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Title: The Effect of WoredaNet on Organizational Performance: In the Case of Ministry of Communication & IT (MCIT)

BY: MIHIRET FETWI SGS/0112/2009A

ADVISOR: TESFAYE DEBELA (PhD, Assoc Prof)

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Title: Effect of WoredaNet on Organizational Performance: In the Case of Ministry of Communication & IT (MCIT)

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By: MIHIRET FETWI

Advisor: TESFAYE DEBELA(PhD, Assoc Prof)

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DECLARATION

I hereby declared that this thesis entitled **"*The Effect of WoredaNet on Organizational Performance: In case of Ministry of Communication and Information Technology (MCIT)*"**is my original work and that all sources of materials have used for this thesis have been duly acknowledged. This has been submitted in partial fulfillment of the requirements for the Masters of Business Administration General Management at St Mary's University. I declared that the paper has not previously published or written by another person nor submitted for any degree or diploma in any institute. To the best of my knowledge, all source of materials used for the study have been duly acknowledged. I have undertaken the study independently with the guidance and support of the research advisor

Mihiret Fetwi _____

Researcher's Name Signature & Date

ST. MARY'S UNIVERSITY

SCHOOL OF GRADUATE STUDIES

THE EFFECT OF WOREDANET ON ORGANIZATIONAL PERFORMANCE (THE CASE OF MCIT)

BY: MIHIRET FETWI

APPROVED BY BOARD OF EXAMINERS

_____	_____
Dean, Graduate Studies	**Signature**
_____	_____
External Examiner	**Signature**
_____	_____
Internal Examiner	**Signature**
_____	_____
Advisor	**Signature**

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ABSTRACT

This research explored the effects of the services of WoredaNet on organizational performance on selected WoredaNet users in and around Addis Ababa, Ethiopia. The research's sampling frame was the list of WoredaNet sites which are included in the WoredaNet. The research used finite population method to determine the sample size. The study used a cased study approach and descriptive research type.The research has used both quantitative and qualitative data. Quantitative data were analyzed using descriptive statistics and linear regression model and to test hypothesis. Qualitative data were analyzed using five steps. The data were collected through semi structured and structured questionnaire and interview for the research. The data gathered through the questionnaires were analyzed by Statistical Package for Social Science (SPSS) version 20.This study examined the effect WoredaNet on organizational performances by using employee performance, efficiency & effectiveness and customer satisfaction to measure organizational performance. This study has explored that; implementation of WoredaNet has positive effects on improving organizational performance. Again the findings revealed that the challenges of using and implementing WoredaNet services. MCIT should increase platforms which advance the rate of response given to citizens' request and the management of the organization should pay attention to employees' request as responding to employees' request is way forward to solution for problems. The WoredaNet destination sites or the beneficiaries should apply employee incentives to decrease the skilled and experienced employees.

Key Words: WoredaNet, E-Government, Efficiency, Effectiveness, Employee Performance, Customer Satisfaction, Organizational Performance, Availability, Competency, Reliability

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ACRONYMS

EICTDA- Ethiopian Information Communication Technology Development Agency

E-Administration- Electronic Messaging

E-Citizens- Electronic Citizens

E-messaging- Electronic Messaging

E-Services- Electronic Services

E-Society- Electronic Society

FDRE- Federal Democratic Republic of Ethiopia

G2B- Government-to-Business

G2C- Government-to-Citizen

G2E- Government-to-Employees

G2G Government-to-Government

ICT- Information Communication Technology

ICT4D- Information Communication Technology for Development

IP- Internet Protocol

IT- Information Technology

MCIT- Ministry of Communication and Information Technology

MoFED- Ministry of Finance Economic Development

NDC- National Data Center

UN- United Nations

VoIP- Voiceover Internet Protocol

VPN- Virtual Private Network

VSAT- Very Small Aperture Terminal

WB- World Bank

CHAPTER ONE

INTRODUCTION

1.1 Background of The Study

Ethiopia‘s Information and Communication Technology (ICT) policy is an integral part of the country‘s larger development goals and objectives. While the goal is to rapidly transform the country‘s subsistence agricultural-based economy and society into a predominantly knowledge- and information-based economy and society, the focus of the policy will be on the country‘s ICT development process. To achieve this objective, the Government of Ethiopia has developed multiple policies, most notable of which are the National ICT Strategic Plan and the ICT4D Action Plan for the year 2006-2010(Final E-Government Strategy Implementation Report V1.12, 2011).

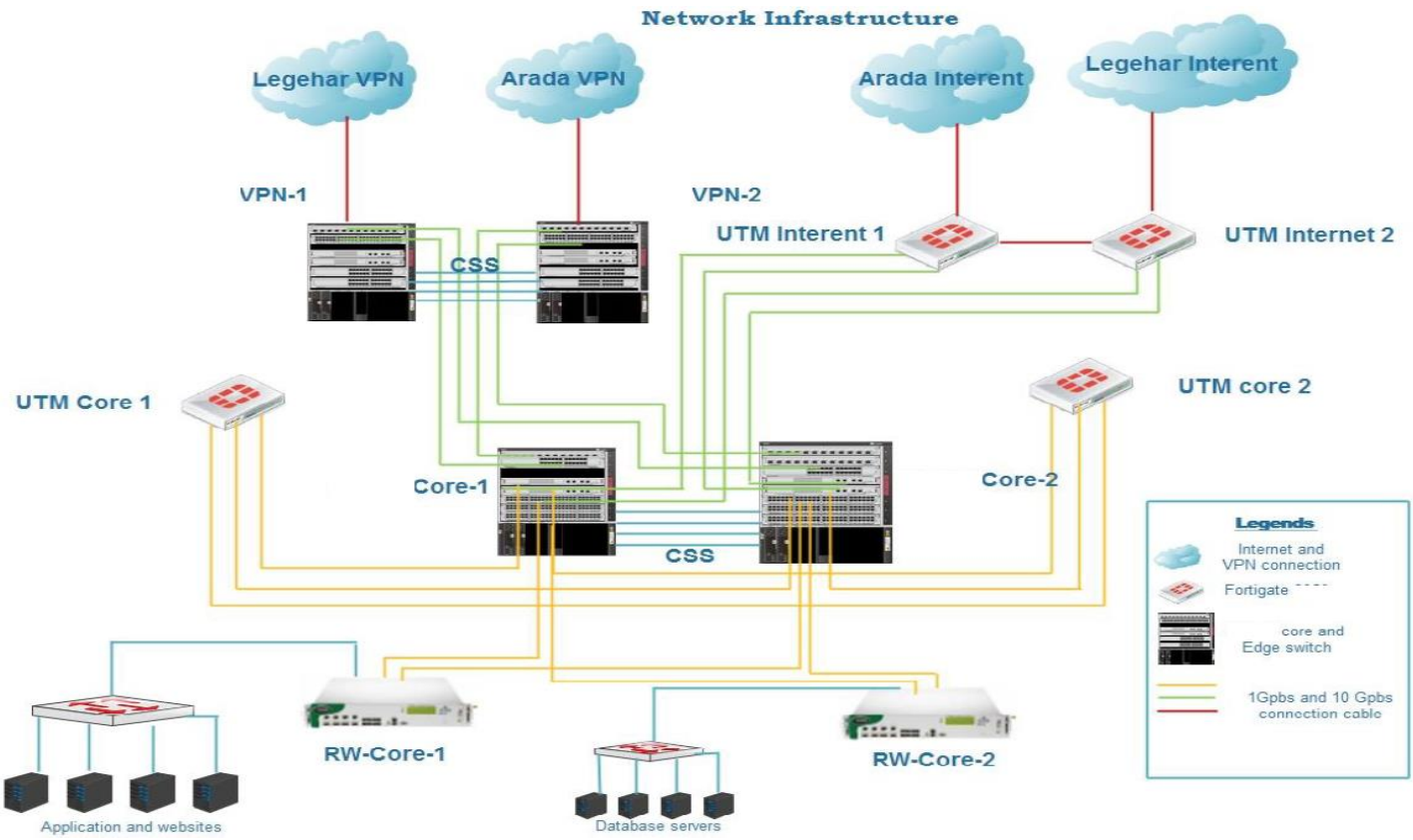
WoredaNet is an E-Government project in Ethiopia conducted under the Ministry of Capacity Building and implemented by the former Ethiopian ICT Development Agency and the now Ministry of Communication & Information Technology. WoredaNet is a government network connecting more than 3000 Woredas, regional and federal government offices across the country (the name WoredaNet comes from “Woreda”).

The goal of WoredaNet is to establish a multi-service IP-based service by the use of Terrestrial Broadband and VSAT infrastructure for the delivery of services to government and the citizens. The goal is towards the improvisation of Federal and Regional Government administrative efficiency, effectiveness and productivity, as well as, information provision and service delivery to the public at large. There are several applications already put in place and planned to be used through the WoredaNet. Some are intended for the use of citizens (e.g. electronic forms through the Internet).

The WoredaNet Network has two different links for VPN connection, which are connected to two VPN switches that support 10GB bandwidth connection, and two separate Internet links which are connected to two fort iGATE firewall which, protect the entire network from outside un trusted network and at the core area that protect the traffic that is out and in from inside network. All The VPN switches are connected with ISP service provider that will enable to connect the remote VPN sites to the MCIT perimeter network and the two fort iGATE firewall switches will connect with the ISP for internet usage.

The MCIT has optimized the government IT system of the National Data Centre (NDC) to centrally administer and all services of WoredaNet is provided by NDC.

Figure 1.1: WoredaNet Network Infrastructure



Source: National Datacenter

The WoredaNet implementation project was part of a broader ICT initiative of the government to promote sustainable development through a massive program of ICT application aimed at empowering the citizens. The major objectives of the WoredaNet includes

- To bridge the digital divide between urban and rural communities.
- To provide knowledge and information to citizens.
- To build organizational capacity at all levels of government.
- To provide the lowest level of government with accurate and timely information

As indicated in a project document by the former EICTDA (2003), WoredaNet aims at delivering the core IT services at different levels of government. The core IT services WoredaNet aims to deliver are Internet Access, Video Conferencing, Web Services, IP Telephony, Electronic Messaging, Applications and Data Center Collocation.

The current connectivity status of WoredaNet is as below table 1.1, Ministry of Finance and Economic Development and Trade and Market Bureau of Amhara and Oromia regions are using WoredaNet network infrastructure to implement their projects.

Table 1.1: List of WoredaNet Destinations

S.No	Region/ Site Name	MCIT Sector Offices	Trade & Market Development Sites	MOFED Sites	Total No of Sites
1	Addis Ababa Region	140	-	403	543
2	Afar Region	30	-	51	81
3	Amhara Region	185	151	182	518
4	Beneshangul Gumuz Region	23	-	30	53
5	Diredawa	2	-	22	24
6	Gambella Region	8	-	41	49
7	Harari	3	-	17	20
8	Oromia Region	801	193	295	1,289
9	SNNP Region	163	-	168	331
10	Somalia Region	35	-	31	66
11	Tigray Region	112	-	67	179
Total No. of Sites		1,552	344	1,307	3,203

Source: National Data Center& Ethio Telecom

The FDRE's Ministry of Communication and Information Technology (MCIT) is a government institution which spearheads the ICT development of the nation by way of developing policy instruments, designing various programs, mobilizing resources, guiding and monitoring implementation.

The Ministry of Communications& IT has a mission to develop, deploy and use ICT to improve the livelihood of Ethiopians and optimize its contribution to the development of the country. The Government Information System Development and Data Centre Administration team of the ministry is managing projects targeted towards development of integrated information systems to avail government services online(Final E-Government Strategy Implementation Report V1.12, 2011).

According to the official website of the organization (http://www.mcit.gov.et), the major responsibilities of MCIT are:

- Implement Communication and Information Technology policy by formulating short, medium and long-term Communication and Information programs,
- Monitor and evaluate implementation of Communication and Information Technology projects and programs,
- Develop frameworks for the development of Communication and Information Technology in sectors such as Agriculture, Industry and Commerce, Education, Health, etc.
- Formulate projects and programs to guide Communication and Information Technology development with focus on strengthening on-going initiatives in all the sectors aimed at improved service delivery and enhancing good governance.

According to the official web page of the organization, the ministry office has thus undertaken a number of e-Government assignments to avail government services online and improve the access to the general public. (http://mcit.gov.et).

1.2 Statement of the Problem

WoredaNet is believed to bring a complete paradigm shift on the performance and on service delivery in government offices. Nowadays the WoredaNet effected organizations to slowly shift from traditional way of doing activities towards to IT based. Traditionally the ways of doing organizational activities were/are paper based &face to face interaction which is time and resource consuming comparing to IT based system. In contemporary e-government, the government offices give services to the citizens in more

flexible, accessible and secure way; and the citizens are also demanding fast, available and facilitated service everywhere and anytime. Information Technology has made a lot of effect on e-government by not only enabling technology but also creating content, architecture and distributed environment. The research assessed the effect of WoredaNet and examined if the proposed e-government project is implemented and functioning as proposed.

The intended user groups of WoredaNet are government offices both federal and regional and a community involving large number of users, who have diverse educational, cultural and socioeconomic background. The study identified opportunities and challenges of using and implementing the WoredaNet.

In 21st century, e-government is transforming into digital government platforms, automation, and IoT (Internet of Things) and the likes. These technological innovations help to deliver services in more efficient and effective ways. Thus the research tried to identify the possible future prospect of the technology and help decision makers to have insights on advanced technology and recommend them what can be done in future to improve the current implemented technology.

There are few studies conducted to assess and evaluate the effect of WoredaNet, to mention some, the research conducted by Yayehyirad Kitaw on E-Government in Africa Prospects, Challenges and Practices; WoredaNet was one the case studies included on the research. (Kitaw, 2006).And also the study conducted by UNPAN on WoredaNet, Ethiopian Government Network, which describes implementation of WoredaNet (http://unpan1.un.org). However, it is difficult to find studies done on the effect of WoredaNet on organizational performance. Hence more recent studies are required to understand effect of WoredaNet on organizational performance and to give a better insight for decision makers. The researcher believes that the research will provide reliable information to policy makers.

Therefore, this research tried to assess the effect of WoredaNet on organizational performance of MCIT; and assesses the challenges in using and implementing WoredaNet and its services.

1.3 Objectives of the Study

1.3.1 General Objective

The general objective of this study is to assess the effect of WoredaNet on organization performance of MCIT.

1.3.2 Specific Objectives

- To examine the effect of WoredaNet services on efficiency of organization.
- To assess the effect of WoredaNet services on effectiveness of organization.
- To determine the effect of WoredaNet services on employee performance.
- To analyze the effect of WoredaNet services on customer satisfaction
- To explore the main challenges of implementing and using WoredaNet.

1.3.3 Research Questions

- To what extent performance of organization such as efficiency, effectiveness and employee performance are affected by the services of WoredaNet in organization?
- What is the effect of WoredaNet on the Customer satisfaction?
- What are the main challenges of government offices in implementing and using WoredaNet?

1.4 Research Hypothesis

The research proposes the following hypotheses for empirical testing.

Hypothesis 1:

The implementation of WoredaNet has a positive impact in achieving performance of organization in terms of efficiency and effectiveness in organization.

Hypothesis 2:

The implementation of WoredaNet has a positive impact in achieving performance of organization in terms of employee performance in organization.

Hypothesis 3:

Using the services of WoredaNet in organization has significance impact on improving customer satisfaction.

1.5 Significance of the Study

As information technology is considered as a major enabler for rapid development of the country, the output of this research serves as important input to policy makers and concerned government bodies in the effort of making the services of WoredaNet more efficient and effective. In addition, it can be used as valuable input to devise the way how future expansion effort and promotion of services of WoredaNet can be approached.

The result of the study will help professionals, users and any relevant decision maker to be aware of the effect and role of WoredaNet on performance of MCIT and government offices. And also it will help to identify the challenges and give clear direction to solution. Moreover, the result of the research may provide additional research insight into how Information and Communication Technology especially WoredaNet affects the performance of government offices and inspires other researchers to conduct more researches in the area.

