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Usability of Knowledge Management Portals at ethio telecom

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June 2015

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**A Thesis Submitted to the School of Graduate Studies of Addis Ababa
University in Partial Fulfilment of the Requirements for the Degree of Master
Of Science in Information Science**

By

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June 2015

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Declaration

I declare that the thesis is my original work and has not been presented for a degree in any other university.

Date

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

Advisor

Dedication

This research work is dedicated to the Lord of Lords, King of Kings, and the Merciful one Jesus Christ, for being my strength when I get weak; my inspiration when I lose passion and my joy when nothing makes sense throughout my journey.

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Acronyms

ADSL	Asymmetric Digital Subscriber Line
B2E	Business- to-Employee
BMS	Business Management System
BPR	Business Process Reengineering
CEO	Chief Executive Officer
CPE	Customer Premises Equipment
CSD	Customer Service Division
CTIT	College Of Telecommunications and Information Technology
EIP	Enterprise Information Portal
EKP	Enterprise Knowledge Portal
ETA	Ethiopian Telecommunications Authority
ETC	Ethiopian Telecommunications Corporation
FAQ	Frequently Asked Questions
GIS	Geographical Information System
GPRS	General Packet Radio Service
HEP	Horizontal Enterprise Portal
HRD	Human Resource Division
ICS	Information Communication System
ISD	Information System Division
KBM	Knowledge Base Management
KBS	Knowledge Base System
M&CD	Marketing & Communications Division
OLAP	Online Analytical Processing
OMS	Organizational Memory System
P&QD	Process & Quality Division
PDA	Personal Digital Assistant
PTT	Post Telegraph and Telephone
TCCD	Telecommunications Corporation Construction Division
TQM	Total Quality Management
VAS	Value Added Service
VC	Virtual Center
VEP	Vertical Enterprise Portal
WCDMA	Wideband Code Division Multiple Access

Abstract

A fundamental aspect of knowledge management is capturing knowledge and expertise created by knowledge workers as they go about their work and making it available to a larger community of colleagues. Technology can support these goals, and knowledge management portals have emerged as a key tool for supporting knowledge work. Knowledge management portals are used to gather, manage, share, and utilize knowledge that has been stored in different databases throughout the organization; thus portals provide users with a single point of access to personalized information needed to make informed business decisions. Portals can bring significant benefits to organizations at both the individual and organizational levels.

In this study a survey has been made on an overall usability of the two existing ethio telecom knowledge management portals. The researcher used quantitative research using self administered close ended questionnaires in order to get perceptions from the selected ethio telecom officers, managers, supervisors and staffs. The findings of this research indicated that usability of the two ethio telecom knowledge management portals is in low level.

Chapter One

Introduction

Knowledge management portals are used to gather, manage, share, and utilize knowledge that has been stored in different databases throughout the organization. Thus portals provide users with a single point of access to personalized information needed to make informed business decisions. Portals can bring significant benefits to organizations at both the individual and organizational levels Benbya et al., (2004).

Telecommunication services play significant role in the all-round political, economic and social development of a given country. It is important in a day to day life of the society. The remarkable development in telecommunications technology has made people to communicate instantly across a distance, share information and do business. The availability and reliability of telecommunications services affect the successes of business and social interaction which started to rely on the service provider Biratu (2010). Therefore, among many other business success factors, Knowledge portal plays a major role for telecom as well as other sectors.

Ethio telecom is established in 2010 with a vision of becoming a world class Telecommunications service provider. Among its mission are:

- ❖ Connect every Ethiopian through Information Communication Technology.
- ❖ Provide Telecommunication services and products that enhance the development of our Nation.
- ❖ Build reputable brand known for its customers' consideration.
- ❖ Build its managerial capability that enables ethio telecom to operate an international standard.

