implemented in the service delivery process the organization is classified very high e-government status .again If 50%-75%(0.5-0.75) and above e-government core indicators are existed and implemented in the service delivery process the organization is classified under high e-government status. Similarly If 25%-50% (0.25-0.5) and above e-government core indicators are existed and implemented in the service delivery process the organization is classified under

middle e-government status. At last if the organization implemented less than <25 %(<0.25) of core e-government indicators then it is under low e-government status

United Nation e-government survey which done in 2010 listed out the core E-government indicators which are listed like: percent of staff in LA government institutions with computer access, percent of staff in LA organizations with internet access, availability of website in LA organizations, percent of LA organizations with website or data base, percent of ICT personnel in LA organization, annual ICT budget consideration from the total expenditure of LA organization, amount of expenditure for human capital(ICT skilled) from the total ICT budget of LA organizations, percent of open source software, percent and type of application used in the LA organization, percent of staff who are trained on use ICT on LA organization and availability of mobile broadband in la organization, availability of narrow band in LA organization, existence of security problems in the LA organization, willingness to accept new technology, support availability in the time of ICT related problem happening in the LA organization of ANRS.

. The lists of these 18-core e-government indicators are presented below.

Capacity Indicators	
EG1	Percent of staff in government institutions with a computer, disaggregated by gender
EG2	Percent of staff in government institutions with Internet access at the office, disaggregated by gender
EG3	Percent of government institutions with websites and/or databases
EG4	Percent of government institutions with corporate networks (LAN, intranet, extranet)
EG5	Percent of government institutions offering mobile phone technology accessible platforms
EG6	Percent of ICT personnel in government institutions, disaggregated by gender
EG7	Number of intrusions and hacking of networks and websites of government institutions
EG8	Percent of spam messages per total email messages received
EG9	Percent of expenditure on ICT per total expenditure of government institutions
EG10	Percent of ICT budget spent on institutional capacity-building and human resource development
EG11	Percent of government institutions with access to the Internet by type of access (narrowband, fixed broadband, mobile broadband)
Usage Indicators	
EG12	Percent of open source software vis-à-vis proprietary
EG13	Percent and type of applications used, e.g. word processing, accounting, data base, website
EG14	Percent of staff in government institutions who are trained on use of ICTs, disaggregated by gender
Transformation Indicators	
EG15	Percent of government institutions providing services online and type of services; e.g. retrieval and printing of online forms, use of interactive online forms, online bids, payment of bills, tax filing applications, company registration, car registration, voting, public grievance systems, online feedback
EG16	Percent of requests processed using ICTs vis-à-vis overall number of requests
EG17	Percent of requests processed online vis-à-vis overall number of requests processed using ICTs
EG18	Degree of satisfaction of e-government service users, disaggregated by gender

Figure 3.2: The listed core E-government we collected and analyzed the collected data as follows. Source (UN, 2010)

3.6 Data preparation and data analysis

After we collected primary and secondary data it was prepared for analysis. Which was done by organizing and encoding in to **SPSS** (statistical package for social studies), when SPSS is one of the most popular statistical package which can perform highly complex data manipulation and analysis easily.

To simplifying all recorded data transcription were made the on the recorded data into Statistical Package for Social Studies (SPSS) version23 window Editor Texts the data analysis and. After getting the transcribed data then further interpretation was performed by using simple and appropriate mathematical and Statistical tools like tabulation, frequency, percentage and regression coefficients.

Results were presented through graphs, tables and narrative texts. Analysis was carried out in relation to the research objectives and questions which lead to result and discussion.

Then again, we followed the following five steps to perform the research data analysis; **Compiling, Disassembling, Reassembling, Interpreting and concluding** of data (Eshetu, 2015).

Ones we have a compiled data we precede into disassembling it. Disassembling would bring the data into smaller fragments or pieces procedure accompanied by assigning new labels, or codes to the fragments or pieces, for preparing analysis. The rearrangements and recombination were facilitated by illustrating the data graphically or by arraying them in lists and other forms for clear analysis.

To make sure the quality of the collected data (data that was collected using the above mention tools) passing the following steps was mandatory (Kiflie, 2016).

- **Validation** help full to confirm the required amount of sample size acquired.
- **Editing-** errors and omissions let to be find out , and then the returned questionnaires were tested for:
    - Completeness – it lets us to confirm if all questions was answered.
    - Accuracy – it lets us to confirm if all are answered accurately, not carefully nor intentionally confused.
    - Uniformity – it lets us to confirm instructions was followed correctly
    - Consistency – it lets us to check those questions that couldn't be commonly exclusive.
- **Coding** – in this step we were able to decrease the mass of data to a form of appropriate amount for the analysis and interpretation; codes were constructed into the questionnaires.
- **Data Presentation** –SPSS functionality is used for data summarization and presentation.
- **Analysis and Interpretation -** appropriate statistical tools such as frequency tables, percentages, and charts are used in the analysis, interpretation, presentation and drawing of conclusions.

3.6.1 Data collection and preparation

For this study 110(from the total 120 distributed 110 returned) respondents data was collected from the selected ANRS land administration organizations. Ones the data was gathered every necessary operations of data selection and data preparation we carried out.

3. 6.2 Description of the data collected

To perform this research we have collected from employees of LA organazation employees. Participants were IT experts of the selected ANRS selected town's urban land administration organization offices and CEOs. The collected data have about 110 records and 18 attributes.

Table 3.1 : list of attributes

ATTRIBUTES	VALUE	DESCRIPTION
Percent of employee with computer	number	The amount of employees(in percent) in the organization who have computer to perform their job from the total employees in the organization
Does the organization have internet connection	text	It identifies weather the organization have internet connection or not, that can facilitate employees day o day job activity
Does the organization have website	text	It identifies weather the organization have a web site
Frequency of website updating	number	How frequent the organization website used to be update
Frequency of security problems	text	How frequent the organization facing security problems

Number of mobile plate form	number	How many number of mobile application software are available to facilitate the organization service
Number of application software's used in the organization	number	Number of application software that are that the organization is using
Comparison Computer supported activities accomplishment status than non computer supported ones	text	How better performed computer supported employees to accomplish their job than employees who are without the support of computers
Availability of mobile broad band	text	Does the organization have mobile broad band
Availability of fixed broad band	text	Does the organization have fixed broad band
Availability of narrow broad band	text	Does the organization have narrow broad band
Availability of online transaction	text	Weather the organization have online transactions with the customers like bids, feedback, inventories.
Employees internet usage frequency	Text	How frequent employees use internet to support their organizational job/activity
Amount of employees who are using internet in the office	Number	How much of the employees (in percent) are using internet in the given organization to support their activity from the total employees in the organization

annual Budget consideration for ICT	text	How serious the organization conceder to spend money for ICT
Challenges to use ICT in the organization	text	If any challenge employees considering the organization not to using ICT
The employees willingness to implement new technology	text	How willing employees of the organization is to accept new technology
Weather all ICT based service are easy to access or not	text	How easily employees are able to give services to the customers when they are using ICT supported activities

3.7 Graphical user interface

For the designed new e-government based LA framework we develop Graphical User Interface (GUI) by using Php. For the prototype GUI development we referred the SPSS analysis survey result which is named e-meret astedader(e-government based land administration). here are some major UI samples from the developed system.

3.7.1 Urban land administration user interface

The following figure shows the graphical user interface of e-government based land administration user interface for admin sign in page.

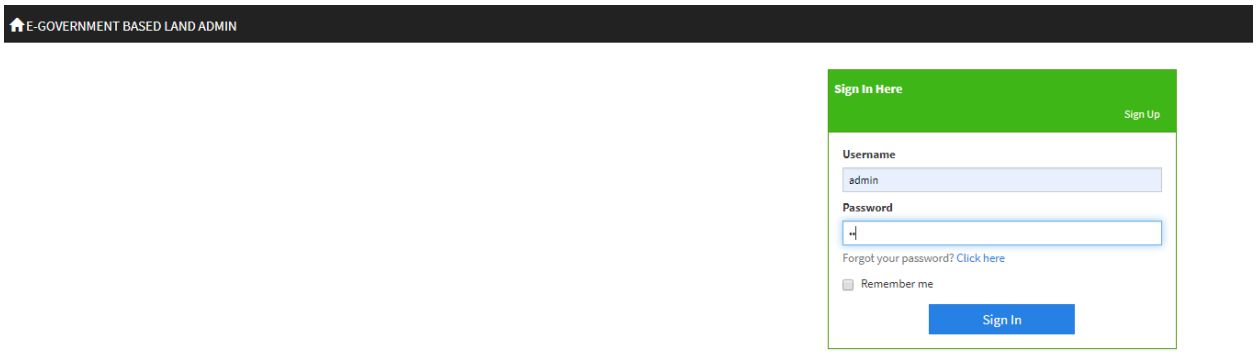


Figure 3.3: User interface prototype for sign in page

The admin sign in interface accepts a user name and password from the land administration employees, after click on sign in button it directly redirects into graphical user interface of e-government based land administration system prototype admin dashboard. That designed for ANRS urban land administration.

The following figure shows the graphical user interface of e-government based land administration user interface for admin dashboard.

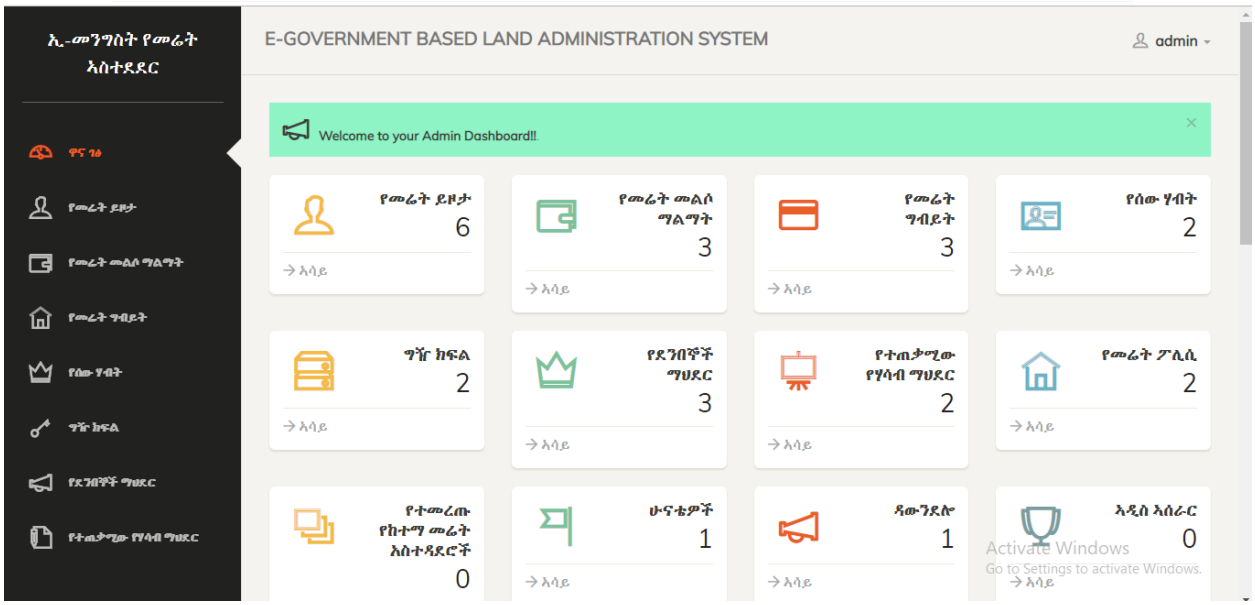


Figure 3.4: User interface prototype for admin dashboard

Description

The admin dashboard interface contains all the major functionalities of land admintration.onces admin is into the dashboard he can go to meret yizota,meret melso makuakuamiya,yemeret yizata,yesewu habt, gizi kifil and others .