1.6The Scope of Study

The research conducted to assess the effect of WoredaNet in organizational performances in terms of employee productivity, efficiency & effectiveness and customer satisfaction. The research conducted at Ministry of Communication & IT (MCIT) as MCIT is the owner of the project and implements WoredaNet throughout the country. The research included WoredaNet destinations (government offices) which are located in Addis Ababa and around Addis Ababa, Ethiopia. As Addis Ababa is advanced in ICT comparing to other parts of the country, the researcher believes that the problems raised here will be in higher level at other parts of the country. Thus to figure the existing problems in Addis Ababa will help to identify and indicate the problems exist in less fortunate parts of Ethiopia in regard to infrastructure and ICT.

The study considers the WoredaNet destinations as customer of MCIT as they are users of the WoredaNet services from the organization. The research also included employees who are working directly on WoredaNet at MCIT. Additionally ten members of management team in respected organizations included in the research to have data on challenges, policy and programs which relate to WoredaNet.

As MCIT works on vast areas, the researcher focused on certain operation of the organization such as M&E of ICT Programs, improved service delivery and enhancing good governance. The research covers the operations in limited view as the areas are very broad, the operation ‘M&E of ICT programs’ is

considered in regard to the demand for the service and service delivery provided by the organization and when analyzing the operation 'enhancing of good governance' the research tries to cover transparency and responsiveness only.

1.7 The Limitation of Study

WoredaNet is implemented in more than 3,000 destinations/sites due to time and financial constraints, the research are limited to cover all of the sites or woredas. Due to differences in educational, socioeconomical, and cultural background, in facilitating conditions and experience in using the technology and the like, it may be very difficult to generalize this study's results to all other WoredaNet destinations throughout the country.

The study is limited to measure the financial effect of WoredaNet in the organization. Hence future research is recommended to address the above limitations.

1.8Organization of the Study

The study consists of 5 chapters. Chapter one is the introduction chapter which presents background of the study, statement of the problem, objectives of the study, significance of the study, scope and limitation of the study which gave mandatory introduction to the research which is conducted. The second chapter deals with review of different related literatures regarding the topic of the study which help us to have a concurrent view in the matter of the study. The third chapter discusses research methodology and methods which were implemented by the current study. The fourth chapter mainly concerned on data analysis, interpretation, and presentation of major findings of the study. Finally, based on the analysis and interpretation of the findings, chapter five presents the summary, conclusion and recommendation. At the end, references and annexes have been attached.

CHAPTER TWO
LITERATURE REVIEW

Introduction

The advent of the information age and its acceleration effect on globalization are leading the world to a new economic order driven by information and knowledge based economies (Blessing & Lawrence, 2014). In an increasingly globalized world, where information technology has become one of the key determinants of growth, many African countries are facing new challenges as a result of the emerging information age.

The enabling role that Information and Communication Technologies (ICTs) can play in facilitating and accelerating socio-economic development (ICT4D) is now being recognized by most African governments. A growing number of national and local governments are setting up national ICT policies, putting critical information online, automating administrative processes and interacting with their citizens through online services, yet the great opportunities offered by these new technologies remains largely unexploited (Kitaw, 2006).

2.1 Theoretical Review

2.1.1 Terms and Concept Briefing

2.1.1.1 WoredaNet

The name WoredaNet comes from the Amharic word "woreda" and Network. WoredaNet is a terrestrial and satellite-based network designed with the primary objective to provide ICT services to the Federal, Regional and Woreda level government entities. It is an example of a Government-to-Government (G2G) model in an African country (Kitaw, 2005).

Core ICT Services of WoredaNet:

- **Internet Access:** the Woredas/sites included in the WoredaNet have connectivity to the internet using terminal from anywhere in the country;
- **Video Conference:** the Government Video Conferencing solution works over a nationwide IP based video conferencing within Ethiopia between the Federal Government and all 11 regional States (Kililes) and also different regional states and their woredas/districts. More specifically, it allows effective and frequent communication and collaboration between woreda administrators, region heads and the federal government;

- **Web Services:** Web Services that is a series of web servers and pages that provide civil servants with access to government restricted information, but also access to content available on the internet on education, health, agriculture and governance. It is provision of timely information to the lowest government institution through the web services with static web pages and archived video sessions;
- **Voice Over IP(VoIP):** Voice over IP (IP telephony) which is a service that permits common and singular voice exchange over IP communication infrastructure between federal, regional and woreda sites. It is a service that allows meeting and broadcast of recorded sessions and programs to remote woredas;
- **Electronic Messaging:** Messaging that is an electronic messaging environment for a free flow of messages through a secure and organized IT framework.
- **Applications:** WoredaNet sets up the infrastructure for which the sites could use different kinds of system application, i.e. application developed by e-service are supported and implemented;
- **Data Center Collocation:** WoredaNet provides collocation facility to the sites which request the service. The collocation facility provides building space, cooling system, power, bandwidth and physical security while the sites provide servers and storage.

2.1.1.2 Electronic Government

E-Government is short for Electronic Government and is simply defined as the use of ICT to improve the process of government (Gordon, 2002). It uses different kinds of ICT technologies to enhance government operations; such as internet, mobile computing, system, applications, WAN. These technologies can serve a variety of different ends: better delivery of government services to citizens, improved interactions with business and industry, citizen empowerment through access to information, or more efficient government management. The resulting benefits can be less corruption, increased transparency, greater convenience, revenue growth, and/or cost reductions (Poku, 2010)

According to Prof. Dele Olowu, E-Government is information and communication technology platforms and applications in use in the public sector of the use of the internet for delivering government information and services to citizens (Olowu, 2004).

The terms e-government and e-governance are often used to describe a government's use of Information and Communication Technology (ICT) to render services to its citizens. E-governance can be defined as the use of emerging information and communication technologies to facilitate the processes of government and public administration (Drucker, 2001). And E-government can be defined as the use of

information technology to support government operations, engage citizens, and provide government services (West, &J. Wind, 1996).

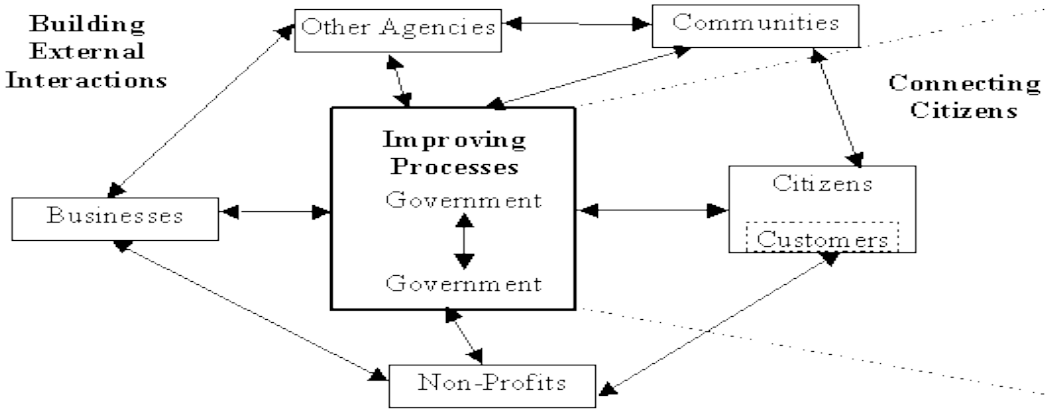
E-Government is digital interactions between a government and citizens (G2C), government and businesses/Commerce (G2B), government and employees and also between government and government agencies (G2G) (http://en.wikipedia.org/wiki/E-Government).Generally, e-government is the use of information and communication technologies (ICTs) toimprove the activities of public sector organizations.

Domains of E-Government

According to Heeks, 2002, there are three main domains of e-government as illustrated in Figure 2.1 (adapted from: Ntiro, S. (2000) *E-government in Eastern Africa*, KPMG, Dar-es-Salaam)

- Improving government processes: **E-Administration**
- Connecting citizens: **E-Citizens and E-Services**
- Building external interactions: **E-Society**

Figure 2.1: Focal Domains for E-government



Source: Nitro, S. (2000)

The three main models of E-Government are detailed below (Heeks, 2002).

I. E-Administration

E-Government initiatives within this domain deal particularly with improving the internal workings of the public sector. They include:

- Cutting Process Costs: improving the input output ratio by cutting financial costs and/or time costs.
- Managing Process Performance: planning, monitoring and controlling the performance of process resources (human, financial and other).
- Making strategic connections in government: connecting arms, agencies, levels and data stores of government to strengthen capacity to investigate, develop and implement the strategy and policy that guides government processes.
- Creating Empowerment: transferring power, authority and resources for processes from their existing locus to new locations.

II. E-Citizens and E-Services

Such initiatives deal particularly with the relationship between government and citizens, either as voters or stakeholders. These initiatives may well incorporate the process improvements identified in E-Administration. However, they also include a broader remit:

- Talking to Citizens: providing citizens with details of public sector activities. This mainly relates to certain types of accountability: making public servants more accountable for their decisions and actions.
- Listening to Citizens: increasing the input of citizens into public sector decisions and actions. This could be flagged as either democratization or participation.
- Improving public Services: improving the services delivered to members of the public along dimensions such as quality, convenience and cost.

III. E-Society

Reform initiatives for building external interactions deal particularly with the relationship between public agencies and other institutions. To elaborate more, such initiatives deal particularly with the relationship between private sector companies, non-profit and community organizations and with the relationship between civil society institutions in addition to Public agencies. It focuses on:

- Working better with business: improving the interaction between government and business. This includes digitizing procurement from and services to business to improve their quality, convenience and cost.
- Developing communities*:* building the social and economic capacities and capital of local communities.
- Building partnerships: strengthening institutional relationships. This has two parts. First, building government partnerships: strengthening relations between government and other institutions such as NGOs or international organizations. Second, building civil society partnerships: strengthening relations between the institutions of civil society, such as between NGOs. Generally, e-society is building external interactions.

E-government is the use of ICT to promote more efficient and effective government**,** facilitate the accessibility of government services**,** allow greater public access to information and make governments more accountable to citizens (Sarrayrih, 2015).

There three major objectives of technological element in e-Government, which are interconnected and interdependent (Misuraca, 2007).

- Improving information management.
- Improving service delivery
- Improving accessibility and participation of the different stakeholders.

Delivery Models of E-Government

According to Jeong, (2007) E-Government delivery models are Government-to-Citizen (G2C), Government-to-Business (G2B), Government-to-Government (G2G) and Government-to-Employees (G2E).

- **Government-to- Citizen (**G2C): Talking to citizens by providing them with details of public sector activities, increasing the input of citizens into public sector decisions and improving public services delivered to members of the public, in terms of quality, transparency, accessibility and cost. G2C includes such applications as e-Banking, e-Procurement, e-Education and e-Health. AmongG2C services are information dissemination, providing of licenses, birth/death/marriage certificates, tax information and filing, education results and online libraries. Examples of G2C in

Africa are the Rwanda Online Government Services and the Mauritius Government Online Centre. (Kitaw 2006)

- **Government-to-Business (G2B)**: Includes services exchanged between government and the business community, such as dissemination of policies, rules and regulations, downloading application forms for licenses, renewals, payment of taxes and e-procurement.
- **Government-to-Government (G2G)**: Also known as e-Administration, G2G involves harnessing technology to improve public administration processes for better service delivery. It is especially employed in the decentralization of government and the connection of local to central government. The Woreda Net project of the government of Ethiopia is a G2G project.
- **Government-to-Employee (G2E**): less common than the other three in Africa, which involve specialized services for government employees, and Government-to-Any (G2X) by which government delivers ICT-enabled services to non-citizens such as the online issuance of visas and foreign investors, as done by Rwanda (Kitaw, 2006).

E-government promises to make government more efficient, responsive, transparent and legitimate and is also creating a rapidly growing market of goods and services, with a variety of new business opportunities (Gordon,. F Thomas 2002).

2.1.1.3 E-Government and Good Governance &Public Administration

The core task of government is governance, the job of regulating society. In modern democracies, responsibility and power for regulation is divided up and shared among the legislative, executive and judicial branches of government. Simplifying somewhat, the legislature is responsible for making policy in the form of laws, the executive for implementing the policy and law enforcement, and the judiciary for resolving legal conflicts. E-government is about improving the work of all of these branches of government, not just public administration in the narrow sense (Elmorshidy, 2013)

The Webster's Encyclopedia Unabridged Dictionary of the English Language defines governance as a method or system of government or management. The term good governance was coined several decades ago and was initially rooted on the historical conditions set by international donor agencies, countries and institutions to connect aid conditional upon reforms in the recipient country, which was found largely ineffective in encouraging real policy changes (Abdelatif, 2003).

Governance is process of decision-making and the process by which decisions are implemented or not implemented. Governance can be used in several contexts such as corporate governance, international

governance, national governance and local governance. Since governance is the process of decision making and the process by which decisions are implemented, an analysis of governance focuses on the formal and informal actors involved in decision-making and implementing the decisions made and the formal and informal structures that have been set in place to arrive at and implement the decision (Meetika Srivastava, 2009).

Government is one of the actors in governance. Other actors involved in governance vary depending on the level of government that is under discussion. In rural areas, for example, other actors may include influential land lords, associations of peasant farmers, cooperatives, NGOs, research institutes, religious leaders, finance institutions political parties, the military etc (http://www.unhas.ac.id).

The public administration has introduced new concept-good governance. The term good governance is difficult to define. But this difficulty does not stand on the way of its explanation and pursuance**.** Good Governance is a broad term that includes values and practices such as legality, justice, trust of laws and institutions, efficiency, responsible budgeting, management of human resources and crisis management. An efficient, responsive, transparent and accountable public administration is not only of paramount importance for the proper functioning of a nation, it is a central part of democratic governance and also the basic means through which government strategies to achieve the integration goals can be implemented. This study aims to define a triangle, which describes the linkage of three essential components whose role is crucial in developing a country, especially in transition (http://www.yourarticlelibrary.com).

Good governance is a term different to governance which is mainly a political and technocratic term without normative aspirations and suggests that governance should be "good" and not "bad". At UNESCAP Mr. Yap Kioe articulated that Good governance has 8 major characteristics; it is participatory, consensus oriented, accountable, transparent, responsive, effective and efficient, equitable and inclusive and follows the rule of law.

The UNDP (1997:2-3) described governance as the exercise of economic, political and administrative authority inherent in the management of a country's affairs at all levels amid a wide variety of mechanisms, processes and institutions, through which citizens articulate their interests, exercise their legal rights, meet their obligations and mediate their differences. Good governance entails that responsibility and transparency are reinforced, and that real participation is fostered, which implies that the link with democracy becomes much clearer and that good governance reinforces democracy and vice

versa. The implication of this is that neither of these concepts can be retained in the long term without the other. To strengthen good governance is thus in the long term to support the consolidation of democracy. The World Bank for example, outlines three aspects of governance the type of the political regime, the public management of economic and social resources, and the capacity of government to design, formulate and implement policies (Washington D.C.: The World Bank, 1994).

Good governance can be understood as a mechanism of capacity building for states that despite being independent are not capable of making and implementing their own decisions Good governance is a product of time and the individual historical, political and economic conditions of each country have to be taken into account when reforms are prioritized (Grindle, 2007).

Modern public administration is highly complex and naturally people have very little or even no scope to participate and ensure good governance. In the age of globalization the public administration of a particular state is not detached from the rest of the world (http://www.yourarticlelibrary.com).

Public Administration as the art and science of management as applied to the affairs of state (Kernaghan 2010), there is a broad agreement that the key element of the discipline is the management and implementation of public policy at all levels of governance.

The government of the Kyrgyz Republic implemented Good Governance and Public Administration Strengthening (GGPAS) program, which is a flexible, three-year initiative to help strengthen key public and private institutions critical to long-term stability and democratic growth. GGPAS provides targeted assistance for governance reform in order to strengthen the abilities of public sector institutions to deliver key services more effectively and efficiently and help a range of public, private, and civil society partners expand access to and improve the quality of citizen services (GGPAS program update, 2015).

Employing a unique management model, GGPAS works across sectors as opportunities emerge, strengthening existing partnerships, and establishing new relationships with key institutions. Major areas Public Administration& Local Governance, E-Governance, Education & Healthcare, Social protection and development, Citizen documentation, Public safety and security, Tax services, Electricity and energy provision and Agriculture and food security.