Table 1.1 Telecom services in ethio telecom

Telecom Services provided for the customers in ethio telecom	
Type of Services	Total number of Customers
Fixed Line	797, 066
Mobile pre-paid	28,075,056
Mobile post-paid	122,847
Total Mobile (Pre-paid +Post-paid)	28,197,903
Broadband	277, 372
Narrowband (1X, dialup,ADSL<256K, GPRS)	6,283,524
Total (narrowband and broadband) customers	6,560,896

Source: ethio telecom corporate knowledge portal (2014)

1.2 Knowledge Management portals at ethio telecom

From the operational definition aspects, ethio telecom has two types of KM portals; namely corporate and customer service (knowledge Base system=KBS) knowledge portals. These portals have been implemented since 2010 G.C

1.2.1 Ethio telecom’s corporate knowledge portal operational descriptions

As ethio telecom becomes bigger and bigger, it needs a collaboration office platform to share information with staff and manage documents to improve work efficiency. Due to this, ethio telecom has deployed corporate knowledge portal through vendor financing project from ZTE telecom products supplier in China.

This corporate knowledge management portal is accessed by all ethio telecom employees. On the other hand, the day to day system operations parts are managed by the Information System Division concerned employees. Main menu contains; Home, Public Information, Documents, My Division, All Divisions, Workflow and System Configuration.

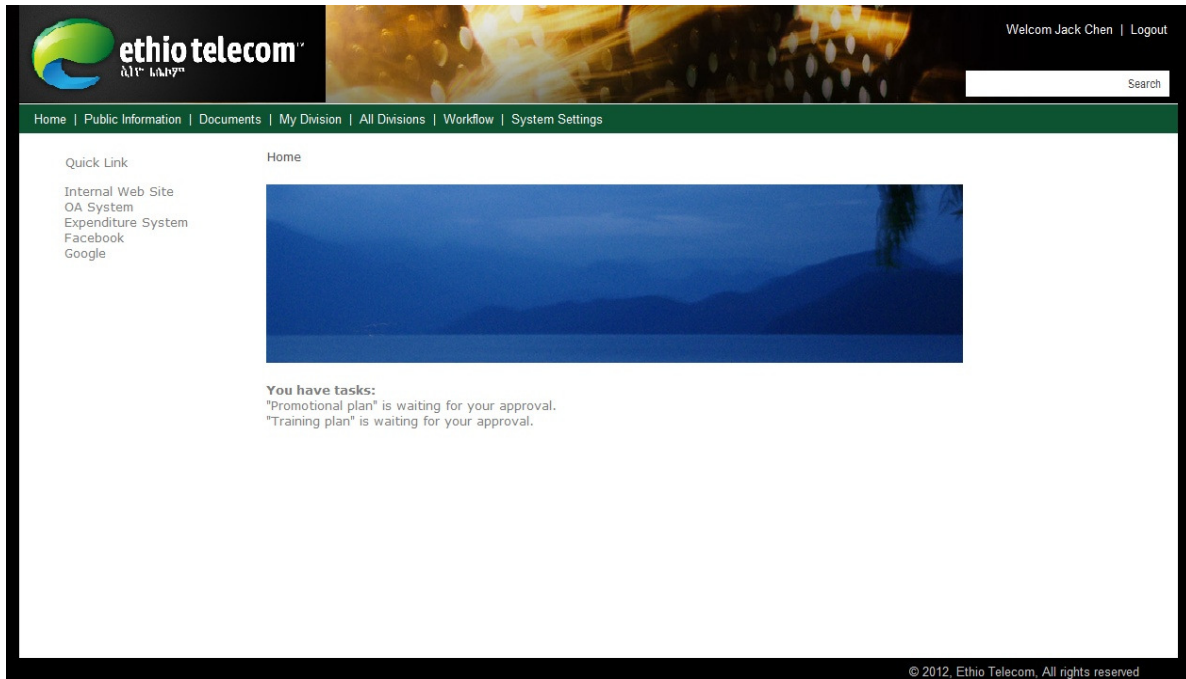


Fig.1.1 Main menu for ethio telecom corporate knowledge portal

Because there are many sensitive documents and information in the portal, user account and password is required to login the portal.