The following figure shows the graphical user interface of e-government based land administration user interface for meret yizota

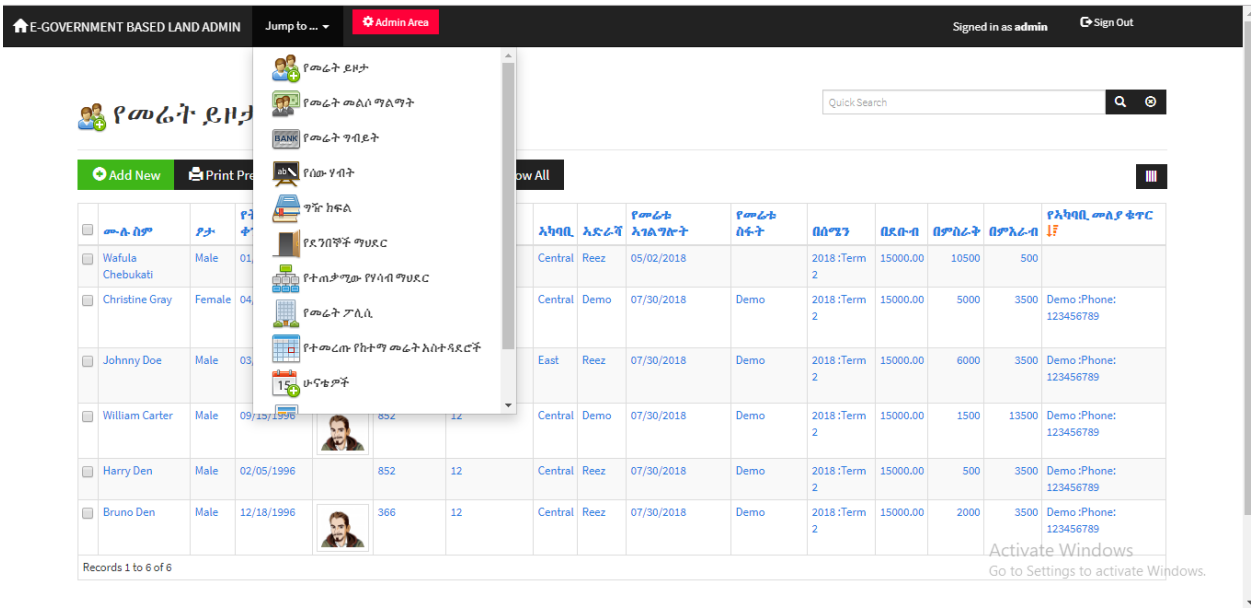


Figure 3.5: User interface prototype for meret yizota

Description

Under yemeret yizota admin can add yemeret yizota in to the database. And similarly admin can downloads yimeret yizota documents.admin also can filter yimeret yizota lists as it is required.

The following figure shows the graphical user interface of e-government based land administration user interface for meret yizota add form

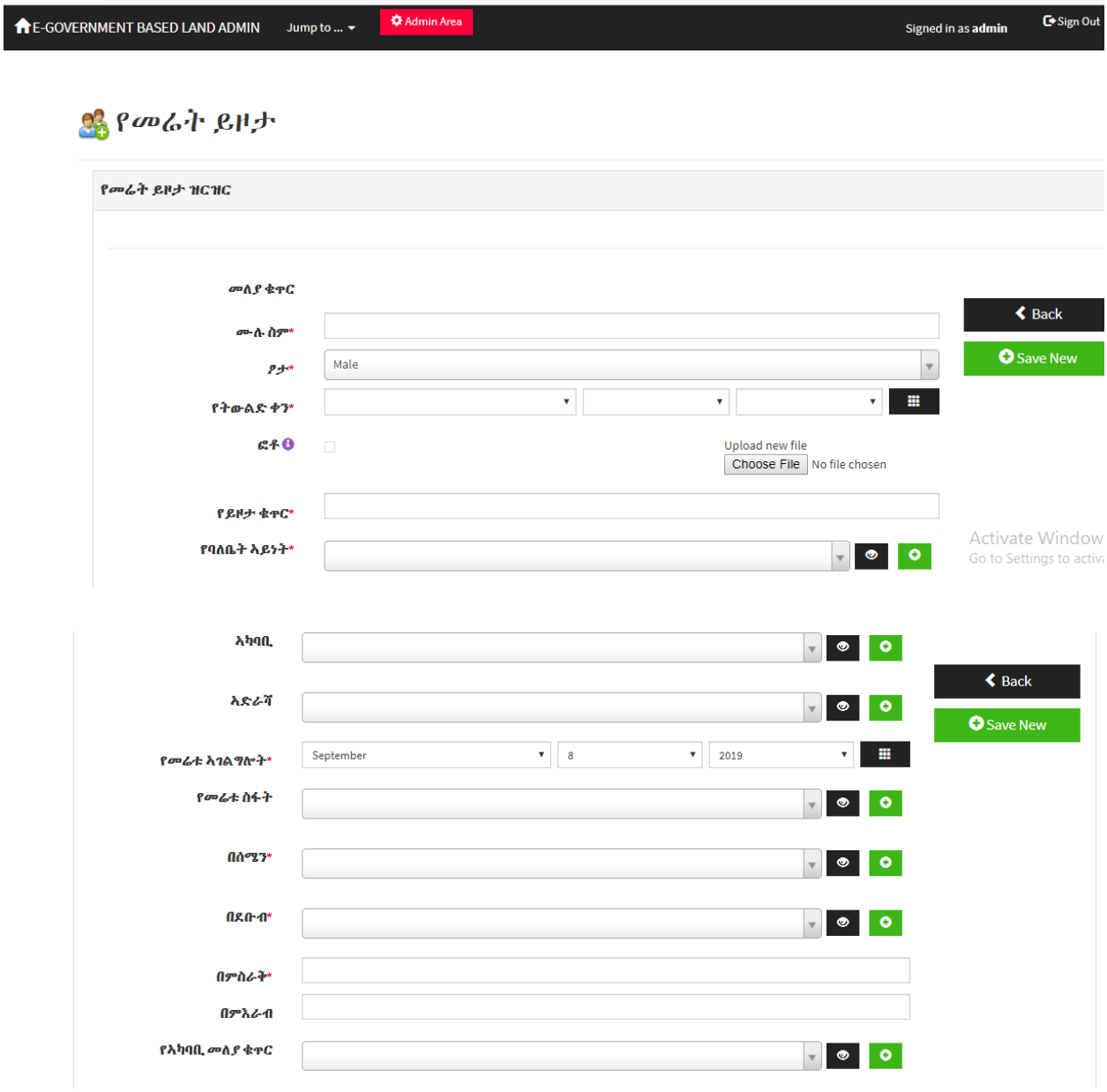


Figure 3.6: User interface prototype for meret yizota add form

Description

Here is the add form for meret yizota. The form contains different information about the yizata meret goining to be added to the data base.

The following figure shows the graphical user interface of e-government based land administration user interface for meret gibiyit

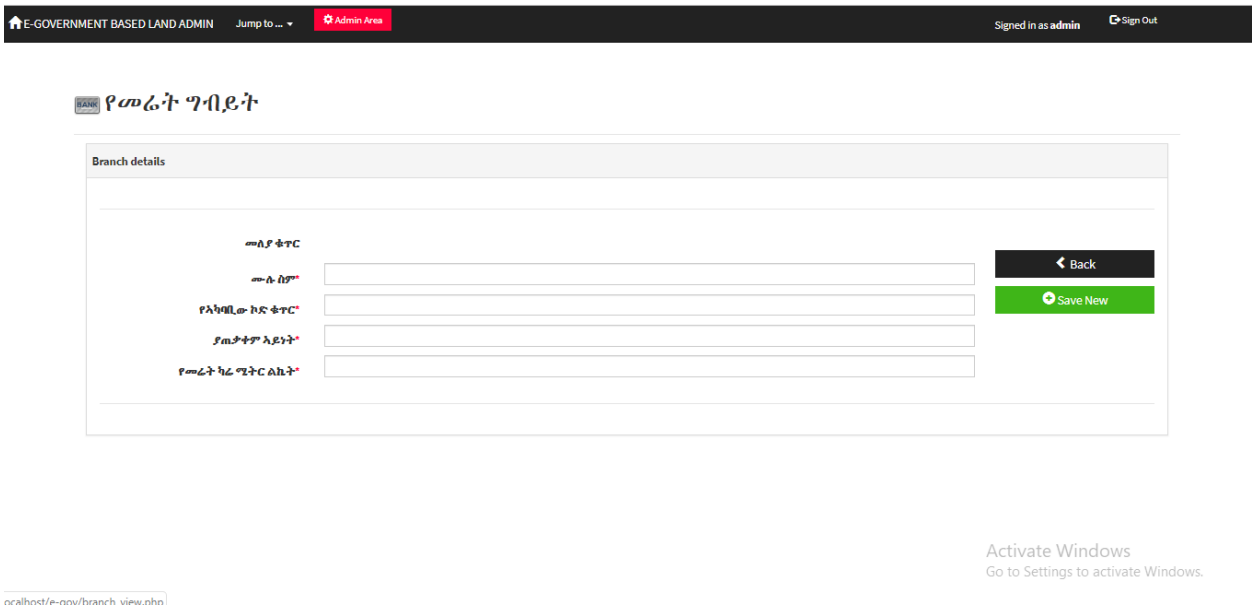


Figure 3.7: User interface prototype for meret gibiyit

Description

Yemeret gibiyet is one of the major task forms. This also used to register yemeret gibiyt related data to the data base.

The following figure shows the graphical user interface of e-government based land administration user interface for meret meliso malmat

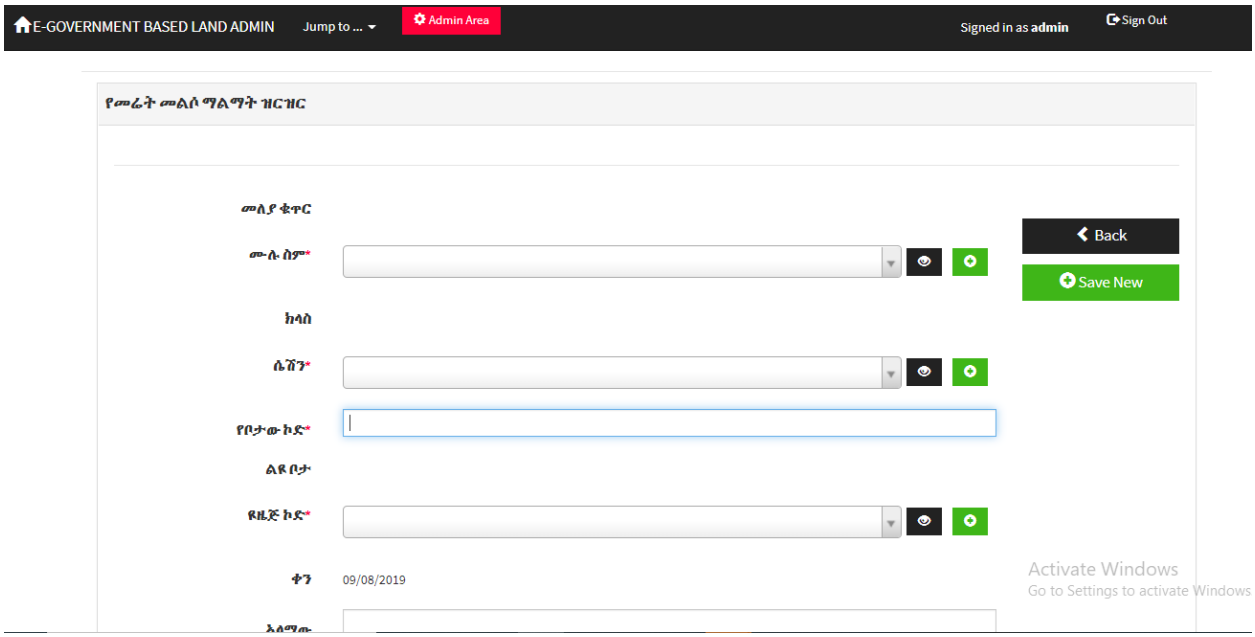


Figure 3.8: User interface prototype for meret meliso malmat

Description

Yemeret melso malimat is one of the major functionality of the system. This form allows administrator to insert and update any meret melso malmat related data into the data base.

CHAPTER FOUR

RESULT AND DISCUSSIONS

This chapter discuss on experiment result that will clarify the raised question. The data collected (both quantitative and qualitative) put into analyzing tools to be unanalyzed systematically.

The data were collected at five different locations of ANRS public sector organizations of employees. The pilot test was conducted that aimed to refine the questionnaire to ensure that respondents have no problems answering the questions. It assesses, also, the validity and reliability of the questionnaire. A pilot study was conducted prior to the beginning of the full study. The responses showed the general easiness of completion of the questionnaire. There were some comments for improvement from the respondents. Then we distributed 120 questionnaires but we collected 110 questionnaires. Then responses have entered into SPSS version 23 windows for the statistical analysis.

4.1 Demographic data of respondents

The analysis of respondent profile in the study mainly pays attention on three things about demographic information. It includes the individual data of respondents, like sex and age composition and if they are information technology trained or not. In the following successive tables we will show the total demographic characteristics of the respondents. The study demographic analysis performed based on the total (110) number of respondents.

Tables 4.1 represent the distribution of gender from the total respondents. For that reason about 44.5 %(49 respondents from 110) respondents are females (which is less than from males of LA office employees) and the amount of mail respondents become 55.5 %(61 respondents from the total 110). This clearly demonstrates that the greater parts of the respondents are males. Therefore, males are dominant than females in the study respondents survey.