According to Thomas Gordon (2002), New Public Management is a kind of management theory about how to reform government by replacing rigid hierarchical organizational structures with more dynamic networks of small organizational units; replacing authoritarian, topdown decision and policy making practices with a more consensual, bottom-up approach which facilitates the participation of as many

stakeholders as possible, especially ordinary citizens; adopting a more 'customer'-oriented attitude to public services; and applying market principles to enhance efficiency and productivity.

E-Government gives New Public Management fresh blood. Not only does information and communications technology provide the infrastructure and software tools needed for a loosely coupled network of governmental units to collaborate effectively, the infiltration of this technology into government agencies tends to lead naturally to institutional reform, since it is difficult to maintain strictly hierarchical channels of communication and control when every civil servant can collaborate efficiently and directly with anyone else via the Internet (Thomas, 2002).

Orthogonal to the division of power among the branches of government is the hierarchical organization of supranational (e.g., European), national, regional and local governments bounded by geographical territory. Information and communication technology creates a 'new accessibility', overcoming temporal, geographical and organizational boundaries. Thus e-government can facilitate new forms of collaboration among governments which cut across and diminish such boundaries. The Euro Cities project is an example. Perhaps in the long term e-government will help to strengthen the identification of citizens with Europe. E-Government is not only or even primarily about reforming the work processes within and among governmental institutions, but is rather about improving its services to and collaboration with citizens, the business and professional community, and nonprofit and nongovernmental organizations such as associations, trade unions, political parties, churches, and public interest groups(Thomas, 2002).

2.1.1.4 E- Government in Ethiopia

Ministry of Communication and Information Technology realizes the need to integrate the initiatives to provide a strategic direction for e-Government implementation in the country. It is in this context that the e-Government strategy for Ethiopia has been designed, with a focus on facilitating effective delivery of government services to customers (residents, businesses and visitors) (MCIT, 2011).

According to E-Government strategy Implementation report, (2011), the E-government strategy has been keeping the following guiding principles of designing E-Government:

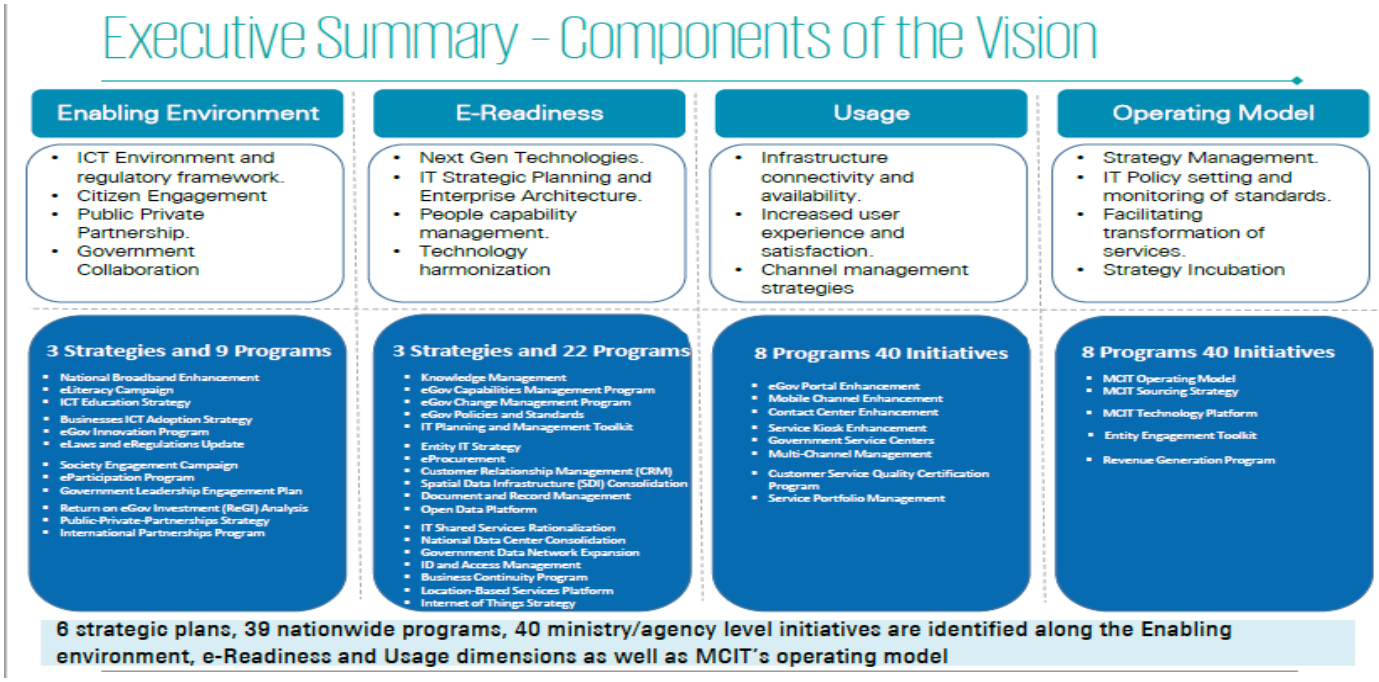
- E-Government is focused in creating a SMART (Simple Moral Accountable, Responsive and Transparent) Government
- E-government promotes causes of e-citizen and e-democracy
- E-Government is not translating processes, however transforming processes
- E-Government necessitates capacity building within the Government

- E-government aims networked and integrated government
- E-government is citizen-centric
- E-government provides multi-channel delivery of public services
- E-Government aims in providing convenient access of information to all, and improving service access & delivery
- E-Government enables development & participation of all segments of population to reap benefits of IT and also participate in the Governance process and be able to voice their opinions more effectively
- E-Government supports in development and inclusion of Private Sector in public service delivery.

The E-Government vision 2020 which is designed by MCIT is "To Realize the economic growth of Ethiopia and provide Affordable & quality services to all Stakeholders there by Delivering effective, efficient and transparent governance, through Innovation in everything we do, creating a culture of entrepreneurship, Affecting the life of all Ethiopians and Leveraging SMART government initiatives" (MCIT, 2016).

According to Ethiopian E-Government Strategic Implementation Plan 2020, the following figure illustrates the Components/Framework of E-Government strategy.

Fig 2.2: Egov 2020 Components



Source: E-Government Strategic Implementation Plan 2020

The major initiatives of E-Government in Ethiopia are illustrated below (Belachew, 2012)

- Infrastructure: is backbone of E-Government activities which compromises assignments including telecommunication infrastructure, data centers and networking. This initiative included projects such as WoredaNet, SchoolNet, EthERNet, Network Master Plan Phase I & II, Call Center.
- Applications: are done mainly to automate the back-office activities; to mention some Government Portal, M-Government, E-Service, Justice Information System, Drivers &Vehicles Management Information System , National Records & Library Management Information System, HR Information System, Trade Registry System, Exam & Placement System, etc
- Standard/guidelines: the national ICT policy and the ICT for Development (ICT4D) strategy are the governing component in a successful e-Government activity. The different standards and guidelines are also facilitating the seamless interactions between different e-Government initiatives. Ethiopia has an approved ICT policy and the ICT4D strategy which gives a comprehensive list of concentration areas in ICT and e-Government. Some of the guidelines and standards already enforced at national level are localization of ICT terminologies, keyboard standard, national disaster prevention & recovery plan, procedure and guideline, national ICT HRD strategy, national ICT research and development (R&D) strategy and guideline. The e-Government strategy, interoperability standard, enterprise architecture and PKI are on the process of development.
- Human Resource Development: tried to revise the curriculum from elementary to the university level to have ICT be introduced in all level of schooling. In addition to that, a focused training to the civil savants is also organized at federal and regional level. Professional trainings are also organized nationally to produce skilled manpower in the public institutions.

According to UN E-Government development index, 2016 Ethiopia shows positive progress in E-Government development.

Table 2.1: E-Government Development Index: Ethiopia

Survey Year	Country Name	E-Government Rank(From 193 countries)	E-Government Index (1)	E-Participation Index	Online Service Index	Human Capital Index	Telecommunication Infrastructure Index
2008	Ethiopia	172	0.1857	0	0.17391	0.37959	0.00402
2010	Ethiopia	172	0.20331	0.04285	0.2	0.40273	0.00731
2012	Ethiopia	172	0.23058	0.3421	0.47058	0.21185	0.0093
2014	Ethiopia	157	0.25888	0.2549	0.45669	0.2934	0.02659
2016	Ethiopia	157	0.26655	0.49153	0.52899	0.22117	0.0495

Source: UN E-Government knowledge Database, 2018

Challenges and Opportunities of E-Government In Ethiopia

Ethiopia faces numerous challenges to fully adapt E-Government applications and seize the opportunities presented by ICT applications in general.

According to Derbretsion G/Michael (2017), Minister of MCIT, the ICT initiatives and E-Government in Ethiopia are facing challenges in infrastructure, qualified human resource, low level working culture, low level collaboration/partnership between private and public sector.

Dzidonu describing government services in Ethiopia notes that they are "characterized by cumbersome procedures, long delays in service delivery to clients, and consequently high costs to citizens, discourteous behavior of civil servants to citizens, a demand for compliance by citizens with the bureaucracy's archaic methods of doing things with a *take it or leave it* attitude" (ICT4D – Ethiopia, C. Dzidonu, 2006).

Introduction of ICT-based services creates an opportunity to identify flawed processes and re-engineer them, consequently improve not only the efficiency but also the quality of service to citizens. The E-Government initiatives offer tangible opportunity in stimulation of the usage of ICT applications in other development sectors (e.g. AgriNet, SchoolNet); thereby opens opportunities to transform agriculture based economies (NDC, 2018)

The opportunities presented by E-Government in Ethiopia includes reduce cost, improved quality of service delivery to citizens, increased transparence, increased accountability and increased citizen's participation in decision making process (Belachew, 2017)

2.1.2 Relationship Between ICT and Organizational Performance

Organizations are commonly defined as instruments of purpose. They are seen as coordinated by intentions and goals (James & Robert, 1997).Performance is the accomplishment of a given task measured against preset known standards of accuracy, completeness, cost, and speed (http://www.businessdictionary.com). The performance as stated by Wheelen and Hunger (2000) is an end result of an activity and an organizational performance is accumulated end result of all the organization's work process and activities.

Organizational performance refers to how well an organization is doing to reach its vision, mission, and goals (http://www.open.lib.umn.edu). Organizational Performance is the valued productive output of

system in the form of goods service (Swanson, 2000).Managers measure and control organization performance because it leads to better asset management, to an increased ability to provide customer value, to improve measures of organizational knowledge and measure of organizational performance do have an effect on an organization's reputation.

Information technologies can provide powerful strategic and tactical tools for organizations, which, if properly applied and used, could bring great advantages in promoting and strengthening their competitiveness (Porter, 2001). With the use of ICT, the time constraint, and distance barrier to accessing relevant information is eliminated or drastically reduced hence it improves coordination of activities within organizational boundaries (Spanos et al., 2001).

Different theoretical approaches have been adopted by researchers to investigate the nature of the relationship between ICT and firm performance over the years. Transaction cost theory (Williamson,1975); Value chain analysis (Porter, 1985); and Resource-based view which is a more recent theory that is widely embraced by many such as Bharadwaj (2000), Wade and Hulland (2004), Kim et al. (2006), Rai et al. (2006), Wu et al. (2006), Ordanini and Rubera (2010), Lee, Koo and Nam (2010), Fahy and Hooley (2011); Rashidirad, Syed and Soltani(2012).

There are four types of organizational performance measures, first human resource outcomes, second organizational outcomes, third financial accounting outcome, and lastly capital market outcomes. Human resource outcomes related to change in employee behavior which included employee satisfaction, turn over and absenteeism. Organizational outcomes contain labor productivity, customer satisfaction, and quality of product services. Financial accounting outcomes included three measures such as returns on assets, return on equity and profitability. Capital market outcomes reflect how market evaluates an organization which consists of the three indicators which is stock price, growth rate of stock price and market returns (Dyer & Reeves, 1995).

Most customs organizations measure performance in terms of effectiveness and efficiency (Cantens & Yasui, 2011). In an IT context when we measure the effectiveness, we basically measuring the capacity of the outputs of information systems or of an IT application to fulfill the requirements of the company and to achieve its goals, making this company more competitive. In the same IT context the efficiency is the measurement that how cheaply can you get things done, and "are the people to whom you provide IT services (the stakeholders) happy with the levels of service being delivered?" And "does it reduce the operational expenses?"

2.2Empirical Review of Literature

2.2.1 E-Government in Kenya

The first e-Government strategy was formulated in 2004 and was approved in December, 2004. This was to create order and harmony in Government ICT initiatives which were at the time invariably characterized by disharmony and lack of coordination with each department pursuing their own ICT agenda which resulted to wastage through duplication of resources. Therefore, the key strategy was to set up ICT institutions that would immediately address this. Directorate of e-Government was to oversee, among others mandates, coordination of implementation of strategy, formulation and communication of ICT guidelines and enforcement of national and international standards (roles being played by ICT Authority after merging E-government Directorate, GITS and ICT Board) (Wamato, 2015).

The following are some of the projects that were implemented during the five year plan. Key among them is the Integrated Financial Management Information System (IFMIS) and Integrated Personnel and Payroll Database (IPPD) which are fully operational in the ministries. Other applications that have been rolled out include the Local Authorities Integrated Financial Operations Management Systems (LAIFOMS), Education Management Information System (EMIS), Integrated Taxation Management Systems (ITMS) currently known as ITAX after making great improvement in design, online Recruitment and Selection System in the public service commission and the Border control System in the Ministry of state for Immigration and Registration of persons (GoK, 2014)

According to Kenya's ICT authority, the authority implements several programmes and has achieved various milestones such as through the digitization project they have managed to digitize over 60 million birth and death records, making search and retrieval easier and quicker and the centralization of road transport data through the Transport Integrated Management System (TIMS) allows for accountability in all functions of registration, licensing, inspection and enforcement of all motor vehicles and trailers for improved management of the transport sector.

According to Okong'o (2008) the major factors which are critical to the successful implementation of e-government project in Kenya are senior Management Commitment and Leadership, adequate budgetary provisions, ICT Personnel and management & process re-engineering.

2.2.2 E-Government in Rwanda

A case study was conducted for documentation of an E-Government project in Rwanda conducted under the framework of a joint partnership between the European Commission (EC) and the International Telecommunication Union. The project comprises a set of E-Government services and is included in this paper to illustrate the practical implementation of a Government-to-Citizens (G2C) model in an African country (Kitaw, 2006)

The objective of the case study was to assist the Rwandan government in providing efficient services to its citizens and to facilitate secure inter-governmental communications. By providing Internet based services through cost-efficient and secured communication networks, the project aims to improve the quality and efficiency of government services.

The case study shows that project identified the requirements with the management and IT professionals of the Rwandan Government and key services were identified as priority for deployment: Web-based secured e-mail, Online electronic forms and Public Internet Access Centers.

The case study concluded that the implementation of E-government have multiple folds. The most important ones are:

- Citizen empowerment and accessibly of government services : the Public Internet Access in post offices in remote areas facilitate the access of government information, forms to Rwandans citizens, thereby contribute to their empowerment.
- Efficiency in government services: The Web based secure emails between government offices not only stimulate and speed up intergovernmental information exchange but also increase efficiency.
- Stimulate tourism and foreign investment: the online visa delivery processes eases travel procedures for tourists and foreign business persons. By cutting redundancies in procedures and emphasizing immediate delivery of service, it not only increases the efficiency of the Immigration Department and but also makes the travelling conditions and experience for tourists and foreign investors more convenient by eliminating the cumbersome procedures of visa requests through the embassies.

2.3 Conceptual Framework

This research tried to assess the effect of WoredaNet on organizational performance based on Employee Performance, Efficiency & Effectiveness and Customer Satisfaction. The research tried to asses WorldNet's effect on MCIT operations.

2.3.1 Measuring Employee Performance

An employee who performs well is seen as one who achieves good results according to some pre-determined goals (Ojokuku & Sajuyigbe, 2012). Similarly Imran *et. al*, (2014) concurred that a firm's resource are extremely important for the firm's development, and that human capital is a key resource of a firm. Imran et. Al. (2014) concluded in their study that, technological advancement has significant impact on employee performance.