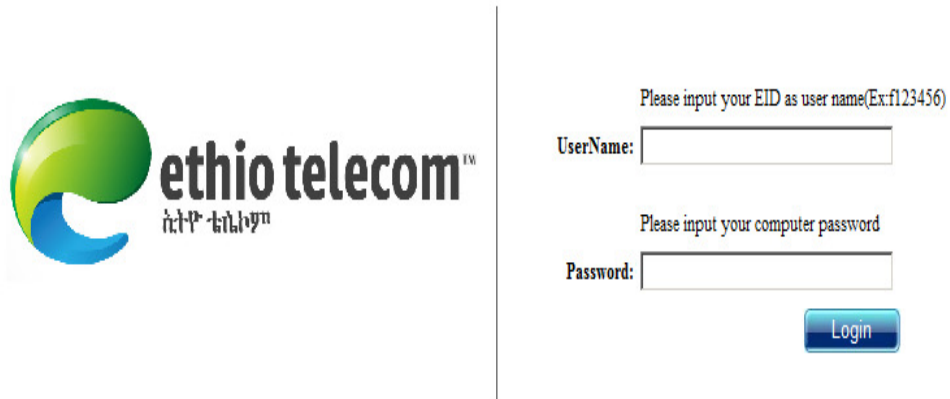


Fig.1.2 Ethio telecom corporate knowledge portal login page

1.2.2 Ethio telecom's customer service knowledge portal operational descriptions

As the numbers of ethio telecom's customers have been increasing in alarmingly rate in all of its products, there was a strong need to establish a call center which facilitates efficient customer service handling. Due to this, ethio telecom has deployed the KBS/knowledge portal through vendor financing project from ZTE telecom products supplier in China.

The home page of customer service KBS (Knowledge Base system) knowledge portal consists of the following parts: the Current library, History library, Favorites, Search area, and Work area. The Current library, History library, and favorites contain knowledge directories organized in a navigation tree. Selecting a directory by expanding the tree will display all the knowledge contained in the directory. The search area allows attendants to retrieve desired knowledge by a full search or keyword search.

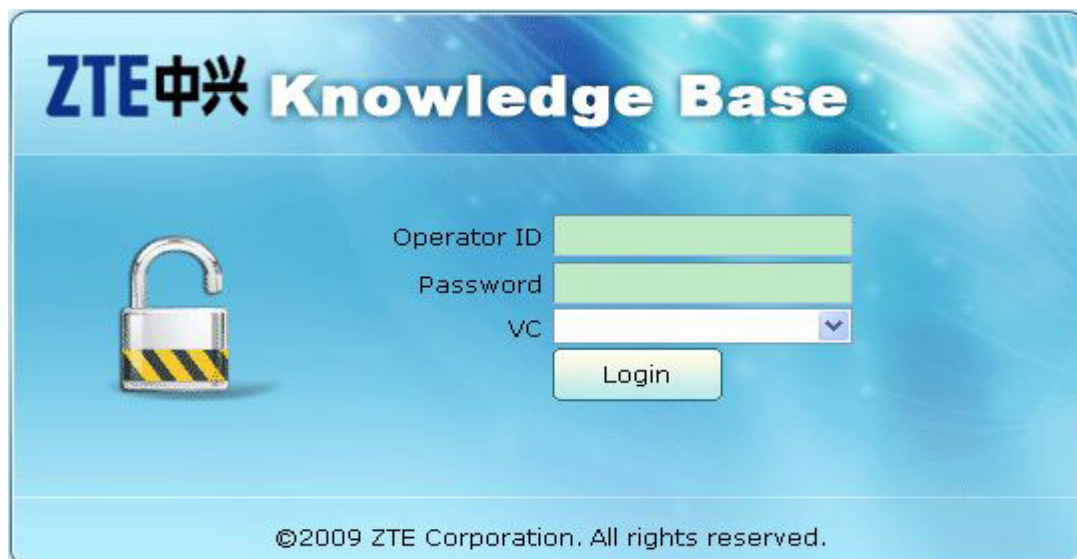


Fig.1.3. Ethio telecom KBS knowledge portal login page

1.3 Statement of the problem

According to Benbya et al., (2004), Knowledge management systems (KMS) are emerging for competitive advantages, like acquire knowledge (learn, create, or identify); analyze knowledge (assess, validate, or value); preserve knowledge (organize, represent, or maintain); and use

knowledge (apply, transfer, or share) by the help of knowledge portals. Urbach et al., (2009) have also further explained that the way employees handle information, communicate, as well as execute business processes have significantly changed with the emergence of web-based technologies and the subsequent emergence of knowledge portals.