Table 4.1 Gender distribution of LA office respondents

SEX	FREQUENCY	PERCENT
FEMALE	49	55.5
MALE	61	44.5
TOTAL	110	100

Table 4.2 below demonstrates that most of the study respondent's age laid on 18-30 years old which covered 47.3% and similarly another large amount of respondents age range is 30-40 which also covered 47.3% about 6% of the respondents that ranges greater than 40 have the age ranged. The greater part the respondents laid under the age group of 26-30 and 31-35. Therefore, it can be implied that youths are actively working in the LA office and that will be very important to the office to implement e-government and bring a better service delivery to the customer. It is a general fact that youths are full of energy and they will improve of e-government the situation in the LA office in their coming working period.

Table 4.2: Age of the respondents of the study

AGE	FREQUENCY	PERCENT
18-30	52	47.3
31-40	52	47.3
>40	6	5.5
TOTAL	110	100

Table 4.3 below demonstrates that all of the study respondent's (110 respondents) are IT educated (trained). This makes sure that all of the respondents will answer the questioner without difficulty. And that is important to identify e-government the status of the LA office. And in the future e-government implantation under the LA office; employees will be competent and

appropriate to Handel all e-government related task. As well the e-government service will be delivered to the customers as it deserve.

Table 4.3: IT education status of the study

STATUS	FREQUENCY	PERCENT
YES	110	100
NO	0	
TOTAL	110	100

4.2 Percent of staffs with computer access

From The analysis of the collected data 86.4% participants responded that from the total of the organization employee 50%-75% employees have the access to the computer. And 13.6% of the respondents replayed that 75%-100% of the employees have a computer access to perform the organization activity. This result shows that the organization is using computers in some extent but not all of the organization activity is done using a computer. The organization need to allow computer available to each department and to all employees since computers will increase the organization productivity by the software running on them. Workers will be able to sort, organize and search and easily access vast amount the organization data. Because computer can use its stored information more efficiently than any other device .Having access to this type of device can make the organization a better service delivering organization to their customers. Performing all the activities in such a way will save time.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	75%-100%	15	13.6	13.6	13.6
	50%-75%	95	86.4	86.4	100.0
	Total	110	100.0	100.0	

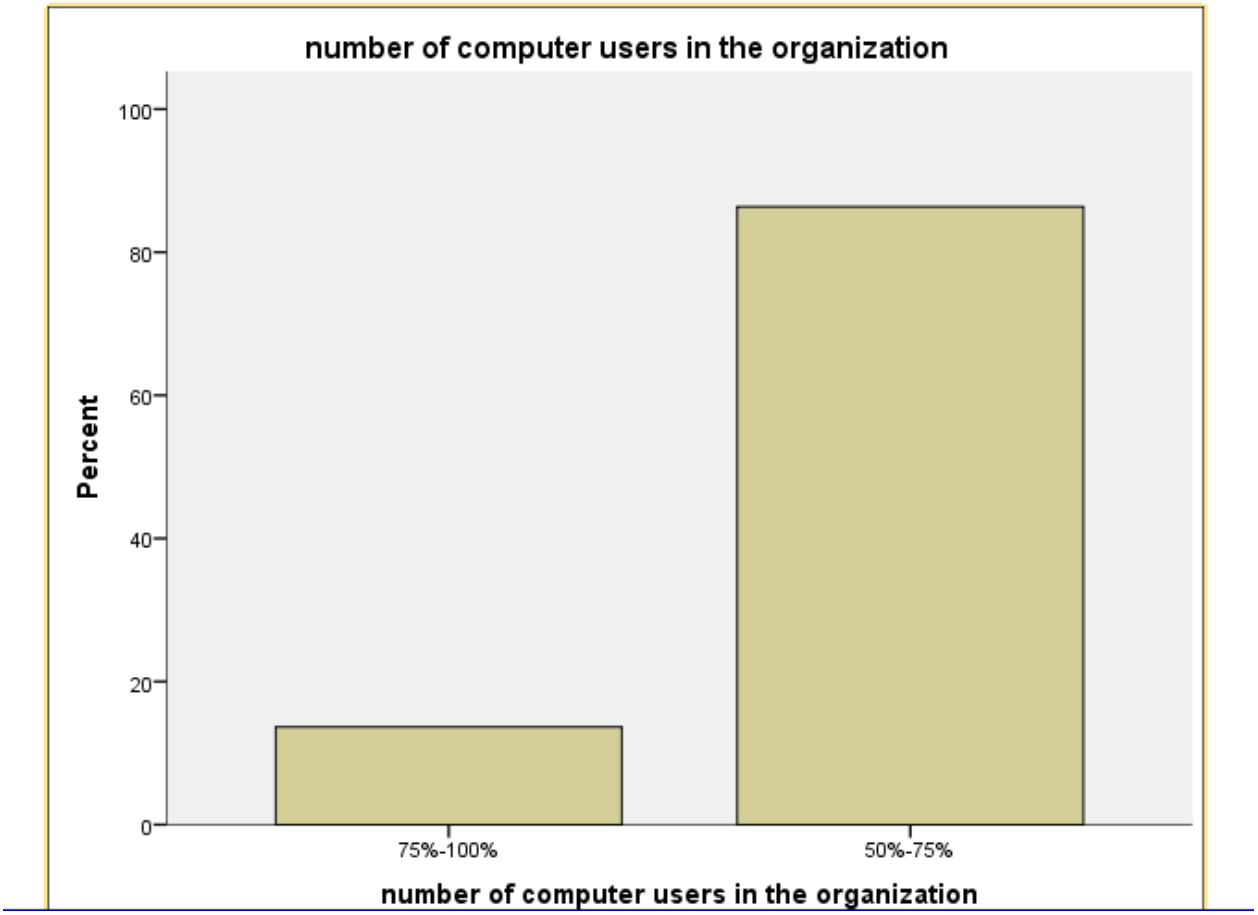


Figure 4.1: percent of staff with computer access

4.3 Percent of staff with internet

From the collected 110(100%) employees filled questioner, 81.8 % of the participants said from 50%-75% of the organization employees use internet to facilitate their day to day organizational activities. And 18.2% of the participants answered that from 75% to 100% of the organization employees use internet to delivery better service for the customer. So we have considered valid option (50% to 75%) that is 81.8% of the respondents. The analysis result shows that some of the employees are able have access to the internet to perform the organization task. but some of the are not. As the importance of internet is very big …Internet will provide employees to get access to the information that can help them deliver the service in better manner. Employees will be able to share knowledge and information that is related to the job that will allow them to perform better in the work. By using search engines the organization employees will be able to get answer to any of the questions. And internet will also allow employees to work with other person that is not at the place. This will make the organization productive because it's not limited with a place. And all those will make the faster in the service they deliver to the public. So collect all those benefits the organization needs to allow employees to get access to the internet.

no of internet users in the organization

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	75%-100%	20	18.2	18.2	18.2
	50%-75%	90	81.8	81.8	100.0
	Total	110	100.0	100.0	

.

Figure 4.2: percent of staff with internet access in the urban LA,

4.4 Organization with website

Based on the collected and analyzed data, ANRS land administration office need to give attention about delivering different services through website. The result shows that no land administration organization office is using website as a way to give service to the customers. If the organizations start using website, customers also can get access the organization information easily. Where ever they are with a very short time and less cost. Through the website the organization will

collect feedback. When employees become able to easily and efficiently capturing feedback organization will consider only help as your consider updating your engagement strategies. And it's a big loss not using website for a public organization. Knowing that if the organization was able to use website as a way to deliver service it's could be improved with less cost and less time.

4.5 Updating frequency of a website

In the study updated-frequency stands for the interval of time the organizations website get redesigned. From the given option all the respondents relayed that no website update because there is no website. From the study data collected that is ANRS land administration organizations office we found no website and as the same time there is no possibility to update a website with no website. But if the organization were using a website and, able to update, it frequently, it would stay current with the newly emerging trends and technologies. It would be improved in color displays and font which will let them the site viewers stayed with current trends and leave yesterday. In general the analyzed data revealed that organization needs to give attention to deliver public service by considering the website technology as a good opportunity option.

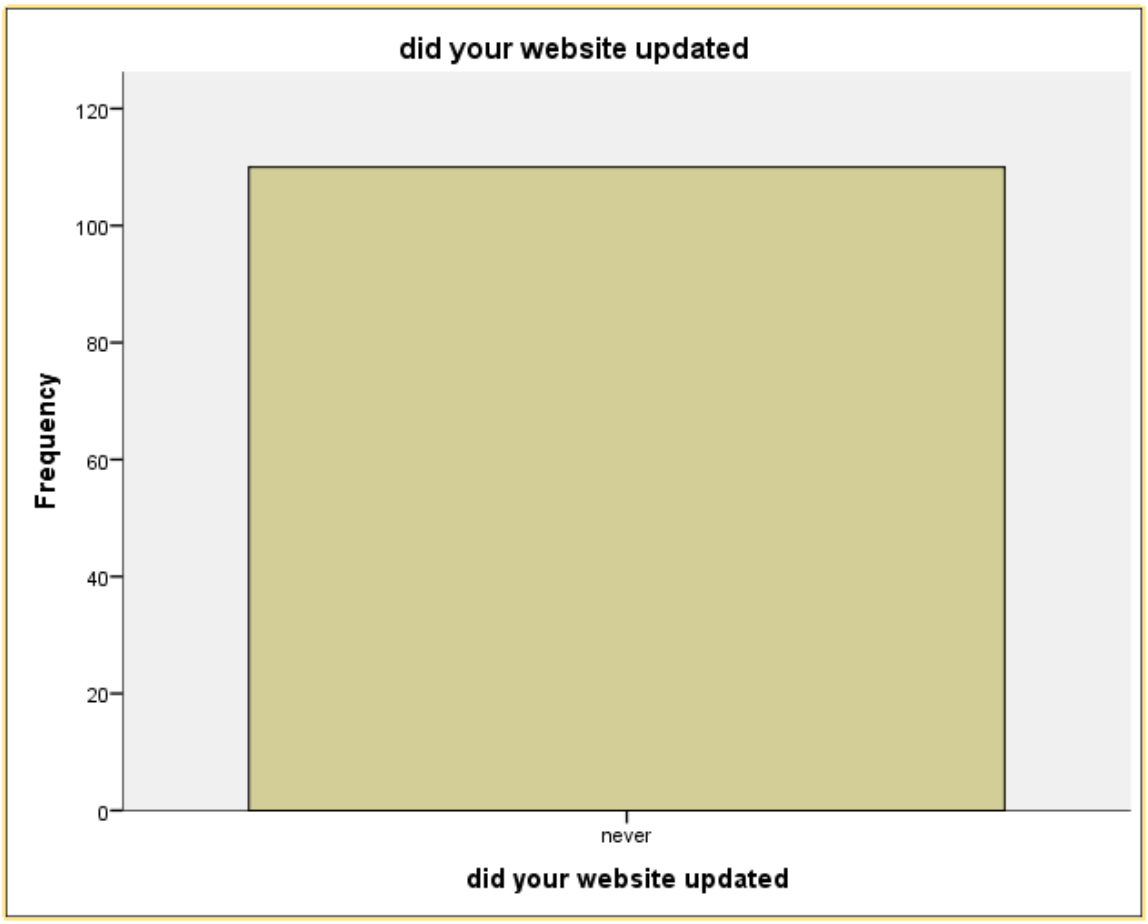


Figure 4.3: Website updating frequency

4.6 Number of mobile platforms in the organization

From the total of 110(100%) respondents of the study all (110 respondents) of them replayed that there is no mobile platform available in the land administration organization office.)The data analyses of the respondent's illustrate that there is no mobile application plant form that can help the organization to deliver competent services to the customers. Where mobile applications allow customers to work on an anywhere, anytime basis and help to create a truthfully integrated digital system with land administration organization.

Productivity of LA employees will increase, because the platform will allow the organization to enter data into that system exactly where they are in office, the field or ant where they are. In addition to this move data-gathering closer to real-time operations, it will also decrease the time

of LA employees spend on data activities, therefore they will spent more of their time for value-added, service-related activities. The organization employees will also become because of current update of the organization data will be on their hand which will allow them better decision making. It will also allow the organization to collect feedback from the customers by giving the customers feedback channel. Because of its has immediacy and handiness characteristics, it also has a potential to reduces the obstacle to public service process, if the organization able to start using mobile plat forms, then all the listed qualities will bring service delivery very less costly and less time consuming. Using mobile platform generally will improve the service delivery of LA administration.