Najeeb (2013) stated in his literature review that there are four different performance dimensions on which employee are measured named; quality, quantity, dependability and knowledge. For the purpose of this study, the researcher adopted the following four factors to measure employee performance in MCIT,

Table 2.2: Measurements of staff performance

Employees Performance	Quality of work
	Quantity of Work
	Speed required to accomplish a specific task
	Knowledge

Source: Najeeb (2013)

2.3.2 Measuring Efficiency and Effectiveness

The efficiency is an indicator that is obtained by reporting the outcome effects to the efforts made. The efficiency of public sector implies a relation between the economic and social effects resulted from implementing a program.

Peter Drucker believes that there is no efficiency without effectiveness, because it is more important to do well what you have proposed (the effectiveness) than do well something else that was not necessarily concerned (Drucker, 2001, p.147). The relationship between efficiency and effectiveness is that of a part to the whole.

According to UK government ICT strategy, 2010 the Operational Efficiency Program includes:

- Improving public service delivery.
- Improving access to public services.
- Increasing the competence of public service delivery.

An important public benefit is the concern for human life and for quality of life. Because of these social needs the need for the public sector is felt, as this offers the society services

The researcher tried to measure the efficiency and effectiveness of the organization based on the characteristics of E-Government and based on the above literatures.

Table: 2.3 Measurements of Efficiency & Effectiveness

Efficiency	Improved public service and service delivery
	Accessibility of Services and Information
	Improved interaction with the citizen
	Cutting Process in terms time and financial cost
Effectiveness	Creating Empowerment: capacity building
	Flexibility

Source: Literatures &Formulated by the research based on the characteristics of E-Government

2.3.3 Measuring Customer Satisfaction

According to Kumbhar, 2011 the customer satisfaction is measured via service quality and service quality measured by various measurement tools and instruments developed by various researchers. Service quality can be defined as the difference between customer expectations for services performance prior to service encounter and their perception of the service received (Wandaogou and Jalulah, 2011).

Parasuraman *et. al.* (2005) incorporated e-services and conceptualized and constructed a multiple-item scale E-S-QUAL and E-RecS-QUAL models to assess electronic service quality. The final E-S-QUAL Scale, consisting of 22 items on four dimensions, which they labeled and defined as follows:

- Efficiency: The ease and speed of accessing and using the IT service.
- Fulfillment: The extent to which the site's promises about order delivery and item availability are fulfilled.
- System Availability: The correct technical functioning of the IT service.

- Privacy: The degree to which the site is safe and protects customer information.

The e-recovery service quality scale E-RecS-QUAL consisting of 11 items on three dimensions:

1. Responsiveness: Effective handling of problems and returns through the site.

2. Compensation: The degree to which the site compensates customers for problems.

3. Contact: The availability of assistance through telephone or online representative.

For the purpose of this research, the researcher used the following factors to measure the customer satisfaction in MCIT for users of WoredaNet services.

Table 2.4: Measurement of Customer Satisfaction

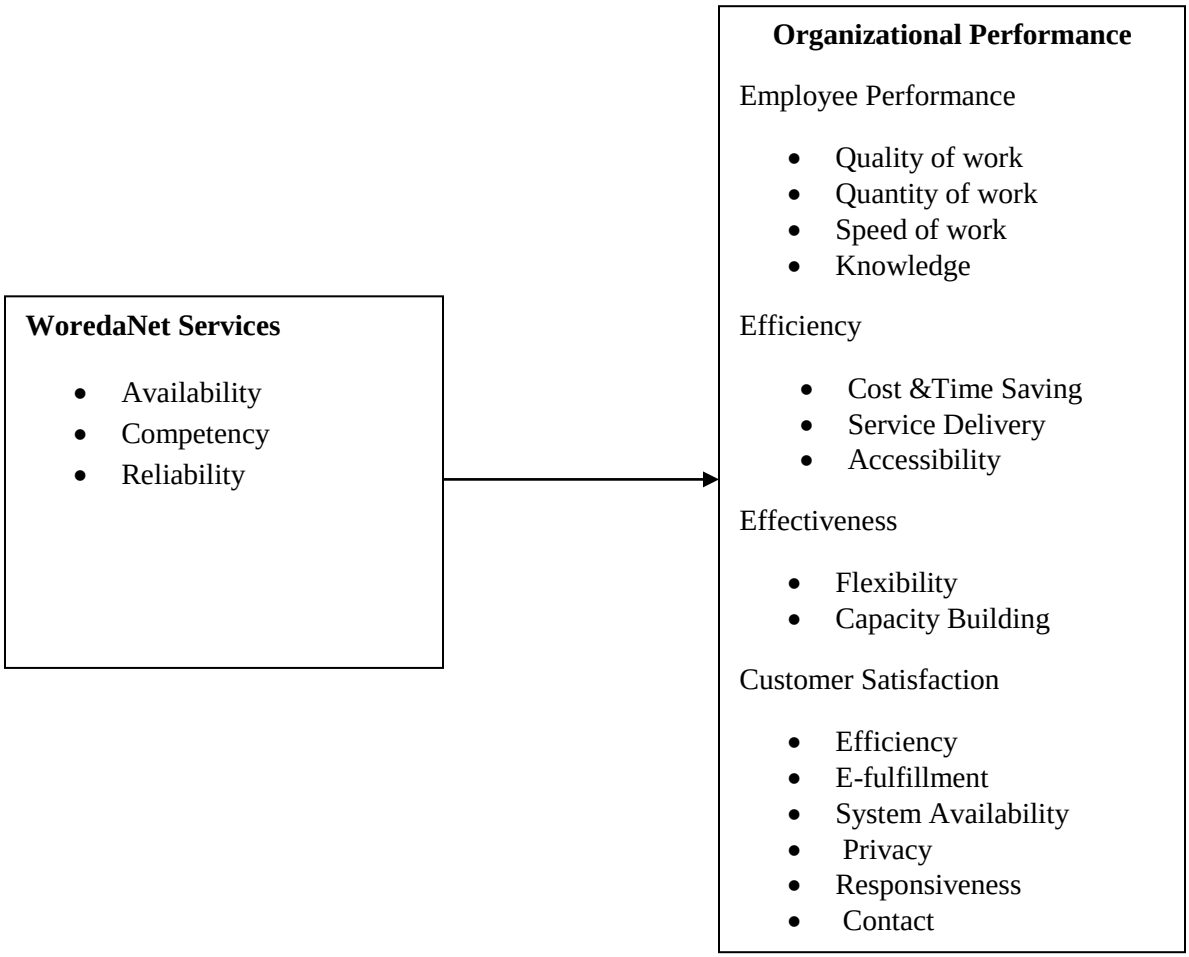
No.	Factors	Description
1.	Efficiency	The ease and speed of accessing and using the WoredaNet services; Connection Speed, performance of the services, time saving, uninterrupted power and costs of using the services.
2.	E-Fulfillment	The extent to which the site's promises about order delivery and item availability are fulfilled; scope of services offered, variety of services
3.	System Accessibility	Up-to-date equipment and physical facilities- Full Site computerization, to use the services.
4.	Privacy	Safe and protects customer information.
5.	Responsiveness	Recovery of the problem, prompt service, timeliness service, helping nature, employee curtsey, recovery of failed connections and system.
6.	Contact	The availability of assistance in providing WoredaNet destination support on system and documentation.

Source: Parasuraman et. al. (2005)

2.3.4 Measuring WoredaNet Services

The research used competency, reliability and availability of services of WoredaNet to measure the WoredaNet services. Competency was measured by speed of system & network connectivity, bandwidth rate, and power availability. Reliability was measured by scalability rate, quality of voice & video, system failure recovery rate and system diagnostics of WoredaNet services. Availability was measured by availability of resources, infrastructure, system and network connectivity availability of WoredaNet services.

Fig*ure 2.3: Conceptual Framework*



Source: Literatures &Formulated by The Research

Organizational performance refers to how well an organization is doing to reach its vision, mission, and goals. As stated the research measured the organization performance based on Employee Performance, Efficiency & Effectiveness and customer satisfaction.

CHAPTER THREE
METHODOLOGY

3.1 Introduction

Research method referred as the techniques and procedures used to obtain and analyze research data, including for example questionnaires, observation, interviews, and statistical and non-statistical techniques whereas research methodology is the theory of how research should be undertaken, including the theoretical and philosophical assumptions upon which research is based and the implications of these for the method or methods adopted (Saunders *et. al.*, 2009).

In order to attain the objective of the study and answer the research questions the study adopted a case study strategy. The case was conducted on Ministry of Communication & IT (MCIT) and selected WoredaNet destinations (government offices) which use the WoredaNet services. Case study approach is adopted to establish whether the findings of one case occur in other cases and as consequences, the need to generalize from the findings.

3.2 Operationalization of the Research Topic

Operationalization of the research topic is to identify the variables involved in this research that is the dependent variables and the independent variables. Therefore the dependent variable has been identified in the study as the organizational performance which is measured by employee performance, efficiency & effectiveness and customer satisfaction. Employee Performance is be measured by quality of work, quantity of work, speed of work and knowledge. Efficiency is measured in terms of improved service delivery, accessibility of services, time and cost saving. Effectiveness is measured by capacity building and flexibility. And Customer Satisfaction is measured by efficiency, e-fulfillment, system availability, privacy, responsiveness and contact. The independent variables have been identified in the study as availability, competency and reliability of WoredaNet services; the services of WoredaNet are Internet Access, Video Conference, Web Services, VoIP, E-Messaging, Applications and Data Center Collocation. Availability of WoredaNet services is measured by availability of resources, connection and system of the services, competency is measured by speed of connection, bandwidth, power availability and reliability is measured b quality of voice and video.

To examine the effect of WoredaNet on organization performance, the research used four employee performance measurement points and four efficiency measurement &two effectiveness measurement and

customer satisfaction is measured by six measurement points as illustrated in framework in chapter two under section 2.3.

3.3 Research Approach and Design

The research used mixed method approach which is the general term for when both qualitative and quantitative data collection techniques and analysis procedures are used in research design (Saunders *et. al.* 2009). In this research mixed-method approach is employed to ensure effectiveness of the research process as the findings of the qualitative data enhance the findings of quantitative one and the vise versa.

This study used a case study approach. According to Yeboah et. al, (2013) a case study approach is particularly appropriate for individual researchers because it gives an opportunity for one aspect of a problem to be studied in some depth within a limited time scale. Studies that establish causal relationships between variables may be termed descriptive research (Saunders et. al., 2009). This study has employed descriptive research type and interpretive methods of an inductive approach that started with data and tried to derived conclusions of the issue under study from collecting data by using both quantitative and qualitative types of data (quantitative data involved numeric scores/and metrics and qualitative data were included interviews and observations).This study tried to explain the relationship between the services and application of WoredaNet in MCIT and government organizations and its effect on MCIT's organizational performance which is measured by Employees productivity, Efficiency & Effectiveness and Customer Satisfaction.

3.4Type and Source of Data

The researcher used primary data and secondary data. The primary data collected from management, project managers and IT professionals. Secondary data collected from project document, reports and system & network designs.

This research used both primary and secondary source of data. Regarding the primary source the researcher distributed semi-structured questionnaires to relevant participants and also semi-structured interview conducted to gather primary data. In order to strength the result and findings of the research, the researcher examined different reports, project documents, articles, academic journals, databases and websites as secondary source of data. And also the researcher used different studies and articles in order to answer the research questions.

3.5Target Population, Sample Size and Sampling Procedure

The researcher purposely selected WoredaNet destination sites (government offices) which use the services of WoredaNet according to the database of MCIT and employees who are directly working on WoredaNet. These groups are targeted because the researcher believes that they are appropriate sources to provide relevant data and answer of the research questions.

The researcher perceived WoredaNet destination sites as the customers of MCIT. These destinations are government offices which are part of WoredaNet to get the ICT services.

The research's sampling frame was the list of WoredaNet sites which are included in the WoredaNet. According to the database of MCIT, 3,203 sites throughout the country are included in the WoredaNet (NDC, 2018) out of those sites 1,552 are the intended beneficiaries of WoredaNet services. Due to time and financial constraints, the researcher choosed samples from Addis Ababa and around Addis Ababa. The research used finite population method to determine the sample size (Carvalh 1984).

From the total WoredaNet destination/sites, 227 sites are around and in Addis Ababa. According to MCIT's data base 163 sites uses more than 1 WoredaNet service; the researcher found out that it is more reliable to measure the satisfaction of the destinations sites if they use more than one services of WoredaNet, as recommended by MCIT officials. Each of the selective sites on average has 2 workers who are working directly on WoredaNet (NDC, 2018) i.e N=163x2

$n=N/(1+N(e^2))$

Where e= 7%

Thus sample size is approximately 126. The researcher has chosen the sites with convenient sampling technique, non-probability sampling method. Convenience sampling involves selecting haphazardly those cases that are easiest to obtain for your sample (Saunders et. al., 2009). It involves selecting participants from the part of the population which is close to hand. This strategy was chosen for this study because sampling participants are distributed in different geographical locations and availability of the respondents.

The researcher used census sampling method to gather data from employees of MCIT to participate in the research. According to data from MCIT, there are 55 employees who are working directly with WoredaNet (NDC, 2018).

The participants from the WoredaNet users selected using purposive sampling technique, non-probability sampling method (Saunders et. al., 2009). The participants in the research should be working in IT department in order to answer the questionnaire correct because the nature of the study topic is IT based and there are key words and technical terms that should be answered by an IT professional. Therefore, the researcher used judgmental, purposive non-probability sampling method.

Additionally the researcher selected 5 respondents for interview through snowball/ referential, non-probability sampling method to have concrete data. The researcher used the collected data from the interview in order to build the case strongly and to triangulate the findings with analyzed quantitative data.

3.6 Data Collection

The research used two types of semi-structured and structured questionnaires, for employees and for the WoredaNet destinations/sites. The researcher selected the questionnaire because it was easy to use and it didn't consume time. The questionnaires for sites have three parts. The first part aims to collect demographic information of the participants. The second part used five point Likert scale which measures the effect of WoredaNet in terms of customer satisfaction. The respondents are requested to express their level of measurement with the research questions. And the last part used four point Likert scale which measure the challenges of using and implementing WoredaNet services. Questionnaire for employees has three parts. The first part aimed to collect demographic information of the participants, the second part used five point Likert scale to measure the effect of WoredaNet on employees' performance, efficiency &effectiveness and the last part tried to get data on the challenges of using and implementing WoredaNet. And also the researcher used semi-structured interview in order to gather data on the challenges of using & implementing WoredaNet and to gather data on the effect of WoredaNet project on the organization.

3.7 Data Analysis Method

Data were prepared for analysis by coding, organizing, chart, tabularization, and figuring according to necessary. The study would be used separated frameworks of analysis for quantitative and qualitative data. The framework of analysis for quantitative data of this study was examining the relationships between (independent and dependent) variables to answering quest of the study and test hypotheses. Therefore, all recorded data were transcribed into Statistical Package for Social Studies (SPSS) version20 window editor texts to ease the data analysis and then data were further interpreted by descriptive statistics, linear regression model and correlation method. The data were analyzed by using simple and suitable mathematical and statistical tools like tabulation, frequency, percentage and regression

coefficients. A relationship between the dependent and independent variable were analyzed through Pearson Correlation by using SPSS (Version20) program. Descriptive statistics were presented and analyzed through statistical tools.

Results were presented through graphs, tables, narrative text, simple computations and logical reasoning. Multiple linear regression analysis was carried out in relation to the research objectives and questions which lead to conclude testing hypothesizes. Multiple linear regression analysis is a statistical technique that allows to predicting dependent variable score through the independent variables (predictor variables) on the basis of their scores.

On the other hand, qualitative data analysis method of the study would have five steps; compiling, disassembling, reassembling, interpreting and concluding of data. Compiling was sorting of field notes amass from the fieldwork and relevant data sources then data were refined these notes nightly immediately as soon. After compiling the data would broke down into smaller fragments or pieces which may be considered disassembling procedure accompanied by assigning new labels, or codes to the fragments or pieces, for preparing analysis. The rearrangements and recombination were facilitated by depicted the data graphically or by arraying them in lists and other forms for clear analysis. The next phase involves using the reassembled material to create a new narrative, with accompanying tables and graphics where relevant, that will become the key analytic portion of draft manuscripts/raw data. This is considered as of interpreting the reassembled data. Initial interpretations may lead to the desire to recompile the data in afresh way. The final phase of qualitative analysis is concluding; it calls for drawing the conclusions from the entire study. Such conclusions should be related to the interpretation in the fourth phase and through it to all of the other phases of the cycle.