Elragal & Abouseif (2011) have also mentioned that the role of knowledge portals have direct relationship with its common features. These common features are content management, security management, metadata management, knowledge mapping, knowledge directories, search engine capability, text search and retrieval, standing queries, customization, personalization, simple user interface design, web-enabled, collaboration tools, affinity group filtering (to filter relevant information for specific users or user groups), performance management, tools for developing and implementing plans, and finally a gateway to enterprise applications.

From portals integrations aspects Bajec (2005) mentioned that portal-based solutions have been proved in practice to be promising technologies that offer companies a way to transform and integrate their information systems more effectively and at lower cost.

Corbitt et al., (2005) discussed about the factors which affects the implementation and usage of knowledge portals to assist knowledge management objectives, like knowledge volume, knowledge quality, knowledge dissemination, and information system management. Tella & Bashorun (2011) have also added slow network and unexpected power failures might be another challenges for portals implementation.

Benbya, et al., (2004) has also mentioned that to give effective and sustainable telecom services, telecommunication service providers are required to possess a high level of understanding of those common knowledge portal services both internally and externally. The internal portal supports knowledge management and internal communications. It can be considered as home bases for employees. Extranet portals which provide depth content rather than breadth of content offer special advantages for business-to-business and e-commerce activities as they can provide something closer to a solution.

As one of the public sectors striving for success, currently ethio telecom is under the deployment of latest telecom infrastructures, process based tasks and developing of human skills in order to give world class telecom services (See Annexes B-G). To fulfill such ambitious goals for its primary customers and to other related stakeholders in a reliable and sustainable manner, needless to say KM and Knowledge portals play a very important role.

As mentioned above, from the operational definitions point of views ethio telecom has two types of knowledge portals; namely corporate and customer service (KBS) knowledge management portals. These portals have been implemented since 2010 G.C

The proper usability of these two available ethio telecom knowledge management portals has not been studied so far. The researcher, who is also an insider, made a very brief and high level preliminary survey using an interview for a very small numbers of key users if any hindrances have been occurring on an overall usability of the two existing ethio telecom knowledge management portals.

The opinions given by those very few interviewees seem that there might be lacks of awareness, inconsistent content management, domain specific natures and some other related cases that hindered the proper usability of the two existing ethio telecom knowledge management portals. Therefore, based on the clues the researcher convinced to make further investigations by raising the following three research questions on this study.

- ❖ To what extent is knowledge management portals used by ethio telecom employees?
- ❖ What is the perception of employees about the combination of the two existing ethio telecom knowledge management portals?
- ❖ Do there any barriers that affect the usability of the two existing ethio telecom knowledge management portals?

1.4 General Objective of the study

The general objective of this study is to make survey on an overall usability of the two existing ethio telecom knowledge management portals.

Specific objectives of the study

- ❖ To assess extent of usage of ethio telecom knowledge management portals by its employees
- ❖ To investigate employees perceptions about the combination of the two existing ethio telecom knowledge management portals.
- ❖ To explore the barriers for best usage of ethio telecom knowledge management portals by its employees
- ❖ To recommend better solutions based on the outcomes of the research

1.5 Scope of the study

The selected target pupations and samples are taken only from head quarter and Addis Ababa zonal ethio telecom offices .This is because both the knowledge portals are accessed by all of ethio telecom employees throughout the company.

1.6 Organization of the Thesis

This research paper is organized into five chapters. Chapter one is the introduction part, which contains operational descriptions about the two existing ethio telecom knowledge management portals, problem statement, objectives, and scope of the study. The second chapter is devoted to literature review about KM portals and discusses related works in that area. The third chapter discusses the research design and methodologies used to conduct the research. The fourth chapter is about data analysis, presentation, and discussions. The fifth chapter deals with conclusions and recommendations.