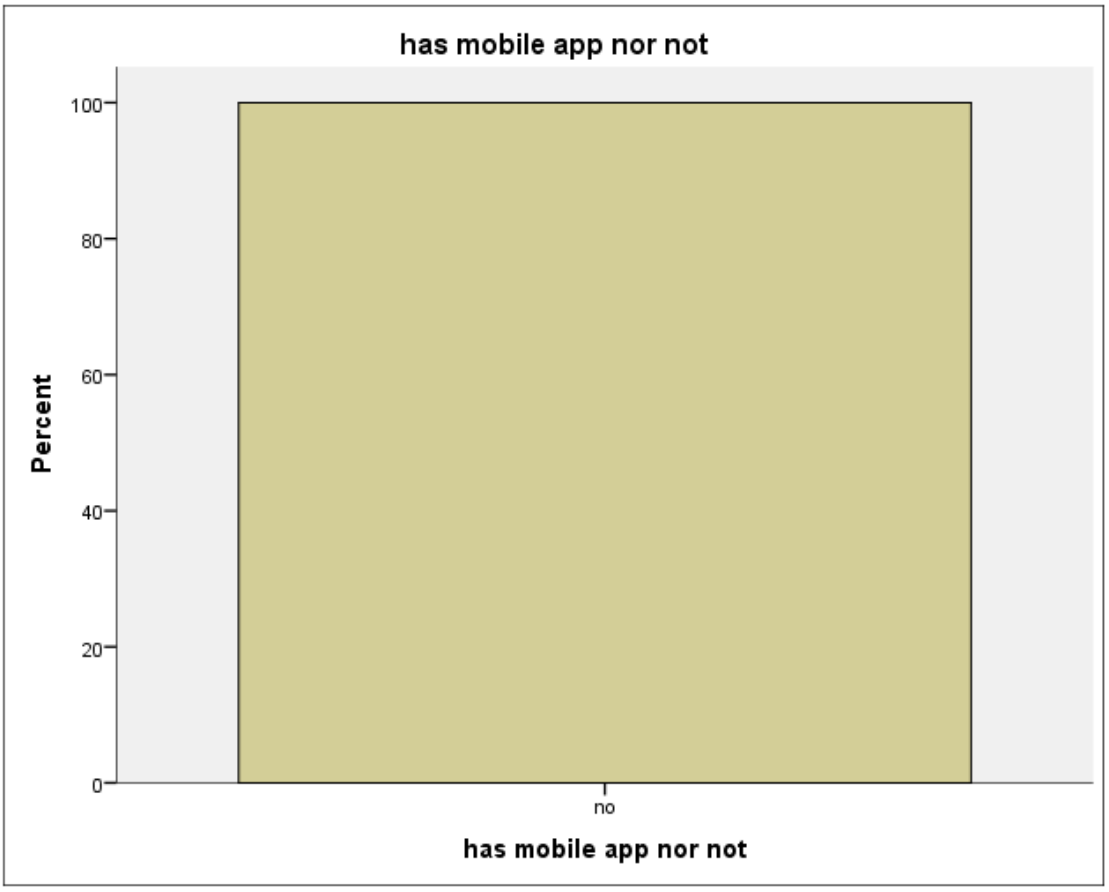


Figure 4.4: availability of mobile platform application

4.7 Amount of Application and of open source software's in the organizations

Among the survey questions raised to employees of ANRS LA was amount of application software and open source software in the organization. From the total participants 15% of them said more than 5 application software and open source software are available. And 27% of respondents answered that 3-5 application software and open source software are available in the organization. Again from the total participants 57% of them replayed, less than 3 application software and open source software are available. And 1% of them replayed as no application software and open source software in the organization. They study picked 57% as valid result.

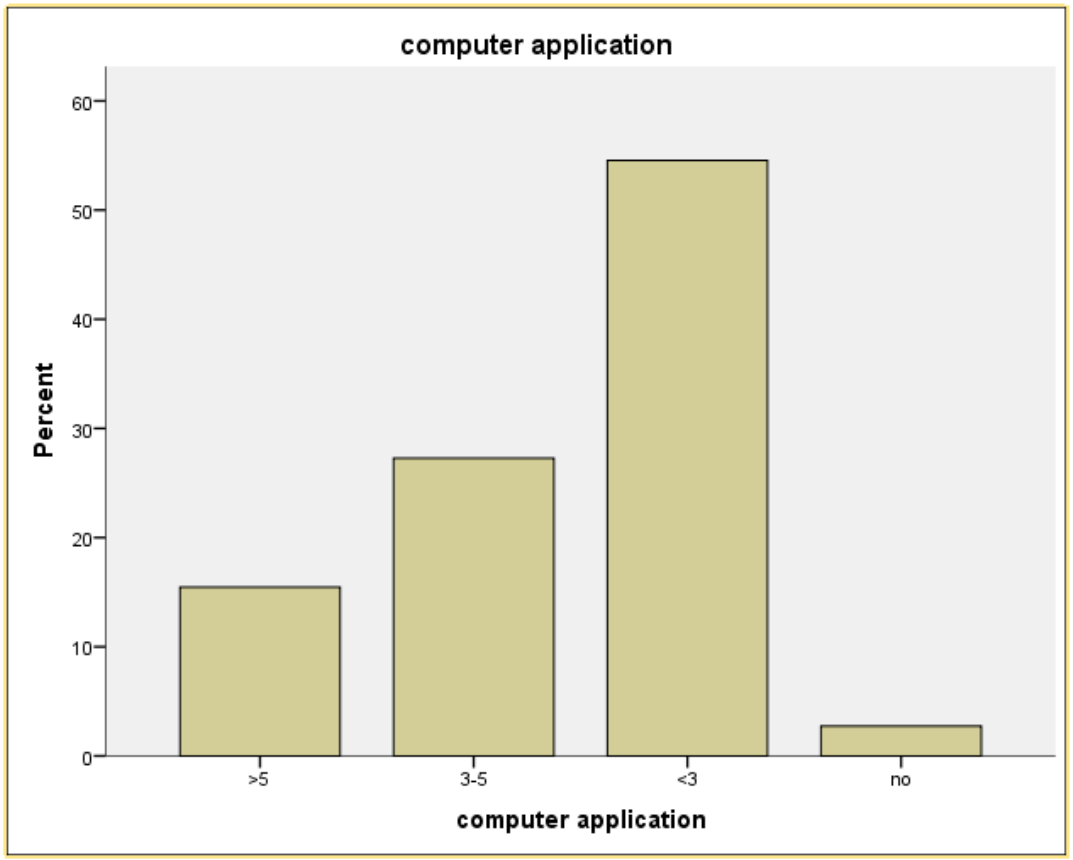


Figure 4.5: Availability open source and application software, source (own survey)

4.8 Availability of mobile broadband, fixed broadband and narrowband

From the core e-government indicators, availability of mobile broadband was one; therefore based on the collected and analyzed data we found that no land administration organization is allowing its employees to have mobile broadband access. From the total of 110 respondents (100%) all (110) of employees replayed no mobile broadband and narrowband but only fixed broadband network accessed in the organization.

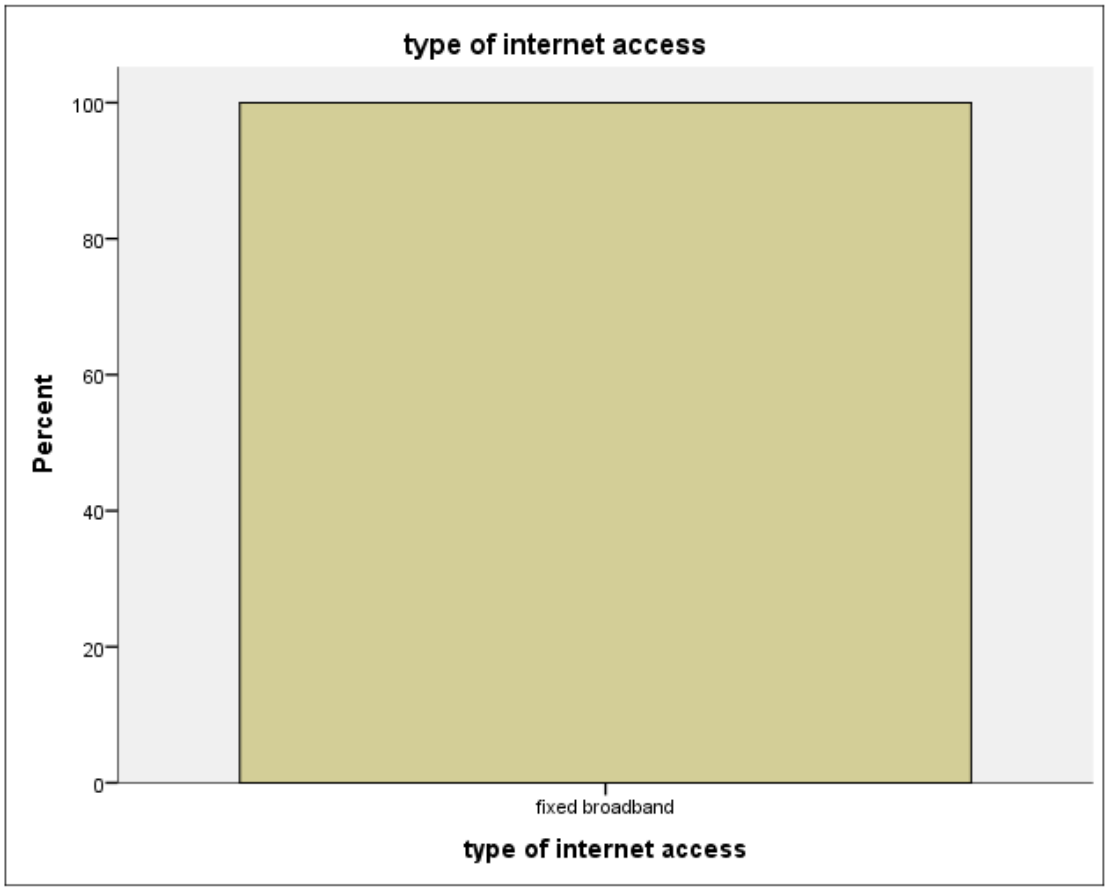


Figure 4.6: availability of mobile broadband, narrowband and fixed broadband

4.9 Availability of online transaction under the organization

Availability of online service is one of the core e-government indicators. Therefore data also collected and analyzed to identify whether online service is available or not in the land administration organizations. The study revealed that there is no online service support, from the total 110 respondents all (110) of the responded that no online transaction support in the land administration even for the major department like procurement. These shows that the ANRS land administration office have lots of gaps in using e-government to support their activity.

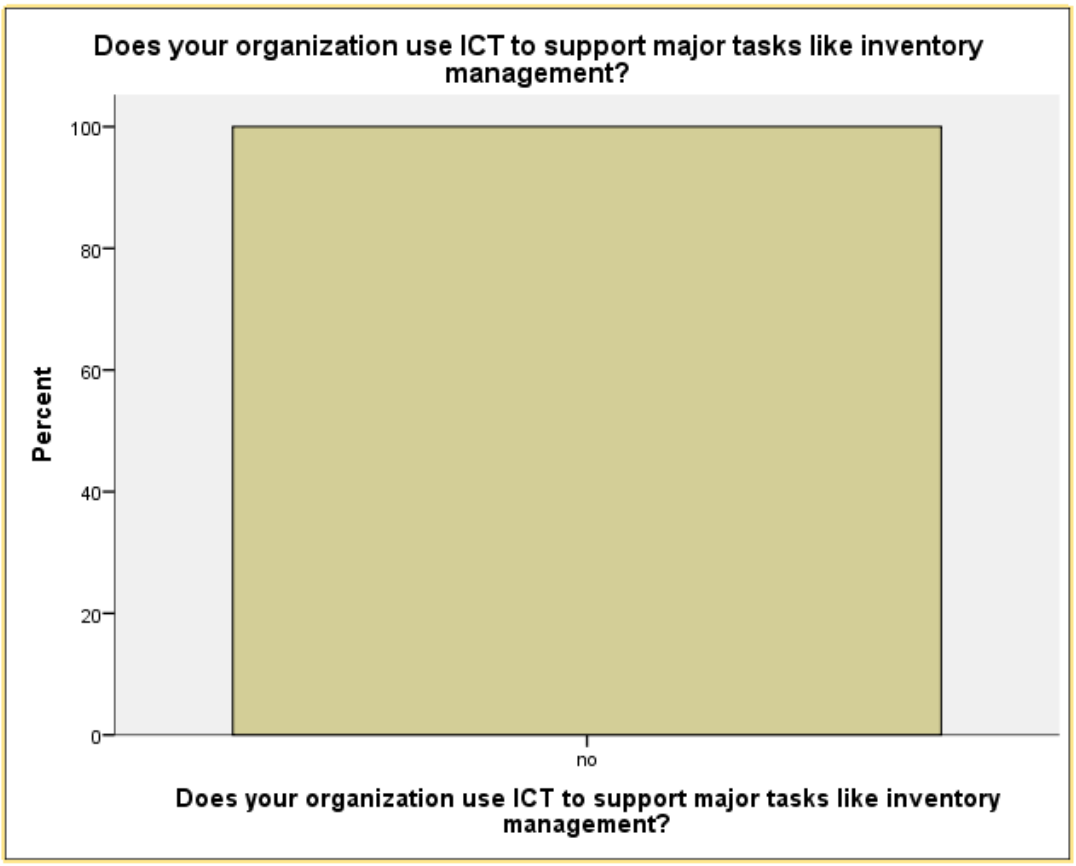


Figure 4.7: availability online service

4.10 Annual ICT budget consideration

Here is also another core e-government indicator that, according to the respondent of LA employees less attention is given to assign budget for ICT in their organization. From the total respondents 56% of them replayed ICT is considered as optional task in the time of annual budget allocation, 29% of them replayed that ICT is considered as secondary task and 15% percent the respondents replayed that ICT is considered as a major task. Because of the general advantage of budget allocation for ICT is to fulfill infrastructure and develop employee's skill in all necessary areas. But if the organization allocate properly planned budget, it will have a greatest importance, to increase ICT proper implementation and to bring the office well user of e-government. But as the collected and analyzed data revealed the organizations are not seriously considering budging well for ICT.