3.8Validity and Reliability Analysis

Validity is determining whether the findings are accurate from the standpoint of the researcher, the participant, or the readers of an account (John, W.C. 2009). This study's validity was assured through conducting interview with 10% of sample population of employees to determine accuracy of finding drawn from questionnaire and asking 5 IT managers and professionals for recommendation. Additionally pilot test was conducted that aimed to refine the questionnaire of the customers to ensure that respondents have no problems answering the questions.

According to the interview and the pilot test the questionnaires were reviewed and edited. And also opinion from the research advisor ensured the content validity, whether the items measure the area of interest or the concept it intends to measure which advance its validity.

Reliability is an indicator of a measure's internal consistency of measuring instruments. Consistency is the key to understanding reliability of instruments. A measure is reliable when different attempts at measuring something converge on the same result (Kothari C. R., 2004). Thus, reliability refers to the consistency and dependability of a measuring instrument; using it repeatedly should give us the same or similar results every time. Reliability analysis is to the extent to which a test measured consistently regardless of what it measured or whether or not a test produced the same results on different occasions. The technique applied to assess the reliability of data collection instrument in this study is Cronbach Coefficient Alpha. The Cronbach's alpha value ranges from 0(Observed items are not consistent) to 1 (Completely correlate and highly reliable). This means that internal consistency is acceptable if Cronbach's alpha is high the reliability (accuracy, stability and robustness) of the instrument being used that higher value for reliability test, or the more items that are used to measure a factor, the more reliable it could be (Cohen, 2007; Hair et al. 2010).Cronbach's alpha reflects that the extent to which the items in questionnaire are related to each other. Cronbach's coefficient alpha normally range between 0-1 values, which indicate the higher the values the higher degree of internal consistency (Kothari C. R., 2004).

The reliability analysis of the questionnaires for this study is shown as follows;

(A) Customers' Questionnaire Reliability Analysis

Table 3.8a Reliability Statistics of Customers

Variables	N of Items	Cronbach's Alpha
Customer Satisfaction	23	0.808
WoredaNet Services	10	0.572

Source: Own Survey Result, 2018.

The reliability statistics shows that the Cronbach's alpha of customer satisfaction variable 0.808 which shows that the internal consistency is high between the 23 items of the questionnaire. And also Cronbach's alpha for WoredaNet variables is 0.572 which shows the internal consistency is average between the 10 items.

(B) Employees' Questionnaire Reliability Analysis

Table 3.8b Reliability Statistics Employees

Variables	N of Items	Cronbach's Alpha
Efficiency	14	0.804
Effectiveness	8	0.575
Employee Performance	15	0.754
WoredaNet Services	16	0.724

Source: Own Survey Result, 2018.

As shown on above table 3.8b the Cronbach's alpha 0.804 which shows that the internal consistency is high between the 14 items of efficiency, 0.575 for 8 items of effectiveness which shows average internal consistency, 0.754 and 0.724 for employee performance variables and WoredaNet service variable which show the internal consistency is high from the questionnaires collected from the employees.

3.9 Ethical Considerations

According to Lewis, Saunders & Thornhill, (2009), research ethics refers to the appropriateness of the researcher's behavior in relation to those who become subject to the research, or are affected by it. To ensure factual accuracy and avoid falsification, fabrication and misinterpretation of data the researcher verified for permission to conduct this research from the MCIT, government offices and from IT consultants. The purpose of the study, the objectives of the research and all the necessary elements required in the study clearly communicated by the researcher to ensure that participants are well informed.

CHAPTER FOUR

DATA PRESENTATION, ANALYSIS AND INTERPRETATION

4.1 Introduction

This chapter covers the presentation, analysis and interpretation of data collected from primary sources. A total of 55 questionnaires were distributed to the employees' of MCIT to collect data on effect of WoredaNet services on employee performance, efficiency and effectiveness. A total of 126 questionnaires were distributed to different users of WoredaNet to collect data on the effect of WoredaNet on customer satisfaction. Because of low rate of returning rate there were needed to redistribute questionnaire again for customers, at the end 115 questionnaires were collected and analyzed as shown on table 4.1.1. The data from employees were collected from two offices of MCIT, NDC and head office. As shown in table 4.1.1 out of the questionnaires distributed to 55 employees, replies were obtained from 53 employees. The collected data were analyzed through SPSS version 20 window for the statistical analysis.

Table 4.1.1: Rate of Responses by Respondents

Questionnaires	**Employees**		**Customers**	
	Respondents	**Valid Percentage**	**Respondents**	**Valid Percentage**
Returned	53	96.37%	115	91.27%
Not Returned	2	3.63%	11	8.73%
Total	55	100%	126	100%

Source: Own Survey Result, 2018.

4.2 Demographic Data Presentation

4.2.1 Employees' Response

Employees participated in the survey questionnaires have different personal information. Table 4.3.1 presents the demographic data of participants as follows:

Table 4.2.1 Employees' Demographic Information

No.	Variables	Classification of Variables	Frequency	Percent	Valid Percent
1.	Gender	Male	31	58.5	58.5
		Female	22	41.5	41.5
		Total	53	100.0	100.0
2.	Age	20-25 years	6	11.3	11.3
		25-30 years	16	30.2	30.2
		30-35 years	23	43.4	43.4
		35-40 years	7	13.2	13.2
		40- 45 years	1	1.9	1.9
		Total	53	100.0	100.0
3.	Marital Status	Single	36	67.9	67.9
		Married	17	32.1	32.1
		Total	53	100.0	100.0
4.	Education Background	Undergraduate Degree(BSc/BA)	45	84.9	84.9
		Graduate (MSc/MA)	7	13.2	13.2
		PHD and Above	1	1.9	1.9
		Total	53	100.0	100.0
5.	Role of Respondent	Management	2	3.8	3.8
		Senior IT Professional Expert	11	20.8	20.8
		Junior IT Professional Expert	4	7.5	7.5
		System Administrator	10	18.9	18.9
		Network Administrator	9	17.0	17.0
		Security Expert	4	7.5	7.5
		Support Technician	6	11.3	11.3
		Help Desk	2	3.8	3.8
		VC Administrator	5	9.4	9.4
		Total	53	100.0	100.0
6.	Work Experience	0-2 years	3	5.7	5.7
		2-4 years	8	15.18	15.1
		4-6 years	17	32.1	32.1
		>6 years	25	47.2	47.2
		Total	53	100.0	100.0

Source: Own Survey, 2018

As shown in the above table 4.2.1, 58.5% of respondent were male and 41.5% were female. Similarly age distribution of the respondent has showed that that whose age category is grouped between 30-35 years is 43.4%, age group between 25-30 is 30.2%, age group 35-40 years is 13.2% and age group between 40-45 years is 1.9%. And also the study showed that 67.9% of respondents are single and 17% are married.

The research revealed that 84.9% of respondents hold undergraduate degree(BSC/BA), 13.2 % hold graduate degree (MSc/MA) and 1.9% hold PHD and above. From the total respondents 20.8% are senior IT professional experts, 18.9% are system administrators, 17% are network administrators, 11.3% are support technicians, 9.4% are VC administrators, 7.5% are security experts, 7.5% are junior IT professional experts, 3.8% are managements and 3.8% are help desk respectively. Similarly 47.2% of the respondents have work experience more than 6years, 32.1% of the respondents have experience between 4-6 years, 15.1% of the respondents have experience between 2-4 years and 5.7 of the respondents have experience between 0-2 years.

4.2.2 Customers' Response

Customers participated in the survey questionnaires have different personal information. Table 4.2.2 presents the demographic data of participants. As shown the below table 4.3.2, 54.8% of respondent were male and 45.2% were female. Similarly age distribution of the respondent has showed that those whose age category is grouped between 30-35 years and 25-30 hold highest percentage which is 31.3% and 33.9% respectively, age group between 20-25 years is cover 23.5%, age group 35-40 years cover 8.7 % and age group between 40-45 years cover lowest percentage which is 2.6%. According to table 4.3.2, most of the respondents were single, representing 60.9% of the total respondents. Married and divorce participants represent 37.4% and 1.7% of the total respondents respectively. The table also showed out of the total participants, 87 of the respondents have undergraduate Degree, 14 and 12 of the respondents have graduate degree and college diploma respectively and 2 of the respondents have PHD and above.

In terms of role of the participants, IT professional expert and system administrator share equal responses each have 28 of number respondents, network administrator and junior IT professional have 19 and 15 number of respondents respectively, support technicians have 11 numbers of respondents, management and database administrators are equal number of respondent which is 3 and hard ware technicians are 5 in number. In addition, it can be deducted as the below table 4.3.2, 56 numbers of respondents which represent 48.7% use WoredaNet in high frequency, 37 numbers of respondents which represent 32.2% use WoredaNet on average frequency, 10 number of respondents which represent 8.7% of total respondents use WoredaNet in low frequency, 8 number of respondent which represent 7% of total respondents use WoredaNet high frequently and 4 number of respondents which represents 3.5% of total respondents use WoredaNet in a very low frequency.

Table 4.2.2 Demographic Information of Customers

S.No.	Variables	Classification of Variables	Frequency	Percent	Valid Percent
1.	Gender	Male	63	54.8	54.8
		Female	52	45.2	45.2
		Total	115	100.0	100.0
2.	Age	20-25 years	27	23.5	23.5
		25-30 years	39	33.9	33.9
		30-35 years	36	31.3	31.3
		35-40 years	10	8.7	8.7
		40- years	3	2.6	2.6
		Total	115	100.0	100.0
3.	Marital Status	Single	70	60.9	60.9
		Married	43	37.4	37.4
		Divorce	2	1.7	1.7
		Total	115	100.0	100.0
4.	Education Background	College Diploma	12	10.4	10.4
		Undergraduate Degree(BSc/BA)	87	75.7	75.7
		Graduate (MSc/MA)	14	12.2	12.2
		PHD and Above	2	1.7	1.7
		Total	115	100.0	100.0
5.	Role of Respondent	Management	3	2.6	2.6
		IT Professional Expert	28	24.3	24.3
		Junior IT Professional Expert	15	13.0	13.0
		System Administrator	28	24.3	24.3
		Network Administrator	19	16.5	16.5
		Security Expert	3	2.6	2.6
		Support Technician	11	9.6	9.6
		Database Admin	3	2.6	2.6
		Hardware Technician	5	4.3	4.3
		Total	115	100.0	100.0
6.	Frequency of WoredaNet use	Very Low	4	3.5	3.5
		Low	10	8.7	8.7
		Average	37	32.2	32.2
		High	56	48.7	48.7
		Very High	8	7.0	7.0
		Total	115	100.0	100.0

Source: Own Survey, 2018.

4.3 Descriptive Analysis of Data Collected

4.3.1 WoredaNet Services

The following section seeks to display and describe the summary of the responses on the questionnaire items regarding the WoredaNet variables.

A. Employees' Response

Table 4.3.1a Descriptive Statistics of WoredaNet Services From Employee side

	N	Minimum	Maximum	Mean	Std. Deviation
Reliability	53	3.25	4.25	3.7217	.21739
Competency	53	3.40	4.40	3.8566	.25833
Availability	53	3.14	4.14	3.6846	.24321
Valid N (listwise)	53				

Source: Own Survey, 2018

As shown in the above table 4.3.1a, WoredaNet variables reliability, competency and availability have mean score 3.7217, 3.8566 and 3.6846 respectively. This means the WoredaNet services in MCIT have high network & system connectivity, good bandwidth, good system diagnostic, low system failure and enough availability of resources, connectivity and system accessibility.

B. Customers' Response

Table4.3.1b Descriptive Statistics of WoredaNet Services From Customer Side

	N	Minimum	Maximum	Mean	Std. Deviation
Reliability	115	3.00	4.33	3.7362	.31062
Competency	115	2.67	4.33	3.3594	.28663
Availability	115	3.00	4.25	3.6457	.32102
Valid N (listwise)	115				

Source: Own Survey, 2018

As shown in the above table 4.3.1b, WoredaNet variables reliability, competency and availability have mean score 3.7362, 3.3594 and 3.6457 respectively. This means the WoredaNet services in destinations have average network & system connectivity, good bandwidth, high system diagnostic, low system failure and enough availability of resources, connectivity and system accessibility. Relatively competency of WoredaNet service is lower in WoredaNet destinations; the study findings explained the reasons in the next sections.

4.3.2 Effect of WoredaNet Services on Efficiency of organization

The following section seeks to display and describe the summary of the responses on the questionnaire items regarding the variables of the research question and objective; the effect of WoredaNet services on efficiency of the organization.

Table 4.3.2 Effect of WoredaNet Services on Efficiency of Organization

Descriptive Statistics

S.No	Variables	Classification of Variables	N	Minimum	Maximum	Mean	Std. Deviation
1.	Service Delivery	Improving public service	53	3	5	4.0566	0.45637
		Improving service delivery	53	3	5	3.9811	0.6352
		Response when WoredaNet service is requested	53	2	5	3.7358	0.59326
		Follow up of customer request	53	2	5	3.4906	0.60836
		Electric power Availability	53	3	5	3.8302	0.75284
2.	Cost	Time Cost Saving	53	3	5	3.9811	0.74655
		Financial Cost	53	3	5	3.9623	0.73281
3.	Accessibility	System Accessibility	53	3	5	3.6981	0.57462
		information Accessibility	53	2	4	3.4906	0.54146
		Network Connectivity	53	2	5	3.3208	0.64371
		Speed of Connections	53	3	5	3.4906	0.60836
4.	Interaction with citizens	Creating platform for citizens	53	3	5	3.4717	0.57525
		Availing information to public	53	2	4	3.2264	0.54213
		The response to citizens' request via WoredaNet	53	3	4	3.4528	0.50253
		Valid N (listwise)	53				

Source: Own Survey Result, 2018

Based on the above table 4.3.2, the information can be interpreted that, the mean score calculated from the employee' responses on statements related with service delivery, financial cost, and time cost are highest. However according to mean scores calculated from the employees' responses on statements related with response given to citizens' request and availability of information to general public in the WoredaNet services are lowest rated. This finding was strongly consistent with (Asgarkhani, 2005; Bertot et al, 2008; George et al, 2011 and Agangiba, 2013); E-government has accelerated business processes, reducing geographical and distance inhibitors/barriers to access services from the governments,

improved quality of service (by reducing redundancy in service), use of ICT appear to be deepening and intensifying the socio-economic growth amongst people, businesses and nations, processing transactions speedily & high speed accessibility, providing prompt service, and it enabled that governments will provide services and resources tailored to the actual service and resource needs of users, including citizens, residents, government employees and others.

And also this study was consistent with findings (Gil-Garcia, 20012; Nkwe, 2012; Alshehri and Drew, 2012and Sakam, 2013) E-government can play indispensable role for public sector organizations service delivery in effectiveness& efficiency gains and achieved excellence in as far as it could create an ease ways of interacting with citizens/customers via simple and whereby it would facilitate effective communication. As WoredaNet is E-government project, the study showed that it is improving efficiency and effectiveness of organization.

4.3.3 Effect of WoredaNet Services on Effectiveness of Organization

The following section seeks to display and describe the summary of the responses on the questionnaire items regarding the variables of the second research question; the effect of WoredaNet on effectiveness of the organization.

Table 4.3.3 Effect of WoredaNet Services on Effectiveness of Organization

Descriptive Statistics

S.No.	Items	Classification of Items	N	Minimum	Maximum	Mean	Std. Deviation
1.	Creating Empowerment	Develop Communities	53	3.00	5.00	3.6415	.55796
		Build Partnership	53	3.00	5.00	3.8113	.55666
		System Update	53	2.00	5.00	3.6226	.65710
		Users Support	53	3.00	5.00	3.7925	.49453
		Providing Training	53	2.00	4.00	3.4151	.53472
2.	Flexibility	Flexibility in Work	53	2.00	5.00	3.7736	.63976
		System Flexibility	53	3.00	5.00	3.6604	.51677
		User Flexibility	53	2.00	5.00	3.3208	.61311
		Valid N (listwise)	53				

Source: Own Survey Report, 2018

Based on the above table4.3.3, the information can be interpreted that, the mean score calculated from the employee' responses on statements related with building partnership, users support and flexibility in work

are highest. However according to mean scores calculated from the employees' responses on statements related with response given to user flexibility and providing training are lowest rated.