Chapter Two

Literature Review

In this section, the researcher has referred different theoretical and practical published articles and books in related to his work in order to have clear image about knowledge management portals.

2.1 Synonym terms for the portals

Benbya et al., (2004) suggested that the following synonyms terms can be used interchangeably for portals; namely:

Corporate Portals, Customer Portals, Employees Portals, Enterprise Portals, Enterprise Information Portals , Intranet Portals , Enterprise Intranet Portals, Knowledge Portals, Knowledge portal and enterprise computerized Knowledge Management System and web portals. Elragal & Abouseif (2011) added that the above synonymous terms for portals may have different target users. Even if such terms can interchangeably apply, in this research work the term Knowledge portal is used.

2.2 History and generation of Knowledge portals

The term Portal derived from Latin word Portale, meaning “city gate “. Knowledge portals originated from web search engines in the early 1990s Zhou (2003).The platform for a portal web site is a search engine, but a knowledge portal is different from a general search engines as it can be customized by individuals for automatic, constant search for specific information, and it can deliver the results to individuals in a predefined way. Table 2.1 below shows summarized generations of Knowledge portals by Dias in citing Elsner et al., (2011) research works.

Table 2.1 Generation of Knowledge portals

Generations of Knowledge portals		
Generation	Category	Knowledge portals
First	Referential	Search engine, with hierarchical index of web content. Each index entry contains a description of the content object and a link to it. This generation emphasizes content management, mass dissemination of corporate information and decision support.
Second	Personalized	Through identification and a password, users create a personalized view of portal contents, known as “Mypage”. This view shows just the categories each user is interested in viewing. The portal can notify users when new content is added to categories they have previously selected. Users can publish documents to the corporate repository so that other users may view them. This generation privileges content customized distribution
Third	Interactive	The portal embeds applications that improve employees’ productivity, such as e-mail, workflow, project management, expense reports, calendars, schedules, etc. This generation adds the collaborative character to corporate portals, providing multiple types of interactive services.
Fourth	Specialized	Portals based on professional roles, for managing specific corporate functions, such as sales, human resources, finances, etc. This generation connects corporate applications with the portal, allowing users to execute transactions, read, write and update corporate data

2.3 Role of Knowledge portals

The role of knowledge portal is to improve coordination, collaboration, accountability, and the ability to analyze program effectiveness. It facilitates timely feedback and approval. It also helps to generate usable reports of the individuals and aggregate data. Moreover, it helps to combine multiple forms into one online system and the like Roeseler et al., (2005).

2.4 Characteristics of Knowledge portals

- ❖ It has single point of entry.
- ❖ Permissions: The ability for portal administrator to limit specific types of content and services to groups of users based on their respective roles.
- ❖ Integration: The aggregation of data and services from multiple systems including generic content, knowledge management and collaboration components into visual front-end fragments.
- ❖ Federation : The combination of content from various sources
- ❖ Enhanced user experience : An efficient and consistent user interface as the services may come from multiple sources
- ❖ Personalization: The ability for users to choose specific services and content tailored to their need and to customize the layout of their presentation layer and the like Andry et al., (2010).