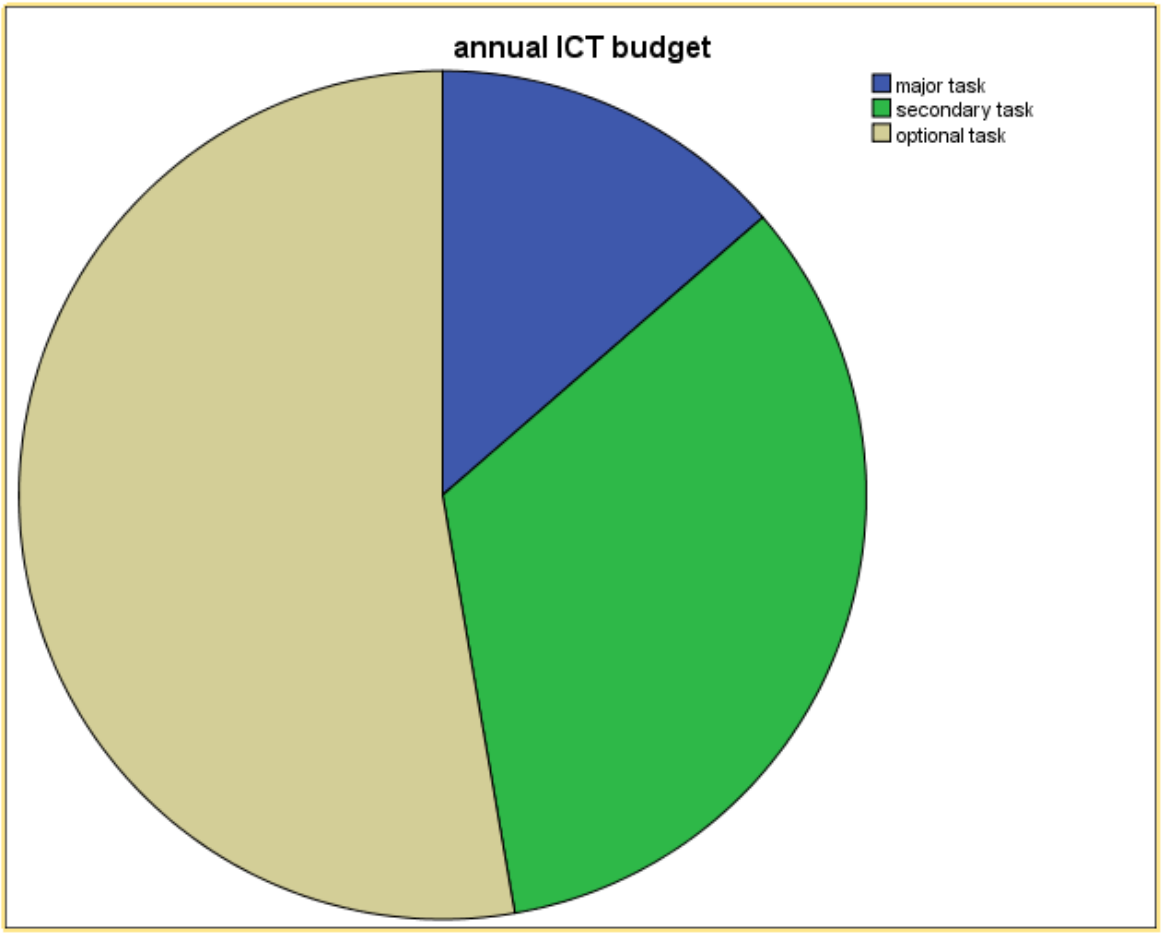


Figure 4.8: annual ICT budget consideration

4.11 Expenditure from annual ICT budget to human resource development

As the research collected and allayed data shows, the organization is very weak in allowing employees to get the access to ICT trainings. The respondents answer in the collected and analyzed data illustrated that, from the whole (110 individuals) of respondents 37(only 33.7%) replayed there is regular or irregular ICT training available and 73(66.4%)individuals said there is no ICT training has been given to the employees. As we observed from the analyzed data the organization is very poor in case of allowing training o the employees. That will lead employees to poor at setting ICT related goals, improper allocation and usage of ICT resources and equipments, shortage of coordination between their works will happen. And they will not able to use technologies as much as possibly, especially newly emerging technologies.

Figure 4.9: training availability

4.12 ICT related problems get fixed Easily

According to the respondent's responses of the LA organization employees, problem that happened while using ICT is not get fixed immediately. We collected the employees view towards availability of technical support in case if difficulties occur in the organization.

Whether they strongly agree, agree, disagree or strongly disagree, that the organization is deliver technical support to the employees in working place, from the whole (110) respondents 1(0.9%) said strongly agree, 6 (5.5%) of them said agree, 11(10%) of them said disagree and 92(83.6) of them said strongly disagree .So these is another area which needs attention to bring e-government really implemented.

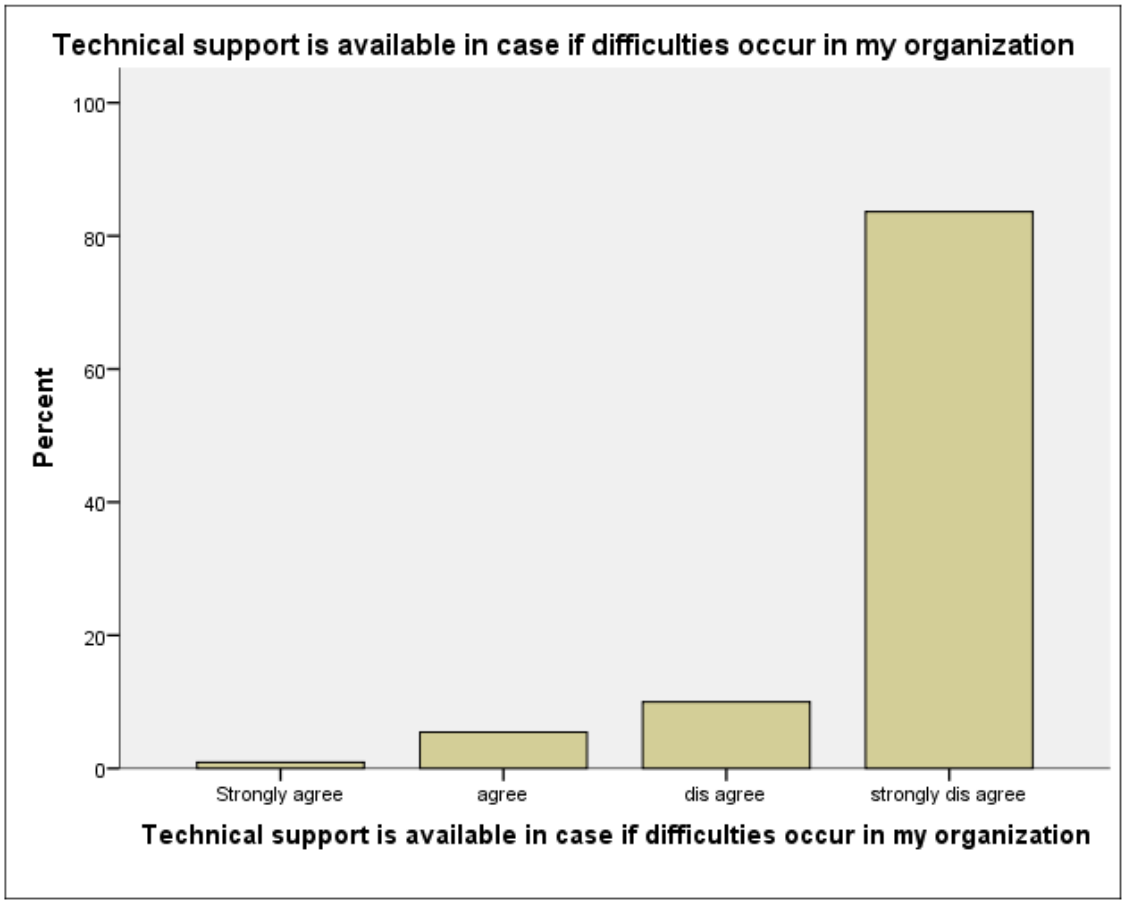


Figure 4.10: about the availability of technical support in time of ICT usage

4.13 Frequency of security problem

One of very essential issue in e-government is security problem. The respondents were asked to express security problem in LA organization as very high, high and low. From the total of respondents 90(81.8%) of them said there is very high security problem, 17(15.5%) of them said there is high security problem and 3(2.7%) of them said security problem in LA is low.

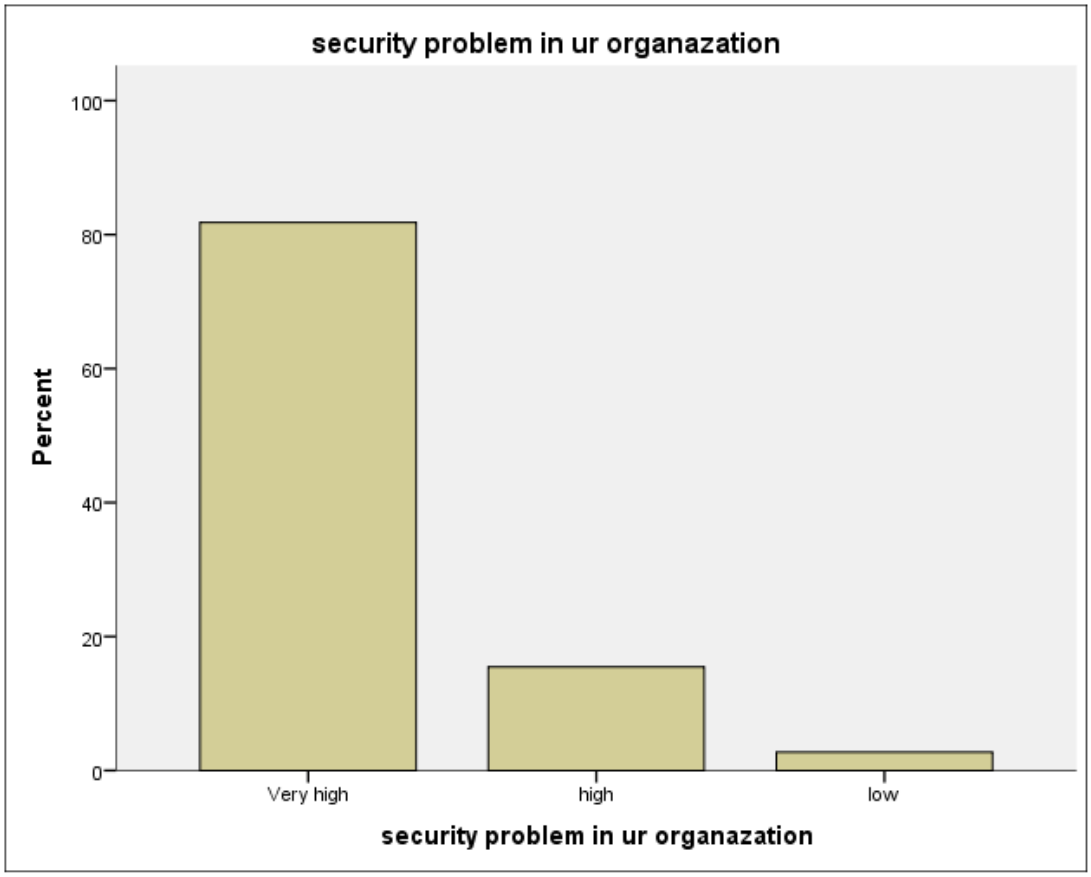


Figure 4.11 : employee's response result on security problem

4.14 Willingness to accept new technology

From the entire participated respondents 14(12.4%) of them said they are afraid of accepting new technology and 96(86.3%) of them replayed they are interested to accept and implement new technology.