4.3.4 Effect of WoredaNet Services on Employee Performance

The following section tries to display and analyze the frequency distribution of the responses on the questionnaire items regarding the variables of the third research question; the effect of WoredaNet services on employee performance.

Table 4.3.4 WoredaNet Services on Employee Performance

Descriptive Statistics

S.No.	Items	Classification of Items	N	Minimum	Maximum	Mean	Std. Deviation
1.	Quality of Work	Task Easiness	53	3.00	5.00	4.0000	.67937
		Perform in specification	53	3.00	5.00	3.7925	.59995
		Improve Operations	53	3.00	5.00	3.9434	.60176
2.	Quantity of Work	Simultaneous Operations	53	3.00	5.00	3.7736	.63976
		Performance within schedule	53	2.00	4.00	3.3774	.65710
		Larger number of task	53	3.00	5.00	3.6604	.61842
3.	Speed required to perform task	Decision making process	53	2.00	5.00	3.4340	.72083
		Deliver output timely	53	3.00	5.00	3.5283	.57525
		Deliver consistent output	53	2.00	4.00	3.6415	.52236
4.	Knowledge	Training	53	2.00	5.00	3.4528	.60657
		Gain new knowledge	53	2.00	5.00	3.6038	.68891
		Apply new knowledge	53	2.00	5.00	3.5849	.66315
5.	Overall Performance	Response of management	53	2.00	4.00	3.2264	.50541
		Overall performance improvement	53	2.00	5.00	3.5660	.74703
		Loosening workload	53	2.00	5.00	3.5660	.60477
		Valid N (listwise)	53				

Source: Own Survey, 2018

Based on the above table 4.3.4, the information can be interpreted that, the mean score calculated from the employee' responses on statements related with task easiness, improving operations, perform in specification and simultaneous operation are highest. However according to mean scores calculated from

the employees' responses on statements related with response of management for request of employees and performance within schedule are lowest rated. The table showed that the employee performance is improved by using the WoredaNet services. This finding is consistent with Imran et. Al. (2014) concluded in their study that, technological advancement has significant impact on employee performance.

4.3.5 Effect of WoredaNet Services on Customer Satisfaction

The following section tries to display and analyze the frequency distribution of the responses on the questionnaire items regarding the variables of the fourth research question; the effect of WoredaNet on customer satisfaction.

Based on the below table 4.3.5, the information can be interpreted that, the mean score calculated from the customers' responses on statements related with time cost, financial cost, availability of assistance, recommend to others and easiness to use are highest. However according to mean scores calculated from the customers' responses on statements related with response given to response of up to date hardware and software availability, documentation and security in system threats are lowest rated.

The findings were consistent with previous studies (Ndou, 2004; Kumar et al. 2007; George et al, 2011; Nkwe, 2012 and Brown et al, 2013) had proved that E-governance implementations is the best ways of reducing cost of service delivery through interacting, and transacting with minimum costs where costs are reduced and efficiency gained, quality of service delivery to customers, increase the capacity of government.

Table 4.3.5 Effect of WoredaNet Services on Customer Satisfaction

Descriptive Statistics

S.No.	Variables	Classification of Variables	N	Minimum	Maximum	Mean	Std. Deviation
1	Efficiency	Minimizes Time cost	115	3.00	5.00	4.4000	.50956
		minimize financial costs	115	3.00	5.00	4.2870	.47323
		easiness to use	115	3.00	5.00	3.8696	.38666
		speed of accessing	115	3.00	5.00	3.7739	.44051
2	E-fulfillment	availability as proposed document	115	3.00	5.00	3.7391	.46049
		availability variety of services	115	3.00	4.00	3.6957	.46214
3	System Accessibility	Convenience of WoredaNet services	115	3.00	4.00	3.7739	.42013
		system accessibility	115	3.00	4.00	3.7304	.44568
		hardware update	115	2.00	3.00	2.7391	.44103
		software update0	115	2.00	3.00	2.7043	.45833
4	Privacy	security system threats	115	2.00	3.00	2.8087	.39505
		Physical security	115	3.00	4.00	3.1391	.34760
		information security	115	3.00	4.00	3.6087	.49018
5	Responsiveness	Problem handling	115	3.00	5.00	3.6609	.49359
		timely information	115	3.00	4.00	3.5391	.50065
		response rate of MCIT	115	3.00	5.00	3.5130	.51920
		recovery system failure	115	3.00	5.00	3.4957	.51934
		problem solving	115	3.00	5.00	3.7304	.48344
6	Contact	support of MCIT	115	3.00	5.00	3.8348	.43791
		operational manual	115	2.00	3.00	2.7304	.44568
		availability of assistance	115	3.00	5.00	3.9826	.51269
7	Overall satisfaction	overall satisfaction	115	3.00	5.00	3.7913	.44909
		recommend WoredaNet to others	115	3.00	5.00	3.9391	.48281
		Valid N (listwise)	115				

Source: Own Survey, 2018

4.4 Inferential Statistics Analysis of Variables

This section of the study has tried to analyze, discuss and present the data that were collected through questionnaires from MCIT's employees and customers by using multiple linear regression model. Thus, this research was conducted to predicting empirically how much organizational performance in terms of efficiency, effectiveness, employee performance and customer satisfaction(as dependent variables) are improving/promoting by implementations, availability, competency and reliability of WoredaNet Services(as predictor (independent) variables) by taking MCIT as case study.

4.4.1 Assumption Testing for Regression Analysis

Meeting the assumptions of regression analysis is necessary to confirm that the obtained data truly represented the sample and that researcher has obtained the best results (Hair et al., 1998). Two assumptions for regression analysis used in this study will be discussed for the individual variables: multi-collinearity and linearity (Hair et al., 1998).

4.4.1.1 Multi-Collinearity

According to (Hill et al., 2003), multicollinearity is not a violation of the assumptions of regression but it may cause serious difficulties. Hill et al., (2003) propose that these serious difficulties include: (1) variances of parameter estimates may be large; (2) parameter estimates may not be significant; and (3) a parameter estimate may have a sign different from what is expected.

The inspection of the Pearson Correlation Matrix below Table 4.4.1.1and Table 4.4.1.2 for the regression models revealed that the correlations between the independent variables showed significance relationship. While checking, the independent variables showed significant relationship with the dependent variable.

Table 4.4.1.1 Correlation between WoredaNet Variables and Organizational Performance

Correlations

		Reliability	Competency	Availability	Organizational Performance
Reliability	Pearson Correlation	1			
	Sig. (2-tailed)				
	N	53			
Competency	Pearson Correlation	.697**	1		
	Sig. (2-tailed)	0.000			
	N	53	53		
Availability	Pearson Correlation	.646**	.683**	1	
	Sig. (2-tailed)	0.000	0.000		
	N	53	53	53	
Organizational Performance	Pearson Correlation	.757**	.840**	.775**	1
	Sig. (2-tailed)	0.000	0.000	0.000	
	N	53	53	53	53

**. Correlation is significant at the 0.01 level (2-tailed).

The Pearson Correlation analysis among variables of WoredaNet (availability, competency & reliability) with Organizational Performance variables (efficiency, effectiveness and employee performance) as the correlation coefficients depicted above WoredaNet variables has showed significant relation with organizational performance variables as above table 4.4.1.1. The correlation results revealed that the variables were explained with high correlation coefficients.

The Pearson Correlation analysis among variables of WoredaNet (availability, competency & reliability) with Organizational Performance variable (customer satisfaction) as the correlation coefficients depicted above WoredaNet variables has showed significant relation with organizational performance variables as below table 4.4.1.2. Moreover, pair-wise correlation matrix is one of the major methods of detecting multicollinearity among explanatory variables. If the pair-wise correlation coefficient among two regresses is in excess of 0.8, we suspect that multicollinearity possess serious challenge to our estimates (Gujarati, 2004). Therefore according to the survey result there was no independent variable which coefficient exceeded 0.8 which means multicollinearity between variables was not a problem for the study.

Table 4.4.1.2 Correlation between WoredaNet Variables on Customer Satisfaction

Correlations

		Availability	Reliability	Competency	Customer Satisfaction
Availability	Pearson Correlation	1			
	Sig. (2-tailed)				
	N	115			
Reliability	Pearson Correlation	.433**	1		
	Sig. (2-tailed)	0			
	N	115	115		
Competency	Pearson Correlation	.197*	.187*	1	
	Sig. (2-tailed)	0.035	0.045		
	N	115	115	115	
Customer Satisfaction	Pearson Correlation	.676**	.505**	.633**	1
	Sig. (2-tailed)	0	0	0	
	N	115	115	115	115

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

4.4.1.2 Linearity

The linearity of the relationship between the dependent and independent variable represented the degree to which the change in the dependent variable is associated with the independent variable (Hair et al., 1998). In a simple sense, linear models predict values falling in a straight line by having a constant unit change (slope) of the dependent variable for a constant unit change of the independent variable (Hair et al., 1998).The matrix scatter plot of standardized residuals versus the fitted values as below Figure 4.4.1.1 for the regression models were visually inspected, and the plots did reveal systematic pattern, thus providing support for the specified linear relationship, as suggested by Malhotra et al. 2007).

Figure 4.4.1.1 Matrix Scatter Plot of Effect of WoredaNet Variables (Availability, Reliability and Competency) on Organizational Performance Variables (Efficiency, Effectiveness and Employee Performance)

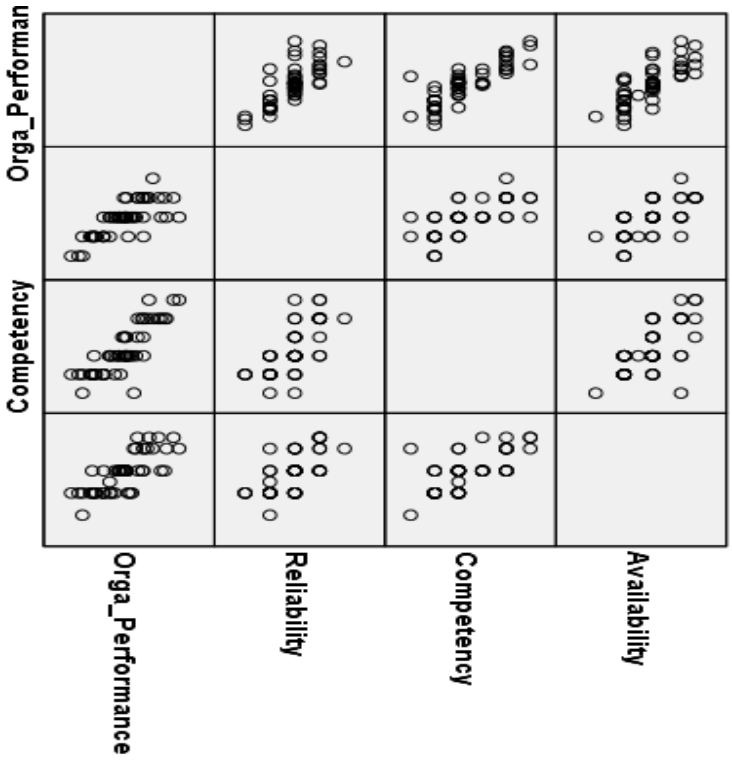
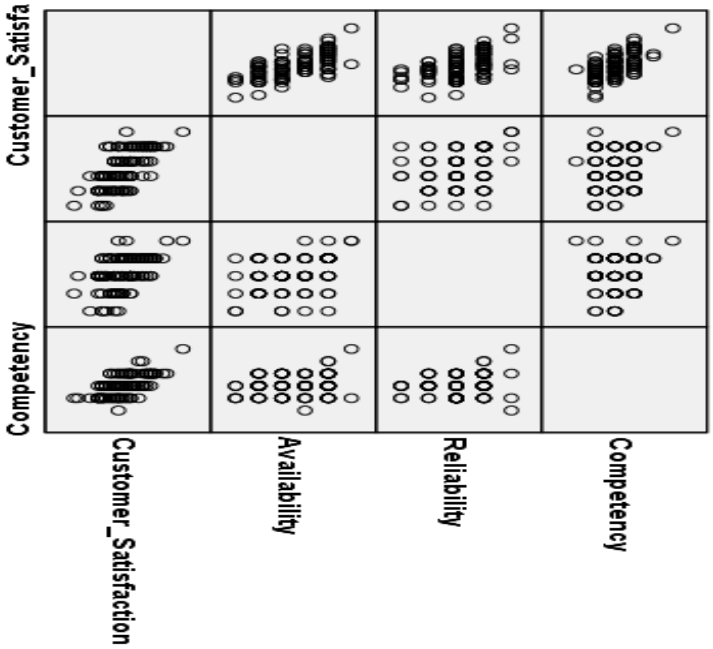


Figure 4.4.1.2 Matrix Scatter Plot of Effect of WoredaNet Variables (Availability, Reliability and Competency) on Organizational Performance Variable (Customer Satisfaction)



4.4.1.3 Normality

The normal distribution makes a straight diagonal line, and the plotted residuals are compared with the diagonal (Hair et al., 1998). If a distribution is normal, the residual line will closely follow the diagonal (Hair et al., 1998). As shown in figures below (Figure 4.5.1.3 and Figure 4.5.1.4) the P-P plots were approximately a straight line instead of a curve. Accordingly, the residuals were deemed to have a reasonably normal distribution, as suggested by Hair et al.(1998).

Figure 4.4.1.3Normality test of WoredaNet Variables (Availability, Reliability and Competency) on Organizational Performance Variables (Efficiency, Effectiveness and Employee Performance)

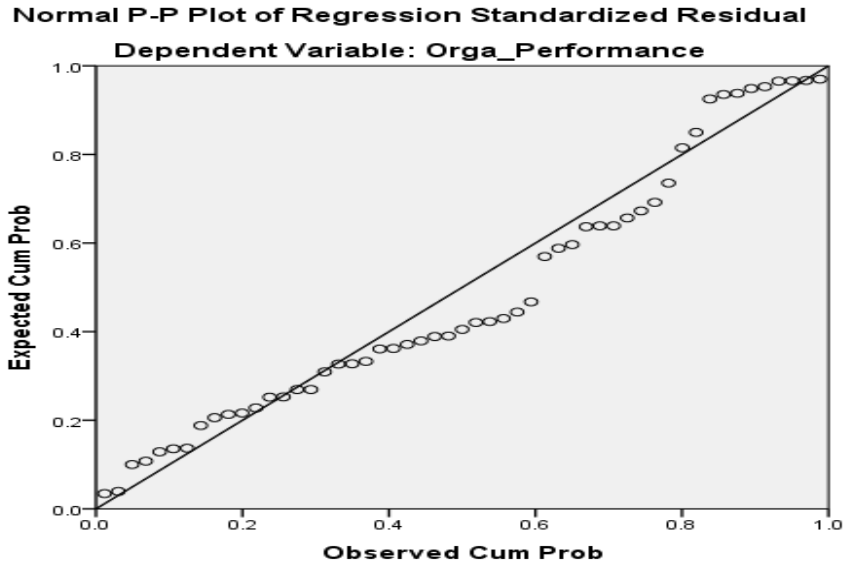
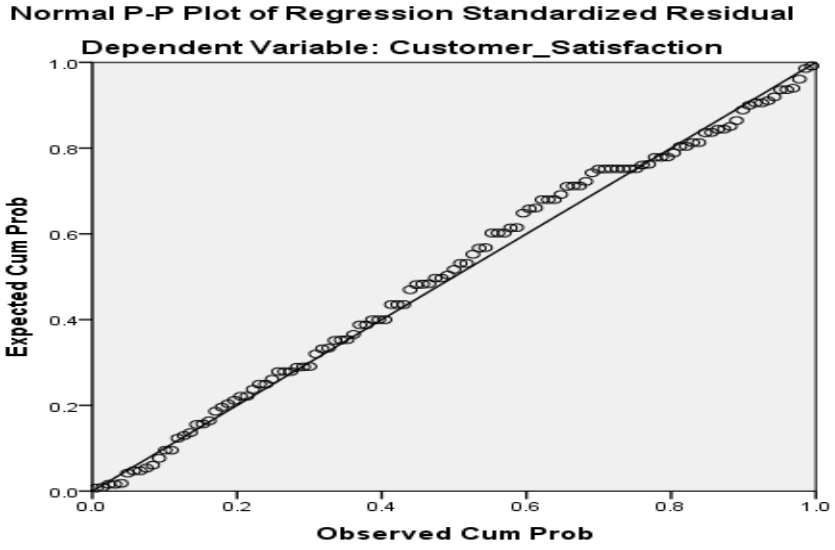


Figure 4.4.1.4 Normality test Effect of WoredaNet Variables (Availability, Reliability and Competency) on Organizational Performance Variable (Customer Satisfaction)



4.4.1.4 Heteroscedasticity of the Error Terms

Hair et al. (1998) identify heteroscedasticity as heterogeneity of variance. This assumption is referred to as the description of data in which the variance of the error terms (e) appears constant over the range of values of independent variables. In contrast, Maddala (2001) explains two basic consequences of heteroscedasticity: (1) the least squares estimators remain unbiased, but inefficient, and (2) the estimates of the variances are biased. This contributes to underestimation of the true variance of the ordinary least squares estimator, influences the confidence intervals, and invalidates the tests of significance of the independent variables. Hair et al. (1998) show that heteroscedastic variables can be remedied through data transformations similar to those used to reach normality.