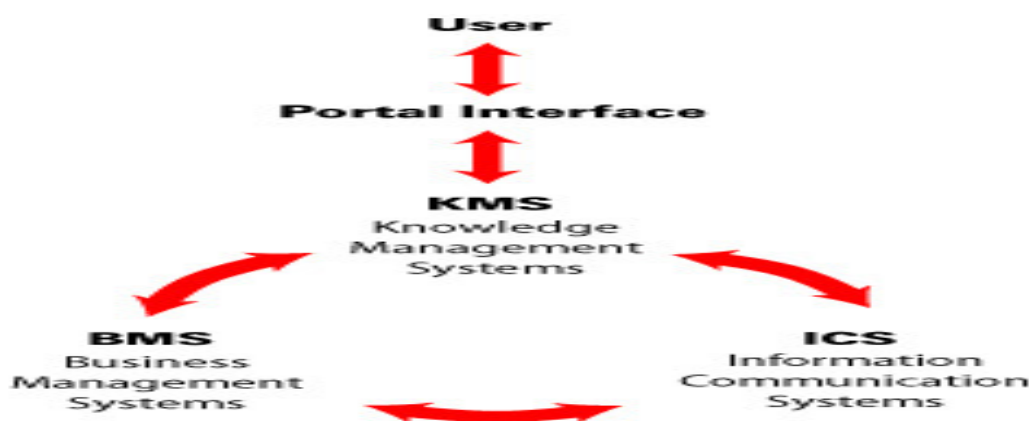


Fig.2.1 Knowledge portals as a single point of entry

Source: Roeseler, et al., (2005)

2.5 Grouping and classification of knowledge portals

It is useful to divide portals into two groups: horizontal portals, or HEPs (Horizontal Enterprise Portals) and vertical portals, or VEPs (Vertical Enterprise Portals).

A horizontal portal is a public Web site that attempts to provide its users with all the services they might need. NetCenter and MyExcite are examples of horizontal portals. All HEPs include shopping, weather, stock prices, news, search engines, chat groups, horoscopes, and so forth. Katz (2002) stated that HEPs do not give academic or corporate employees access to everything they really need. Because horizontal portals have no way of offering that kind of organization-specific information as they are not connected to any organization’s data sources except their own.

Katz (2002) also described that the vertical portal is a portal that delivers organization-specific information in a user-centric way. VEP should also deliver all the information a HEP delivers. Unlike a HEP, a VEP requires authentication for access. When a user logs on to a VEP, it produces a customized portal page, tailored to the user who logged on.

Elsner, et al., (2011) has explained the same concept shown on table 2.2 below

Table 2.2 public portals versus corporate knowledge portals

Public portals versus Knowledge/Corporate portals		
	Public Portal	Knowledge/Corporate portals
Environment	Internet	Corporation / intranet
Objective	Business model	Business model support
Scalability	Unpredictable	Predictable
Users	Users/customers	Employees
Complexity	Low-medium	High

Support	FAQ, mail-support, hotline	Training, personal, hotline, informal, mail-support
Access Management	Simple authentication	Role-based access

2.6 Classification of portals based on different target users

- i. **Enterprise portals**, enterprise portals help to increase overall efficiency and business needs with an online presence. They enable the sharing of information within, and outside of, an organization. They maintain, organize, analyze, and disseminate information and provide a means for integrating systems that are used within the enterprise Neumann et al., (2005).
- ii. **Community portals**, community portals provide a platform for communication and contact with a community, providing local or community-based information. Members can find information and furthermore can contribute relevant information to be shared within the portal. Community portals provide an awareness and interaction amongst a community whether for profit or non-profit. They provide an online collaboration environment for a community of interest. They strengthen the community by informing and providing an open place for communication, interaction, and the exchange of ideas Neumann et al., (2005).
- iii. **Semantic community portals**, this is an emerging type where semantic web technologies enrich community portals with meta-data. They process and share information amongst their members through a personalized information access. Current web technologies are seriously limited in making distributed information accessible for users in an efficient manner. A semantic web portal makes information accessible to both humans and software agents. Semantic community portals offer high quality searching features by providing semantic-based browsing, querying and searching. Examples of semantic web community-type portals are the academic community portals Esperanto and OntoWeb. Commercial-type community portals include Empolis K42 or Mondeca ITM. The potential for using semantic web technologies amongst these

communities dramatically improves information processing and sharing amongst members Neumann et al., (2005).