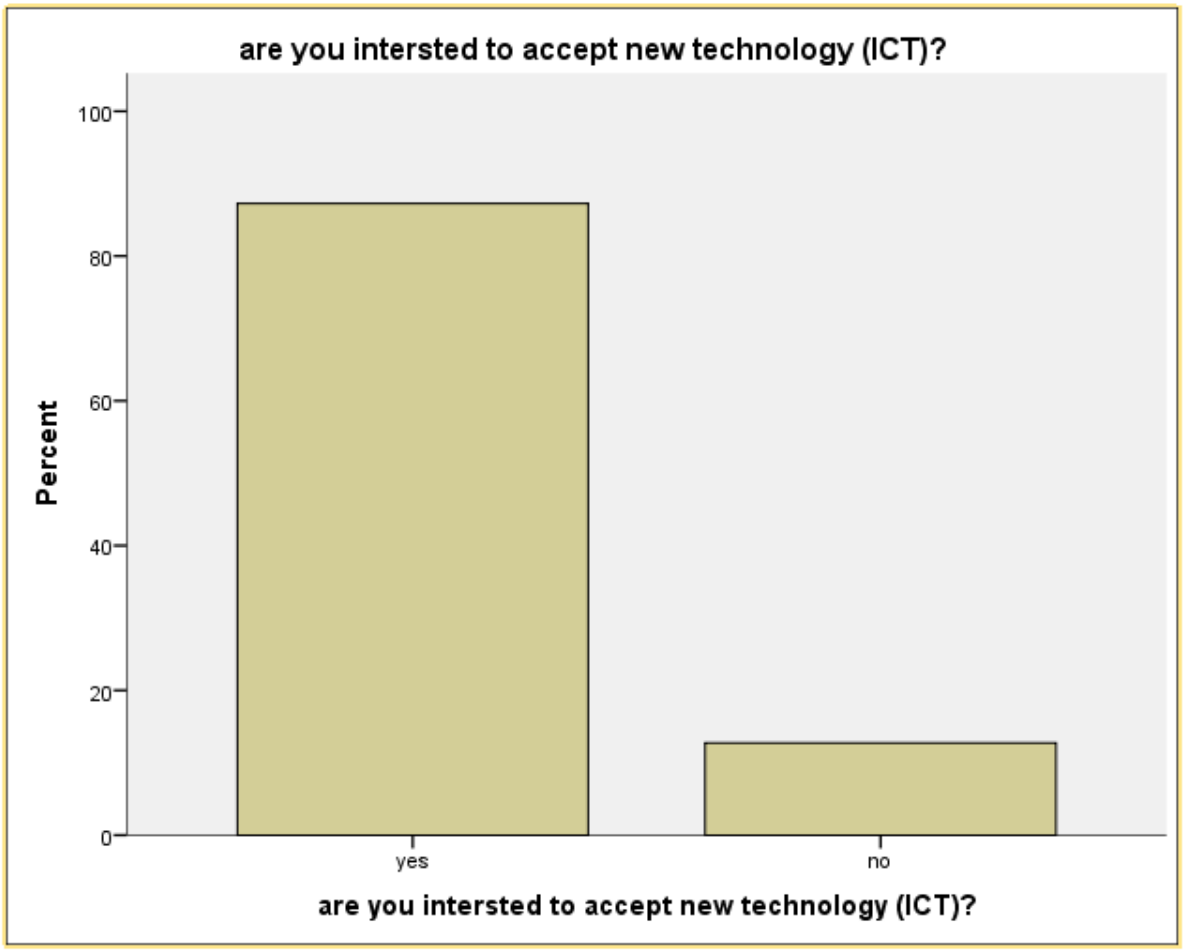


Figure 4.12: employees' willingness to use new technology

4.15 Discussion

By using core e-government indicators we prepared survey questioners and the prepared questioner was distributed to employee of LA organization. From the distributed 120 questioners we collected 110 employees' responses on the raised question. The collected data processed and analyzed using the SPSS software. The LA office employee's responses results show that the selected LA organizations are in low e-government status. That is from the total 100% of core e-government indicators only 16.6 % of core e-government indicators existed in LA organizations.

The listed core e-government indicator includes the following: percent of staff in LA government institutions with computer access, the named indicator existed in the selected LA organization. Even though it existence is good but it needs very high attention to bring all the employees to be

able to use computers to perform there day to day organizational task. That can bring them in to a better performance. And that is going to be very important to bring a better service delivery to the customers and better technology usage to the employee's itself. That shows if all of the employees can get access to computer the organization can have service delivery performance. Percent of staff in LA organizations with internet access, it's the other core e-government indicator that existed in the LA offices. But not all the employees are with internet access. Like that of the computer access allowing all the employees to access internet to their day to day organizational activity will allow them to perform better than the current performance. Having internet collection will allow them to have information sharing, better less costly compunction in said the organization as well out said the organization .availability of website in LA organizations as the SPSS result showed that there is no website in any of the LA organization which we put forward to be corrected, percent of LA organizations with website or data base, , annual ICT budget consideration from the total expenditure of LA organization, in these core indicator the organizations are very week . And we seriously recommend that a better budget consideration. Amount of expenditure for human capital (ICT skilled) from the total ICT budget of LA organizations, percent of open source software, the other core e-government indicators LA organizations are not seriously taking. Percent and type of application used in the LA organization, as the result showed there are very few application software's that are available in the LA office. percent of staff who are trained on use ICT on LA organization and availability of mobile broadband in organization, there is only fixed broadband available in the LA offices .but if they can have alternative way to connect they can have a better working performance as well better service delivery to the customers. Availability of narrow band in LA organization, as the result showed there is no narrow band availability in any of the organization. The existence of security problems in the LA organization, we have seen problems are happening in relation with security from the result and we recommend work to be done in relation with security. Willingness to accept new technology, the SPSS result showed that LA employees (most of the employees not all) are very interested to accept and use new technology. Support availability in the time of ICT related problem happening in the LA organization of ANRS.

Generally we saw that there is nothing, LA provide dynamic, specialized information that is distributed and regularly updated information to the customers sites, there is no portal, her is now two way of electronic communication with the customers, and no integrated back office

infrastructure available. Depending on the data collected LA is under the initial e-government stage.

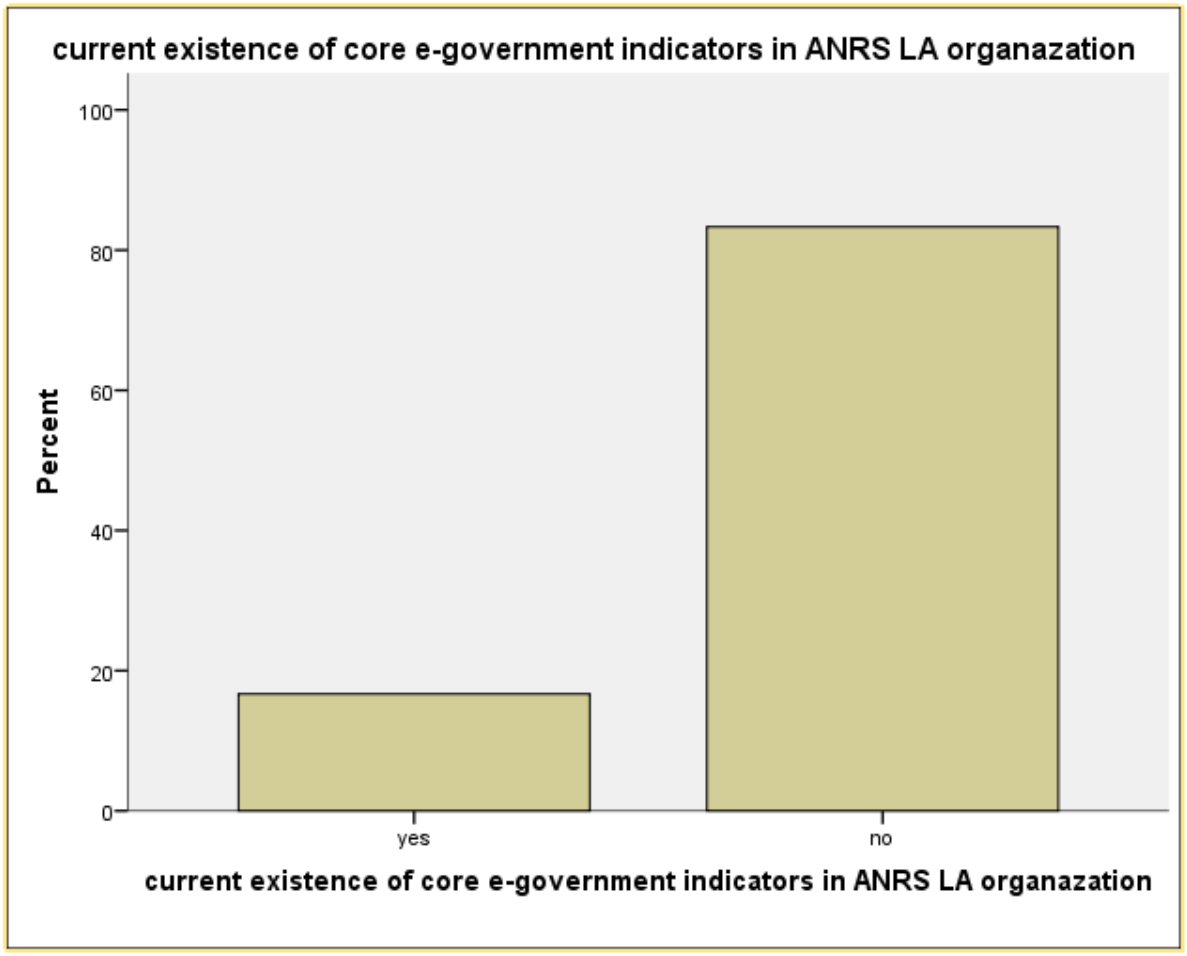


Figure 4.13: current existence of core e-government indicators in ANRS LA organization

4.16 Designed E-government based LA framework for ANRS

Organizations can work together when e-government has Interoperability. Interoperability lets government organizations to be able to share information. E-government is highly determined by hardware configurations and software customization to produce a working e-government environment, writhen the LA organization designed e-government environment all hardware and

software can be integrated. E-government also allows citizens to get direct participation to the system, give feed backs and become member of the decision makers. Including our designed e-government land administration framework and various studies E-government can bring LA service delivery in a better performance. Because the LA service delivery qualities can be fulfilled under the fully implemented e-government organizations. Where LA service qualities (effectiveness, efficiency, customer's satisfaction, cost reduction, participation, accountability, responsibility, equality and combating corruption).

And e-government based LA can brings better coordination and communication, Information sharing between agencies, Security of information management , Information sharing between organizations ,Greater efficiency and Avoidance of duplication for the employees of the organization and, Reducing transaction costs, Simplifying bureaucratic procedures ,Enhanced transparency, Increased flexibility of service, Greater citizen participation, Citizen participation use the customers.

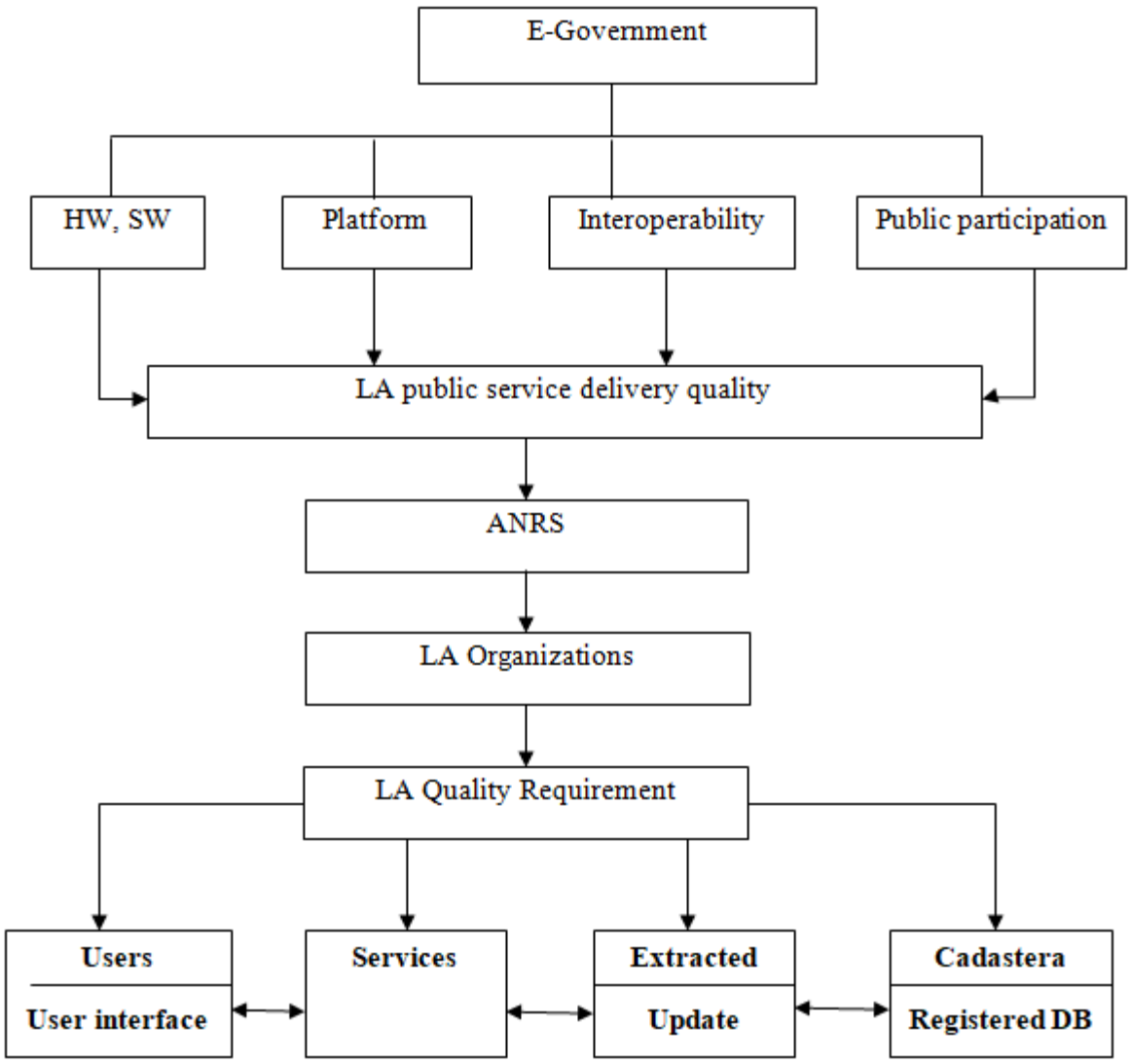


Figure 4.14: e-government based LA framework

CHAPTER FIVE

CONCLUSION AND RECOMMENDATIONS

5.1 Conclusion

This study has designed new e-government based land administration framework for ANRS urban land administration organization. To design the new frame work e-government status of the ANRS selected urban land administration organization was identified. To identify e-government status of the selected LA offices we used core e-government indicators. Where, core e-government indicators are listed out by UN for the purpose of local and global e-government survey.