The error terms were expected to have equal variances. In the matrix scattered residual plots as above Figure 4.4.1.1 and Figure 4.4.1.2, the residuals scattered randomly about the line and did not exhibit a triangular-shaped pattern, thus providing sufficient evidence to satisfy the assumption for heteroscedasticity of the error terms.

4.4.2 Regression Analysis

Albaum (1997) noted that regression is a technique used to predict the value of a dependent variable using one or more independent variables. Malhotra (2007) showed that regression analysis is a statistical tool for the investigation of relationships between variables. In order to ascertain the causal influence of one variable upon another, researchers assemble data on the underlying variables of the causal variables upon the variable that they influence Malhotra (2007). Researchers typically evaluate the "statistical significance" of the estimated relationships, namely, the degree of confidence that the true relationship is close to the estimated relationship Malhotra (2007).

4.4.2.1 Result of Regression Analysis of the Effect of WoredaNet on Organizational Performance (Efficiency, Effectiveness and Employee Performance)

This section demonstrated the effect of WoredaNet on organizational performance (efficiency, effectiveness and employee performance).

Table 4.4.2.1a Model Summary Result of WoredaNet Variables on Organizational Performance

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.898[a]	.806	.794	.13224	.806	67.994	3	49	.000

a. Predictors: (Constant), Availability, Reliability, Competency

As above Table 4.4.2.1a showed in the output about the quantity of variance that is explained by predictor variables. The first statistic, R, is the correlation coefficient between the predictor variables (availability, reliability & competency) and the dependent variable (organizational performance). The ***R*** is (0.898) at level ($\alpha \leq 0.05$); whereas the model's coefficient of determination, ***R2*** is (0.806). This is frequently used to describe the goodness-of-fit or the amount of variance explained by a given set of predictor variables. This means the 80.6% of organizational performance changeability's or variance results from the changeability in availability, reliability and competency of WoredaNet services. This higher***R2*** value indicated that the availability, reliability and competency of WoredaNet services, are important variables which lead to organizational performance. Adjusted ***R2*** = 0.794 with estimated standard deviation .13224, the regression model is statistically significant since the probability level is 0.000.

Table 4.4.2.1b ANOVA Result of WoredaNet Variables on Organizational Performance

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3.567	3	1.189	67.994	.000[b]
	Residual	.857	49	.017		
	Total	4.424	52			

a. Dependent Variable: Organizational Performance

b. Predictors: (Constant), Availability, Reliability, Competency

As shown in above Table 4.4.2.1b that describes the overall variance accounted for in the model. The F statistic represents a test of the null hypothesis that the regression coefficients are all equal to zero. Put another way, this F statistic tests whether the R square proportion of variance in the dependent variable accounted for by the predictors is zero. If the null hypothesis were true, then that would indicate that there is no (linear) regression relationship between the dependent variable and the predictor variables. The ANOVA analysis in the table shows that, there is a significant main effect of availability, reliability and

competency of WoredaNet services, on organizational performance on F =67.994, p <0.01 at the 0.05 alpha level.

The regression coefficients analysis as the below table 4.4.2.1c demonstrated that effect of WoredaNet services (availability, reliability & competency) on organizational performance has positive effect and have statistically significant relationships where WoredaNet variable reliability, competency and availability explained with the high standardized **β** value 23.5%, 47.0% and 30.2% respectively where the statistical significance of the variables was less than 0.05 (P-Value is <0.05).
Therefore, WoredaNet Services improve performance of organization in terms of efficiency, effectiveness and employee performance ($\alpha \leq 0.05$) and the hypothesis 1 and hypothesis 2 are accepted.

Table 4.4.2.1c Coefficient Result of WoredaNet Variable on Organizational Performance

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.921	.332		-2.776	.008
	Reliability	.315	.124	.235	2.532	.015
	Competency	.530	.109	.470	4.850	.000
	Availability	.362	.109	.302	3.320	.002

a. Dependent Variable: Organizational Performance

4.4.2.2 Result of Regression Analysis of the Effect of WoredaNet Services on Customer Satisfaction

This section demonstrated the effect of WoredaNet on customer satisfaction. As above Table 4.4.2.2a showed in the output includes information about the quantity of variance that is explained by predictor variables. The first statistic, R, is the correlation coefficient between the predictor variables (availability, reliability & competency) and the dependent variable (customer satisfaction). The ***R*** is (0.865) at level ($\alpha \leq 0.05$); whereas the model's coefficient of determination, ***R2*** is (0.749). This is frequently used to describe the goodness-of-fit or the amount of variance explained by a given set of predictor variables. This means the 74.9% of customer satisfaction changeability's or variance results from the changeability in availability, reliability and competency of WoredaNet services. This higher ***R2*** value indicated that the availability, reliability and competency of WoredaNet services, are important variables which lead to customer satisfaction. Adjusted ***R2*** = 0.742 with estimated standard deviation 0.10311, the regression model is statistically significant since the probability level is 0.000.

Table 4.4.2.2a Model Summary Result of WoredaNet Variables on Customer Satisfaction

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.865[a]	.749	.742	.10311	.749	110.370	3	111	.000

a. Predictors: (Constant), Competency, Reliability, Availability

Table 4.4.2.2b ANOVA Result of WoredaNet Variables on Customer satisfaction

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3.520	3	1.173	110.370	.000[b]
	Residual	1.180	111	.011		
	Total	4.700	114			

a. Dependent Variable: Customer Satisfaction

b. Predictors: (Constant), Competency, Reliability, Availability

As shown in above Table 4.4.2.2b that describes the overall variance accounted for in the model. The ANOVA analysis in the table shows that, there is a significant main effect of availability, reliability and competency of WoredaNet services, on customer satisfaction on $F = 110.370$, $p < 0.01$ at the 0.05 alpha level.

The regression coefficients analysis as the below table 4.4.2.2c demonstrated that effect of WoredaNet services (availability, reliability & competency) on customer satisfaction has positive effect and have statistically significant relationships where WoredaNet variable reliability, competency and availability explained with the high standardized **β** value 49.2%, 19.8% and 49.9% respectively where the statistical significance of the variables was less than 0.05 (P-Value is <0.05).

Therefore, Using WoredaNet has significant effect on customer satisfaction at level ($\alpha \leq 0.05$) and hypothesis 2 is accepted.

Table 4.4.2.2c Coefficient Result of WoredaNet Variable on Customer Satisfaction

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.783	.159		4.932	.000
	Availability	.311	.034	.492	9.247	.000
	Reliability	.130	.035	.198	3.735	.000
	Competency	.354	.035	.499	10.225	.000

a. Dependent Variable: Customer Satisfaction

4.5 Challenges of Using and Implementing WoredaNet

4.5.1 Challenges from Employee Side

The following challenges have been pointed out by the employees of MCIT through the questionnaire:

- Awareness gap from customers/beneficiaries side about WoredaNet services
- Employee turnover.
- Lack of skilled and experienced human power in Woredas/sites.
- Low bandwidth and slow internet connection.
- Power fluctuations and interruptions in Woredas/sites.
- Under utilization of WoredaNet services.
- Lack of management support

4.5.2 Challenges of Customers

As described in the below table 3.6.2, the challenges on lack of environmental devices such as UPS, AC and budget constraint exits with mean value of 3.22 and 3.05 respectively. Challenges on low bandwidth and lack of skill and knowledge exists with mean value 2.68 and 2.55 respectively. The challenge on lack of network devices slightly exists with mean value of 1.78.

Table: 4.5.2 Challenges of using WoredaNet

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Challenges lack of Environmental devices	115	2.00	4.00	3.2174	.71060
Challenges lack of network devices	115	1.00	3.00	1.7826	.61818
Challenges lack of skill, knowledge	115	2.00	3.00	2.5478	.49989
Challenges low bandwidth	115	2.00	4.00	2.6783	.62895
Challenges budget constraint	115	1.00	4.00	3.0522	.80398
Valid N (listwise)	115				

4.6 Qualitative Data Analysis and Presentations

This section of this research has discussed and presented different data that were gathered through semi structured interviews from five different IT professionals and officials of the organization. These methods has helped to matched and triangulated the relationship between the quantitative data and qualitative data to identifying the difference where it occurred and carefully scrutinizing the rationales. Therefore, the value of this research finding became more reliable and the researcher has tried to go along with the research objectives and used those methods for meaningful findings.

WoredaNet is one of the implemented e-government projects to enhance the efficiency of the organization in terms of service delivery, financial and time cost minimization, increased accessibility and improved interaction with citizens. For example MCIT created a web page consisting different ministerial offices and government organization www.ethiopia.gov.et for the citizens to access different information and to access e-forms, but its full operability is in questions as the main website page leads to different web pages of the organization.

WoredaNet offers the ICT services such as Internet, Voice Over IP, Datacenter collocation in which the sites brings their infrastructure like servers at NDC, Web services such as hosting websites for different WoredaNet destination, Application which are giving services for e-services and M-Gov, Video conference and Electronic messaging by hosting mail servers at the data center to facilitate the use of E-Messaging. The National Data Center serves as a hub to deliver the different ICT services; it is equipped with environmental devices such as UPS, AC and generators.

WoredaNet is also a platform where different applications are implemented such as IFMIS, E-services and Mobile government (M-gov) where 10th and 12th grade students access their national exam scores but the requested services and delivered services don't match and it causes the servers to freeze because of high enquiry. Implementations of such platforms brought result the real differences on service qualities automating existing service delivery methods &conditioning new service delivery mechanisms, enabled MCIT get connected with customers and kept their interests, enabling customers to access information which enabled the organization get near to customers' for immediate complaint handling, save different financial cost, time cost, energy and so forth. The ICT services were mainly targeted for speed up &increasing service delivery, improve efficiencies and being accessible of services for those who are in different geographical location.

WoredaNet also benefited employees as it gives the opportunity to use technological advanced equipments, factory training and knowledge sharing, enable them to do simultaneous operations at once, give them the to control and assist the WoredaNet destinations through NOC (Network Operation Control), provides the required specification and configuration of devices which are located at different beneficiaries'/customers' office and this help them to improve quality of work. As the provided by the informants employees who have worked on the NDC will not have a problem working anywhere else as the exposure to different technology advancement will help them to develop their skill and knowledge.

When WoredaNet was implemented on rural areas it created an ICT centers where citizens can have an access to use computers and internet via satellite connection (VSAT). This helped to develop a capacity of communities in rural areas in regard to Information Technology.

As the services of WoredaNet offers from basic to advanced level of technology, the users will not face problem while using it. But because of awareness the devices which are configured for these services will just be putted on table and the beneficiaries/users will continue with their traditions ways of doing their operation. For example one of services of WoredaNet, Video Conference help to have meeting without to travel to anywhere, this will highly benefit the officials as it highly saves their time and travel & accommodation costs, while continuing their normal duty in their office; but in some destinations these Video conference equipments are just there and the meetings which can be held through it are continuing like traditions way which requires to travel and stop the normal operation of the official. Trainings were given to beneficiaries/customers on how to use the services but because of employee turn over the trained employees left the organization.

To support the beneficiaries of WoredaNet NDC has deployed help desks with access of telephone and email with the main task to give support and to solve the problem which users have. The destinations or customers' of the services will have the bandwidth which is allocated by MCIT according to their need of connection and according to the availability of bandwidth connection by Ethio Telecom as the beneficiaries are located in different geographical locations.

The following problems and challenges are pointed out by the informants:

- Lack of skilled employees in the WoredaNet destinations.
- Electric power fluctuations in woredas as the organizations face budget shortage to purchase generators and UPSs.
- High employee turnover in Woreda, as trained employee left the organizations they will not able to use the services with its maximum output.
- Lack of information on what the WoredaNet services can do.
- Low response rate from management regarding the request of the employees whether in advancement of technology or equipment request.
- Low bandwidth from Ethio Telecom.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This is the last chapter of this study which will tried to present the comprehensive summary/major finding of the research, summarized the outcome of hypotheses findings conclusions, workable recommendations derived from the data analysis.

5.2 Summary

The fundamental objective of this study was to explore the relationship between WoredaNet and improving Organizational performance (Efficiency, Effectiveness, Employee Performance and Customer Satisfaction). The study has followed mixed quantitative and qualitative research approaches.

In doing so, the finding of this study has explored numbers of findings. First, it has confirmed that WoredaNet implementation has positive effects on improving organizational performance in terms of efficiency (service delivery, cost minimization, accessibility and interaction with citizens), effectiveness (Creating empowerment and flexibility), employee performance (quality of work, quantity of work, speed required to perform task, and knowledge) and customer satisfaction (efficiency, E-fulfillment, system availability, privacy, responsiveness and contact).

Empirically organizational performance (efficiency, effectiveness and employee performance) improved by availability, competency and reliability of WoredaNet services with adjusted **R2**values of 79.4% and standardized **β** coefficient 30.2, 47.0% and 23.5% where the Pvalue was <0.05 which meant at 95% confidence interval. And also customer satisfaction was improved by availability, competency and reliability of WoredaNet services with adjusted R2 74.2% and standardized **β** coefficient 49.9%, 19.8% and 49.2% where the Pvalue was <0.05.

Table 5.1 Summary of the Research Questions, Objectives and Hypotheses

Research Objective 1	To examine the effect of WoredaNet services on efficiency of organization.
Research Objective 2	To assess the effect of WoredaNet services on effectiveness of organization
Research Objective 3	To determine the effect of WoredaNet services on employee performance
Research Question 1	At what extent performance of organization such as efficiency, effectiveness an employee performance are affected by services of WoredaNet
Hypothesis 1	The implementation of WoredaNet has a positive impact in achieving performance of organization in terms of efficiency and effectiveness in organization.
Hypothesis 2	The implementation of WoredaNet has a positive impact in achieving performance of organization in terms of employee performance in organization.
Result 1	**Supported**
Research Objective 4	To analyze the effect of WoredaNet on customer satisfaction
Research Question 4	What is the effect of WoredaNet on the Customer satisfaction?
Hypothesis 3	Using the services of WoredaNet in organization has significance impact on improving customer satisfaction.
Result 2	**Supported**

For hypotheses testing the research has used mainly quantitative data through (linear regression model, one way anova and correlation coefficient) of statistical hypothesis testing tools. Qualitative data also used to triangulate the statistical testing tools correctness but both qualitative and quantitative data have found the same results.

Even though, the research fining came up with the above contributions of WoredaNet in improving efficiency, effectiveness, employee performance and customer satisfaction. It has found that the following negative factors in implementing WoredaNet. This study has explored that; bottlenecks for successful WoredaNet implementations in improving efficiency & effectiveness of the organization were low response given to citizens' request, low availability of information to general public, inadequate user flexibility for users with different skill background and

insufficient training provided to users/beneficiaries of the WoredaNet services. The bottlenecks for successful WoredaNet implementations in improving performance of employees' were low management response which is given to employees' request and employees were unable to perform within specified time schedule. The bottlenecks for successful WoredaNet implementations in improving customer satisfactions were insufficient up to date equipments and software, inadequate availability of documentations such as user manual, network designs and low security for the system threats.

5.3 Conclusion

As the finding clearly discussed in the earlier chapter and the data gained from employees and interviews all data confirmed that when organization successfully implement WoredaNet the efficiency of service delivery, cost minimization, accessibility and interaction with citizens would be improved linearly especially WoredaNet played a very major role in improving efficiency by improved service delivery and minimization of time and financial cost. From descriptive statistics, it can be derivated that WoredaNet play a major role in improving effectiveness especially by creating empowerment and user support flexibility. From descriptive statics, we can conclude that WoredaNet helped in improving the performance of employees' by making the tasks easy, improved operation and performing according to the specification. From the descriptive statics, we can derivate that WoredaNet plays very major role in increasing customer satisfaction by minimization of financial and time cost, availability of assistance and easiness to use the services

The challenges of implementing and using WoredaNet were awareness gap from customers/beneficiaries side about WoredaNet services, high employee turnover lack of skilled and experienced human power in Woredas/sites, low bandwidth, power fluctuations and interruptions in Woredas/sites, under utilization of WoredaNet services, lack of management support, insufficient environmental devices such as UPS, AC and budget constraints to use and implement successful services of WoredaNet.

5.4 Recommendations

This study has forwarded the following recommendations depending on the empirical findings of the study, semi-structured interviews and questionnaires that MCIT and concerned policy makers should pay due attentions:

- Increase platforms which advance the rate of response given to citizens' request.
- Increase the user flexibility of services of WoredaNet to enable the users with different skill/knowledge/experience background, for example by creating language preferences in which users will choose according to their preferred language as WoredaNet as implemented throughout the country.
- Upgrade the equipments/hardware and software to up to date technological advancement which will build strong system security and also apply firewalls and anti-threats system which will protect the services of WoredaNet from external system threats.
- Apply new technique and system which enables employees to perform with in specified schedule.
- Upgrade or increase the resources which will increase the availability of information to general public.
- Management should pay attention to employees' request as responding to employees' request is way forward to solution for problems.
- The beneficiaries should apply employee incentives to decrease the skilled and experienced employees.
- Plan and allocate budget to install and implement environmental devices to increase availability of electrical power as power fluctuation damages the devices of WoredaNet services.
- Plan and execute continuous training to users/beneficiaries of WoredaNet services.

5.5 Areas for Further Research

This study has faced certain limitations that could provide opportunities for further research. This paper has studied the effect of WoredaNet on improving performance of organization in terms of efficiency, effectiveness, employee performance and customer satisfaction. Therefore, interested academicians and professionals can be studies further research on WoredaNet and effective utilization of WoredaNet services, the role and impacts of WoredaNet services in improving service quality and good governance as per this study tried to viewed it at grasp and bird view. The changing of global governance scenarios are in demands of greater different partnership models among various players. Thus, WoredaNet implementations and operations should be in collaborative approach and its focus should be on results and effects not on process of making.

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APPENDIX A

Questionnaire Filled by Customers of MCIT

Dear Respondents,

This questionnaire is to be conducted as part of research which will be submitted in partial fulfillment of Masters of Business Administration- General Management. The purpose of this research is to assess the impact of WoredaNet organization performance and to find out the challenges of using & implementing WoredaNet. The research considers selected government offices as customer of MCIT.

I would like to guarantee you that the responses will only be used to conduct a research for the partial fulfillment of MBA Thesis II. And your responses will not be used for any other purposes other than the intended purpose. If you have any questions please don't hesitate to contact me via mobile +291 92177 7797 or email: mihiretf@gmail.com

I would like to thank you in advance for your cooperation!

N.B Please put a **"√"** mark to all your responses in the space provided beside each statement.

I. Demographic Information

1. Gender

   [ ] Male [ ] Female

2. Age

   [ ] 20-25 [ ] 26-30 [ ] 31-35 [ ] 36-40 [ ] 40-45 [ ] >46

3. Marital Status

   [ ] Single [ ] Married [ ] Divorce [ ] Separated [ ] Widowed

4. Educational Background

   Diploma Degree Masters

5. Role of Respondent in the Organization

   [ ] Management [ ] IT Expert [ ] Junior IT Expert [ ] System Administrator

   [ ] Network Administrator [ ] Security Team [ ] Support Technician

   [ ] if other, please specify_____

6. Length of WoredaNet Service use:

   [ ] 1-2 years [ ] 2-3 years [ ] 3-4 years [ ] 4-5 years [ ] > 6 years

II. This part of the questionnaire covers about service delivery in relation with services of WoredaNet provided by MCIT. Please indicate how you rate with each of the following questions by circling the number that best represents your opinion; 1 indicates very low (VL), 2 indicates low (L), 3 indicates average (A), 4 indicates high (H) and 5 indicates very high (VH).

S.No.	Research Questions	VL	L	A	H	VH
WoredaNet						
Availability						
1.	How do you rate availability of WoredaNet services?	1	2	3	4	5
2.	How did you rate the services in availability of infrastructure?	1	2	3	4	5
3.	How did you rate availability of hardware resources to use the services?	1	2	3	4	5
4.	How did you rate availability of system resource to use the services of WoredaNet in your organization?	1	2	3	4	5
Reliability						
5.	How did you rate scalability of WoredaNet services to advance the technologies?	1	2	3	4	5
6.	How did you rate the quality of voice and video when you are using WoredaNet services in your organization	1	2	3	4	5
7.	How did you rate the connection stability in using the WoredaNet services in your organization?	1	2	3	4	5
Competency						
8.	How do you rate power availability in WoredaNet Services?	1	2	3	4	5
9.	How did you rate bandwidth of network connection?	1	2	3	4	5
10.	How do you rate the speed of connections of WoredaNet services?	1	2	3	4	5
Customer Satisfaction						
A.	**Efficiency**					
1.	At what level WoredaNet services minimize time to perform tasks in your organization?	1	2	3	4	5
2.	At what level WoredaNet services minimize financial costs to perform tasks in your organization?	1	2	3	4	5
3.	How do you rate the easiness to use WoredaNet services?	1	2	3	4	5
4.	How do you rate speed of accessing the WoredaNet services' in your organization?	1	2	3	4	5
B.	**E-fulfillment**					
5.	How do you rate the availability of the WoredaNet service as proposed on project document?	1	2	3	4	5
6.	At what level variety of services available in WoredaNet?	1	2	3	4	5
C.	**System Accesibility**					
7.	How do you rate the convenience of services to facilitate operations of organization?	1	2	3	4	5
8.	How do you rate services of WoredaNet system accessibility?	1	2	3	4	5
9.	At what level equipments are technologically up to date use the services of WoredaNet in your organization	1	2	3	4	5
10.	At what level software are up to date to use the services of WoredaNet in your organization?	1	2	3	4	5
D.	**Privacy**					

11.	How do you rate security of the WoredaNet services in terms system threats?	1	2	3	4	5
12.	At what level WoredaNet is secured physically?	1	2	3	4	5
13.	How do you rate information security in WoredaNet service?	1	2	3	4	5
E.	**Responsiveness**					
14.	How do you rate problem handling of MCIT/NDC team when problems occurred on WoredaNet services?	1	2	3	4	5
15.	How do you rate your satisfaction in getting timely information?	1	2	3	4	5
16.	How do you rate the response rate of MCIT/NDC when contacted?	1	2	3	4	5
17.	How do you rate recovery of system failure of WoredaNet services by NDC team?	1	2	3	4	5
18.	How do you rate problem solving of MCIT/NDC team?	1	2	3	4	5
F.	**Contact**					
19.	How do you rate the support from MCIT/NDC?	1	2	3	4	5
20.	How do you rate operation manual provided by MCIT/NDC on system?	1	2	3	4	5
21.	How do you rate the availability of assistance on WoredaNet services from NDC?	1	2	3	4	5
Overall Customer Satisfaction						
22.	How do you rate the overall satisfaction on WoredaNet Services in your organization?	1	2	3	4	5
23.	To what extent do you recommend WoredaNet services for those who are not using it?	1	2	3	4	5

III. This part of the questionnaire covers about challenges of using and implementing WoredaNet Services. Please indicate if the following challenges exist in your organization by circling the number that best represents your opinion. 1 indicates Not Existing (NE), 2 indicate Slightly Existing (SE), 3 indicates Existing (E) and 4 indicates Highly Existing (HE).

S.No	Research Points	NE	SE	E	HE
1.	Infrastructure Environmental device such as UPS, AC	1	2	3	4
2.	Infrastructure network device such as router, switch, computer	1	2	3	4
3.	Skill & Knowledge of using the WoredaNet.	1	2	3	4
4.	Bandwidth and connectivity	1	2	3	4
5.	Budget Constraint in using the services of WoredaNet.	1	2	3	4

Thank you!

APPENDIX B

Questionnaire Filled by Employees of MCIT

Dear Respondents,

This questionnaire is to be conducted as part of research which will be submitted in partial fulfillment of Masters of Business Administration- General Management. The purpose of this research is to assess the effect of WoredaNet on Organization's Performance.

I would like to guarantee you that the responses will only be used to conduct a research for the partial fulfillment of MBA Thesis II. And your responses will not be used for any other purposes other than the intended purpose. I would like to thank you for your cooperation in advance!

N.B Please put a **"√"** mark to all your responses in the circle provided beside each statement.

I. Demographic Information

1. Gender

   [ ] Male [ ] Female

2. Age

   [ ] 21-25 [ ] 26-30 [ ] 31-35 [ ] 36-40 [ ] 40-45 [ ] >46

3. Marital Status

   [ ] Single [ ] Married [ ] Divorce [ ] Separated [ ] Widowed

4. Educational Background

   [ ] Diploma [ ] Degree [ ] Masters

5. Role of Respondent in the Organization

   [ ] Management [ ] Expert [ ] Junior Expert [ ] System Administrator

   [ ] Network Administrator [ ] Security Team [ ] Support Technician

6. Work Expiriance

   [ ] 1-2 years [ ] 2-3 years [ ] 3-4 years [ ] 4-5 years [ ] > 6 years

II. This part of questionnaire covers about employees' performance or productivity in relation with implementation and usage of WoredaNet services. Please indicate how much you agree or disagree with each of the following statements by circling the number that best represents your opinion. 1 indicates very low (VL), 2 low (L), 3 average (A), 4 indicates high (H) and 5 indicates very high (VH).

S.No.	Research Questions	VL	L	A	H	VH
WoredaNet						
A.	**Competency**					
1.	How did you rate the speed of system connectivity in WoredaNet services?	1	2	3	4	5
2.	How did you rate bandwidth of internet?	1	2	3	4	5
3.	How did you rate the speed of connection to use WoredaNet services in your organization?	1	2	3	4	5
4.	How did you rate the electric power availability in using WoredaNet in your organization?	1	2	3	4	5
B.	**Reliability**					
6.	How did you rate scalability of WoredaNet services to advance the technologies?	1	2	3	4	5
7.	How did you rate the quality of voice and video while using the WoredaNet services?	1	2	3	4	5
8.	How did you rate the system failure recovery of WoredaNet services in your organization?	1	2	3	4	5
9.	How did you rate the system diagnostic of WoredaNet services in your organization?	1	2	3	4	5
C.	**Availability**					
10.	How did you rate the service of datacenter collocation in availability of infrastructure?	1	2	3	4	5
11.	How did you rate the space availability in datacenter collocation?	1	2	3	4	5
12.	How did you rate availability of system resources to use WoredaNet services?	1	2	3	4	5
13.	How did you rate the availability of network connectivity to use WoredaNet services in your organization?	1	2	3	4	5
14.	How did you rate the availability of system connectivity to use services of WoredaNet?	1	2	3	4	5
15.	How did you rate availability of hardware resources to use WoredaNet services?	1	2	3	4	5
16.	How did you rate availability of infrastructure to implement WoredaNet services?	1	2	3	4	5
Employee Performance						
A	**Quality of Work**					
1.	How do you rate WoredaNet in making work/tasks easier?	1	2	3	4	5

2.	At what level WoredaNet help to perform tasks in required specification?	1	2	3	4	5
3.	At what level WoredaNet services help to improve work/operations of employee?	1	2	3	4	5
B	**Quantity of Work**					
4.	How do you rate WoredaNet services in enabling or allowing simultaneous operations?	1	2	3	4	5
5.	At what level tasks are performed within schedule?	1	2	3	4	5
6.	At what level WoredaNet helps to achieve a larger number of tasks in your organization?	1	2	3	4	5
C	**Speed Required to Perform Task**					
7.	How do you rate WoredaNet in speed of decision making process?	1	2	3	4	5
8.	At what level WoredaNet helps to deliver outputs timely?	1	2	3	4	5
9.	At what level WoredaNet helps employees to deliver consistent output even in high work pressure?	1	2	3	4	5
D	**Knowledge**					
10.	At what level WoredaNet project provides training and/or knowledge sharing?	1	2	3	4	5
11.	At what level WoredaNet helps employees to gain knowledge &/or learn?	1	2	3	4	5
12.	At what level WoredaNet helps employees to improve their effort to apply new knowledge?	1	2	3	4	5
E	**Overall Performance**					
13.	How do you rate the response of management to employee's request in your organization?	1	2	3	4	5
14.	At what level WoredaNet improves performance of employees?	1	2	3	4	5
15.	How do you rate WoredaNet in loosening workload of employees?	1	2	3	4	5
Efficiency						
A	**Service Delivery**					
1.	How do you rate WoredaNet services in improving public service?	1	2	3	4	5
2.	How do you rate WoredaNet services in improving service delivery?	1	2	3	4	5
3.	How do you rate the response when WoredaNet service is requested?	1	2	3	4	5
4.	How do you rate follow up of customer request in your organization?	1	2	3	4	5
5.	How do you rate power availability in WoredaNet Services?	1	2	3	4	5
B.	**Cost**					

6.	At what level WoredaNet services save time in performing tasks in your organization?	1	2	3	4	5
7.	At what level WoredaNet services save financial cost in your organization?	1	2	3	4	5
C.	**Accessibility**					
8.	How do you level accessibility of WoredaNet services?	1	2	3	4	5
9.	At what level do you rate accessibility of information in WoredaNet Services?	1	2	3	4	5
10.	How do you rate network connectivity to access WoredaNet services?	1	2	3	4	5
11.	How do you rate the speed of connections of WoredaNet services?	1	2	3	4	5
D.	**Interaction with Citizen**					
12.	How do you rate WoredaNet services in creating platform for citizens?	1	2	3	4	5
13.	At what level WoredaNet services avail information to public?	1	2	3	4	5
14.	How do you rate the response given to citizens' request?	1	2	3	4	5
Effectiveness						
A.	**Creating Empowerment**					
1.	At what level WoredaNet services develop communities in regard to IT?	1	2	3	4	5
2.	At what level WoredaNet services enables to build partnership with different organization?	1	2	3	4	5
3.	How do you rate system update of WoredaNet services?	1	2	3	4	5
4.	How do you rate the support given to users of WoredaNet by your organization??	1	2	3	4	5
5.	How do you rate training provided to users of WoredaNet services	1	2	3	4	5
B.	**Flexibility**					
6.	How do you rate WoredaNet in helping to achieve flexibility in work?	1	2	3	4	5
7.	How do you rate system flexibility of WoredaNet Services?	1	2	3	4	5
9.	How do your rate flexibility of WoredaNet services for different users with different skill/background?	1	2	3	4	5

III. This part of questionnaire will try to identify the challenges in implementation and using of WoredaNet services. Please indicate on the below space the challenges you encounter while using and implementing WoredaNet services.

_____

_____

_____

_____

_____

Thank you!

Appendix C

Interview Question

First of all I would like to thank you for your willingness for the interview. This interview is prepared to gather data on the challenges of using and implementing WoredaNet and its services. I would like to guarantee you that the responses will only be used to conduct a research for the partial fulfillment of MBA Thesis II. And your responses will not be used for any other purposes other than the intended purpose.

1. In your opinion and in practice, in what ways implementing E-government projects especially WoredaNet will ensure efficiency and effectiveness of organization?
2. In your opinion and in practice, in what ways WoredaNet improve employee productivity in discharging their duties and responsibilities?
3. In your opinion and in practice, in what ways implementing WoredaNet will ensure customer satisfaction of public organizations?
4. What are the challenges you encounter while implementing WoredaNet?