The listed core e-government indicators includes the following: percent of staff in LA government institutions with computer access, percent of staff in LA organizations with internet access, availability of website in LA organizations, percent of LA organizations with website or data base, percent of ICT personnel in LA organization, annual ICT budget consideration from the total expenditure of LA organization, amount of expenditure for human capital(ICT skilled) from the total ICT budget of LA organizations, percent of open source software, percent and type of application used in the LA organization, percent of staff who are trained on use ICT on LA organization and availability of mobile broadband in la organization, availability of narrow band in LA organization, existence of security problems in the LA organization, willingness to accept new technology, support availability in the time of ICT related problem happening in the LA organization of ANRS.

By using core e-government indicators we prepared survey questioners and the prepared questioner was distributed to employee of LA organization. From the distributed 120 questioners we collected 110 employees' responses on the raised question. The collected data processed and analyzed using the SPSS software. The LA office employee's responses results show that the selected LA organizations are in low e-government status. That is from the total 100% of core e-government indicators only 16.6 % of core e-government indicators existed in LA organizations.

Based on the e-government status result of LA organization, we designed new e-government based LA frame work. The new designed framework can brings better coordination and

communication, Information sharing between agencies, Security of information management , Information sharing between organizations ,Greater efficiency and Avoidance of duplication for the employees of the organization and, Reducing transaction costs, Simplifying bureaucratic procedures ,Enhanced transparency, Increased flexibility of service, Greater citizen participation, Citizen participation use the customers. The designed framework is validated using graphical user interface.

5.2 Recommendations

Based on the result from the survey study, we recommend the following activities to be done in order to get better status of e-Government in the LA organization:

Computer access:- From The analysis of the collected data 86.4% participants responded that from the total of the organization employee 50%-75% employees have the access to the computer. That is the valid option to the study. So by letting other employees who are able to get computer access, the organization can deliver better service to the customers.

Internet access:- From The analysis of the collected data , 81.8 % participants responded that from the total of the employee 50%-75% employees have the access to the internet. That is the valid option to the study. LA organizations have to allow other employees who are not able to get access to the internet, and that will help bring LA office to deliver better service to the customers

Annual ICT budget consideration: - as the survey analysis reveal organizations are not considering ICT as a major task. That affects on budget allocation. Budget is very essential for both ICT infrastructure and human capacity development

Human resource (ICT skill):-in the collected survey we found no regular or irregular trainings are given to the employees. But this is very essential, that lets employees to become up to date. There for to use the full potential of the employees ICT training should be prepared.

Software: - as the survey also showed very less software are available in the organization. But identifying the necessary software and by adjusting training to the employees, LA organization can improve service delivery performance

Mobile broadband and mobile platform: - these two will allow employees without the limitation of place. Employees can do anything where ever they are. They can access any of the organization update even not being in their office. And it will make them up-to-date and put them for a better decision.

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Appendix

Appendix 1: survey questioners

BAHIR DAR UNIVERSITY

BAHIR DAR INSTITUTE OF TECHNOLOGY (BIT)

SCHOOL OF RESEARCH AND POSTGRADUATE STUDIES

FACULTY OF COMPUTING

A Questionnaire for a master's degree research work

Objective: - The study will bring a numeric (critical) analysis of information technology based activities ANRS land administration office, to identify the determinant factor of ICT as a decision support for the land administration office and to optimize service delivery performance of the office**.**

Data collection sheet

Data-source cluster bases	Name of public sectors
Amhara national regional state Selected land administration offices	-Bahir dar land administration -Debire Markos land administration office -Gonder land administration -Debir Birhan land adminstration -Dessie

Critical for organization selection

- ✓ The above towns LA office have been selected as per the geographical location of the region.
- ✓ Zonal land administration office are those that are expected to use better ICT support

Note: - the main objective of this study is to carry out graduation research.

Part one

Socio-demographic characteristics

Sex: A) male B) female

Age: A) 18-30 yr. B) 31-40 yr. C) More than 40 yr.

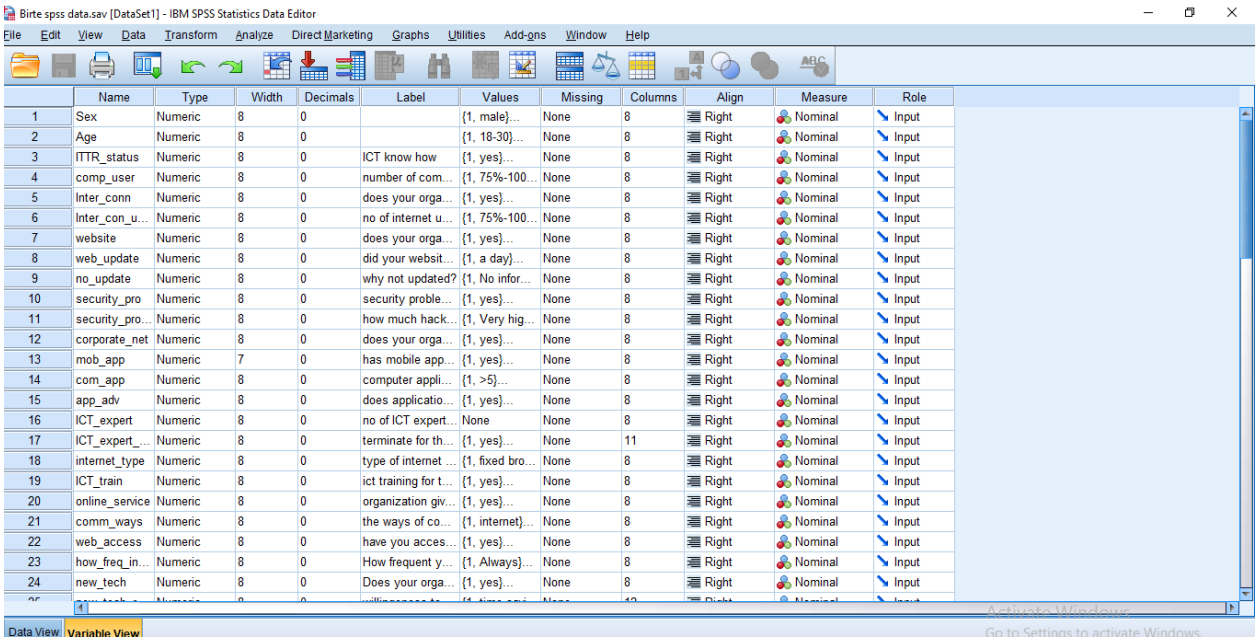
Educational status A) IT trained B) Not IT trained

Occupational status: ----------

Questionnaire for regional town land administration office

1) How many of the organization employees have computer device to perform their job in the office?
   A) 75%-100% B) 50%-75% C) 25%-50% D)<25%
2) Does your organization have internet connection?
   A) Yes B) No
3) How many of the organization employee have internet access
   A) 75%-100% B) 50%-75% C) 25%-50% D)<25%
4) Does your organization have a website?
   A) Yes B) No
5) If your answer is yes for question no 4, how frequent your website is get updated?
   A) Twice a year B) once a year C) ones in two years D) Never updated

Appendix 2: Sample of the study with SPSS file format



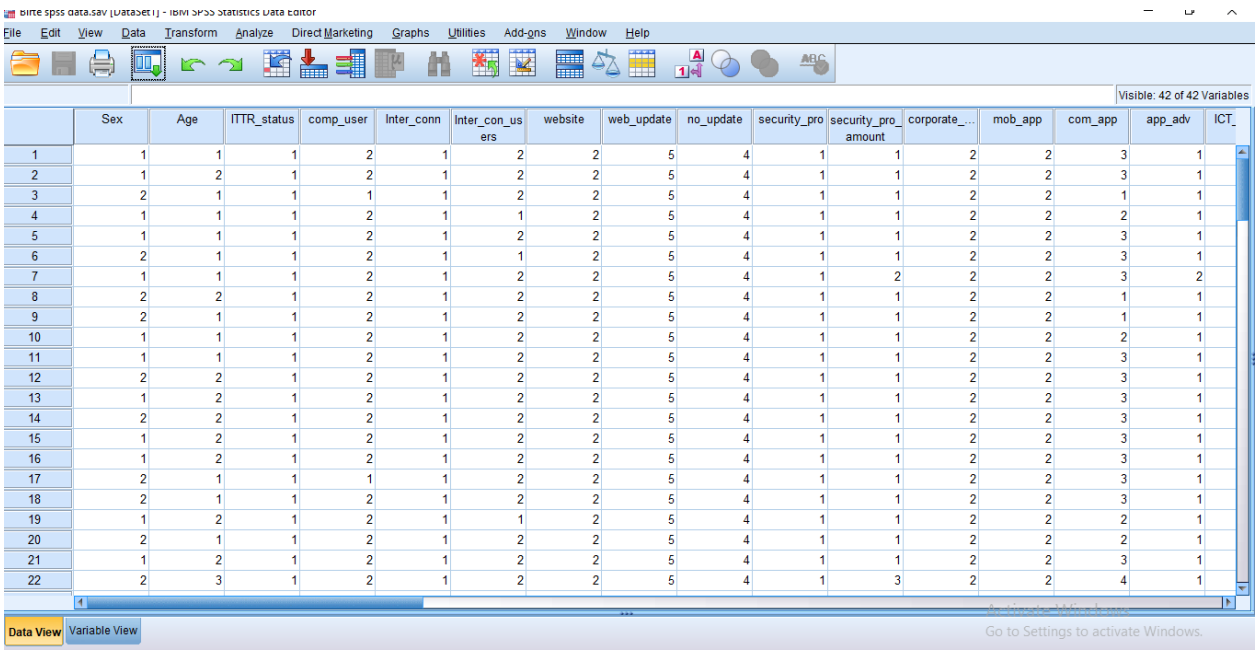
Birte spss data.sav [DataSet1] - IBM SPSS Statistics Data Editor

File Edit View Data Transform Analyze Direct Marketing Graphs Utilities Add-ons Window Help

	Name	Type	Width	Decimals	Label	Values	Missing	Columns	Align	Measure	Role
1	Sex	Numeric	8	0		{1, male}...	None	8	Right	Nominal	Input
2	Age	Numeric	8	0		{1, 18-30}...	None	8	Right	Nominal	Input
3	ITTR_status	Numeric	8	0	ICT know how	{1, yes}...	None	8	Right	Nominal	Input
4	comp_user	Numeric	8	0	number of com...	{1, 75%-100...	None	8	Right	Nominal	Input
5	Inter_conn	Numeric	8	0	does your orga...	{1, yes}...	None	8	Right	Nominal	Input
6	Inter_con_u...	Numeric	8	0	no of internet u...	{1, 75%-100...	None	8	Right	Nominal	Input
7	website	Numeric	8	0	does your orga...	{1, yes}...	None	8	Right	Nominal	Input
8	web_update	Numeric	8	0	did your websit...	{1, a day}...	None	8	Right	Nominal	Input
9	no_update	Numeric	8	0	why not updated?	{1, No infor...	None	8	Right	Nominal	Input
10	security_pro	Numeric	8	0	security proble...	{1, yes}...	None	8	Right	Nominal	Input
11	security_pro...	Numeric	8	0	how much hack...	{1, Very hig...	None	8	Right	Nominal	Input
12	corporate_net	Numeric	8	0	does your orga...	{1, yes}...	None	8	Right	Nominal	Input
13	mob_app	Numeric	7	0	has mobile app...	{1, yes}...	None	8	Right	Nominal	Input
14	com_app	Numeric	8	0	computer appli...	{1, >5}...	None	8	Right	Nominal	Input
15	app_adv	Numeric	8	0	does applicatio...	{1, yes}...	None	8	Right	Nominal	Input
16	ICT_expert	Numeric	8	0	no of ICT expert...	None	None	8	Right	Nominal	Input
17	ICT_expert_...	Numeric	8	0	terminate for th...	{1, yes}...	None	11	Right	Nominal	Input
18	internet_type	Numeric	8	0	type of internet ...	{1, fixed bro...	None	8	Right	Nominal	Input
19	ICT_train	Numeric	8	0	ict training for t...	{1, yes}...	None	8	Right	Nominal	Input
20	online_service	Numeric	8	0	organization giv...	{1, yes}...	None	8	Right	Nominal	Input
21	comm_ways	Numeric	8	0	the ways of co...	{1, internet}...	None	8	Right	Nominal	Input
22	web_access	Numeric	8	0	have you acces...	{1, yes}...	None	8	Right	Nominal	Input
23	how_freq_in...	Numeric	8	0	How frequent y...	{1, Always}...	None	8	Right	Nominal	Input
24	new_tech	Numeric	8	0	Does your orga...	{1, yes}...	None	8	Right	Nominal	Input

Data View Variable View

Appendix 3: the dataset SPSS file format with Data View



Birte spss data.sav [DataSet1] - IBM SPSS Statistics Data Editor

File Edit View Data Transform Analyze Direct Marketing Graphs Utilities Add-ons Window Help

Visible: 42 of 42 Variables

	Sex	Age	ITTR_status	comp_user	Inter_conn	Inter_con_users	website	web_update	no_update	security_pro	security_pro_amount	corporate_...	mob_app	com_app	app_adv	ICT_
1	1	1	1	2	1	2	2	5	4	1	1	2	2	3	1	
2	1	2	1	2	1	2	2	5	4	1	1	2	2	3	1	
3	2	1	1	1	1	2	2	5	4	1	1	2	2	1	1	
4	1	1	1	2	1	1	2	5	4	1	1	2	2	2	1	
5	1	1	1	2	1	2	2	5	4	1	1	2	2	3	1	
6	2	1	1	2	1	1	2	5	4	1	1	2	2	3	1	
7	1	1	1	2	1	2	2	5	4	1	2	2	2	3	2	
8	2	2	1	2	1	2	2	5	4	1	1	2	2	1	1	
9	2	1	1	2	1	2	2	5	4	1	1	2	2	1	1	
10	1	1	1	2	1	2	2	5	4	1	1	2	2	2	1	
11	1	1	1	2	1	2	2	5	4	1	1	2	2	3	1	
12	2	2	1	2	1	2	2	5	4	1	1	2	2	3	1	
13	1	2	1	2	1	2	2	5	4	1	1	2	2	3	1	
14	2	2	1	2	1	2	2	5	4	1	1	2	2	3	1	
15	1	2	1	2	1	2	2	5	4	1	1	2	2	3	1	
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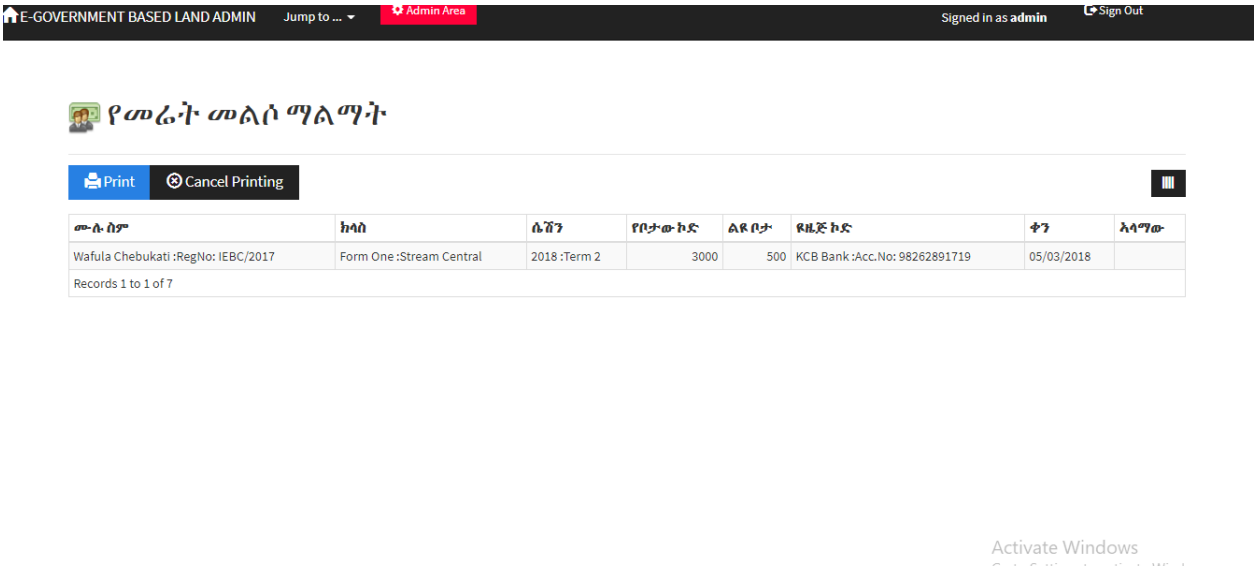
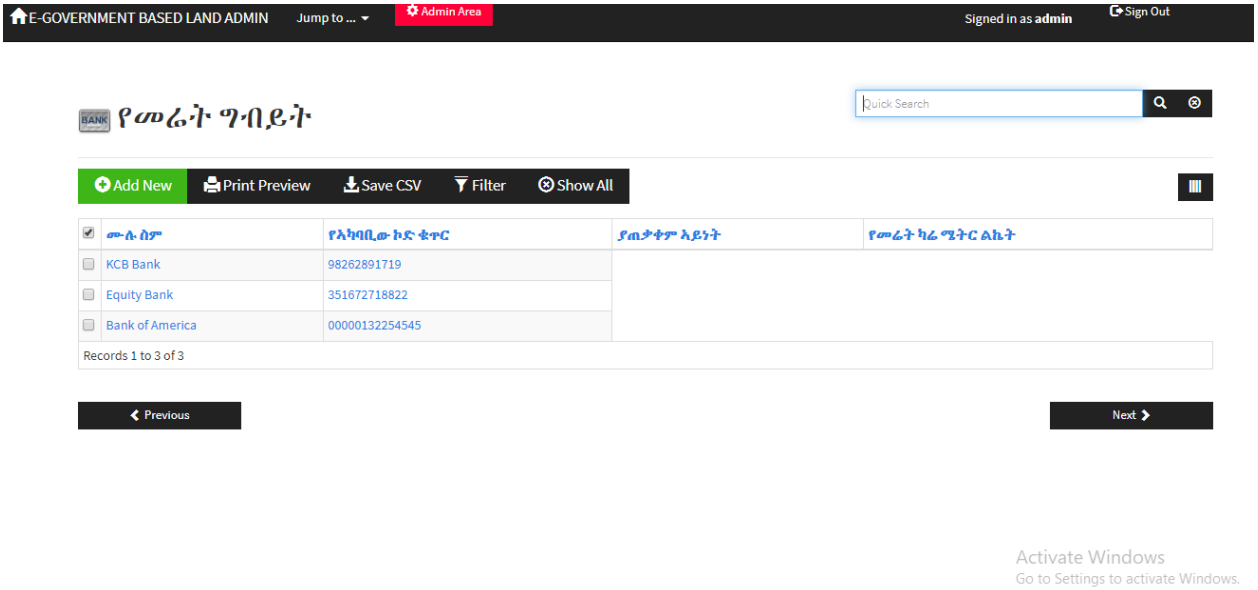
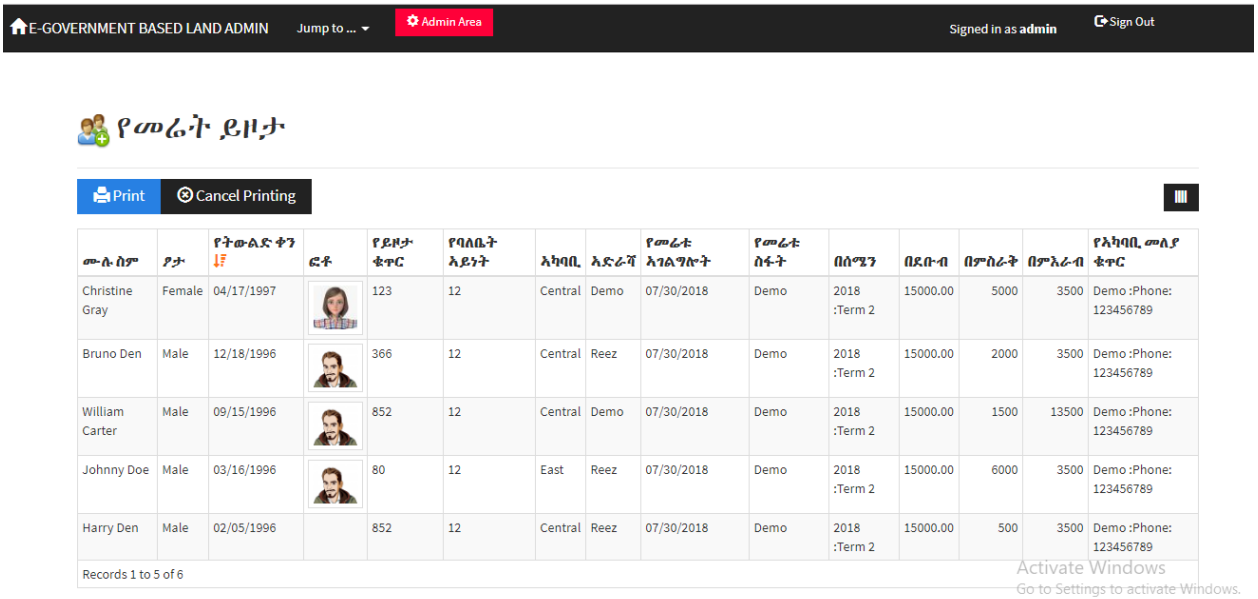
20	2	1	1	2	1	2	2	5	4	1	1	2	2	2	1	
21	1	2	1	2	1	2	2	5	4	1	1	2	2	3	1	
22	2	3	1	2	1	2	2	5	4	1	3	2	2	4	1	

Data View Variable View

Appendix 4: graphical user interface of the designed framework




E-GOVERNMENT BASED LAND ADMIN
Jump to ...
Admin Area
Signed in as admin
Sign Out
የመሬት ግብይት
Quick Search
Add New
Print Preview
Save CSV
Filter
Show All
ሙሉ ስም
የአካባቢው ኮድ ቁጥር
ያጠቃቀም አይነት
የመሬት ካሬ ሜትር ልኬት
KCB Bank
98262891719
Equity Bank
351672718822
Bank of America
00000132254545
Records 1 to 3 of 3
Previous
Next
Activate Windows
Go to Settings to activate Windows.


E-GOVERNMENT BASED LAND ADMIN
Jump to ...
Admin Area
Signed in as admin
Sign Out
የመሬት ይዞታ
Print
Cancel Printing
ሙሉ ስም
ፆታ
የትውልድ ቀን
ፎቶ
የይዞታ ቁጥር
የባለቤት አይነት
አካባቢ
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የመሬቱ አገልግሎት
የመሬቱ ስፋት
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በደቡብ
በምስራቅ
በምእራብ
የአካባቢ መለያ ቁጥር
Christine Gray
Female
04/17/1997
123
12
Central
Demo
07/30/2018
Demo
2018 :Term 2
15000.00
5000
3500
Demo :Phone: 123456789
Bruno Den
Male
12/18/1996
366
12
Central
Reez
07/30/2018
Demo
2018 :Term 2
15000.00
2000
3500
Demo :Phone: 123456789
William Carter
Male
09/15/1996
852
12
Central
Demo
07/30/2018
Demo
2018 :Term 2
15000.00
1500
13500
Demo :Phone: 123456789
Johnny Doe
Male
03/16/1996
80
12
East
Reez
07/30/2018
Demo
2018 :Term 2
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6000
3500
Demo :Phone: 123456789
Harry Den
Male
02/05/1996
852
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Central
Reez
07/30/2018
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Demo :Phone: 123456789
Records 1 to 5 of 6
Activate Windows
Go to Settings to activate Windows.