- iv. **General (or Mega) Portals**, portals can aim to provide links to sites that can be either closely related or quite diverse. In the case of general portals the intent is to provide links to all sorts of different sites of the user's choosing. Many of these general portals have developed from being simple search tools (such as Yahoo), Internet service providers (such as AOL), and e-mail services (such as Hotmail) Tatnall (2005).
- v. **Enterprise Information Portals**, the term enterprise (or corporate) information portals (EIP) is now often being applied to the gateways to the corporate intranets that are used to manage the knowledge within an organization. These are designed primarily for business-to-employee (B2E) processes and offer employees the means to access and share data and information within the enterprise. An EIP may include facilities such as: a categorization of information available on the intranet, a search engine covering the entire intranet, organizational news, access to e-mail, access to common software applications, document management, links to internal sites and popular external Web sites, and the ability to personalize the page Tatnall (2005).
- vi. **E-marketplace Portals**, these extended enterprise portals often offer access to a company's extranet services and are useful for business-to-business processes such as ordering, tendering, and supply of goods. An example is provided by the Swiss company ETA SA Fabriques d'Ebauches (www.eta.ch/), a member of the Swatch Group that produces watches for brands including Omega, Rado, Longines, Tissot, Certina, and Swatch. The group consists of a number of individual companies that focus on producing components and movements for watches. The portal was set up principally to improve cost efficiency and facilitate quicker order processing between members of the group Tatnall (2005).
- vii. **Personal/Mobile Portals**, following the trends towards mobile (or pervasive) computing, personal/mobile portals are increasingly being embedded into mobile phones, wireless PDAs, and the like. Some appliances are also being equipped with

personal portals aimed at allowing them to communicate with other appliances or to be used more easily from a distance Tatnall (2005).

- viii. **Information Portals**, although these in most cases can also be classified into one of the other categories, information portals can also be viewed as a category in their own right as portals whose prime aim is to provide a specific type of information. The sports information portal ESPN (<http://msn.espn.go.com/>) is one example of an information portal Tatnall (2005).
- ix. **Specialized/Niche Portals** are designed to satisfy specific niche markets. In many cases these can also be classified as information portals. For example, ESPN (<http://msn.espn.go.com/>) is targeted towards 18 to 34 year-old males, while iVillage (www.ivillage.co.uk/) is targeted towards women. Other specialized portals provide detailed industry information, often available only for a fee Tatnall (2005).
- x. **Enterprise Knowledge Portal (EKP)** is goal-directed toward knowledge production, knowledge acquisition, knowledge transmission, and knowledge management focused on enterprise business processes, e.g., sales, marketing, and risk management, and also focuses upon, provides, produces, and manages information about the validity of the information it supplies. Knowledge Portals, in other words, provide information about your business, and also supply you with meta-information about what information you can rely on for decision making. EKPs, therefore, distinguish knowledge from mere information. And they provide a facility for producing knowledge from data and information, in addition to providing mere access to data and information. EKPs, moreover, orient one toward producing, acquiring and transmitting knowledge as opposed to information. Intrinsically then, they provide a better basis for making decisions than do EIPs generally Firestone (1999).

2.7 Features of Knowledge Portals

Features of portals can be classified in three categories: Core capabilities, supportive capabilities and web services Benbya, et al., (2004).

2.7.1 Core capabilities

These are tools that support the knowledge development phases and consist of the following parts Benbya, et al., (2004).

- i. **Taxonomy:** Taxonomies are sometimes called “classification schemes” or “categorization schemes”. Each refers to grouping together similar items into broad “buckets” or “topics” which themselves can be grouped together in ever-broader “hierarchies. Corporate taxonomy benefits include search, support, navigation, data control/mining, schema management, and personalization/ information delivery.
- ii. **Publishing:** A facility that supports content creation, authorization, inclusion and includes the ability to render or publish documents in alternate formats including HTML, PDF, XML, etc. in portal content collections.
- iii. **Search:** The documents created by employees, partners, customers and competitors are often the most important information available to the organization that remains in numerous places. For these reasons an integrated search capability across multiple information repositories is essential
- iv. **Personalization:** Consists not only on the ability for users to modify their own interfaces and specify their preferences, but also the ability of the system to use such information to dynamically deliver specific content to users in order to propose to them the most relevant information to perform their job.
- v. **Integration:** The ability to present a unified view of corporate information that integrates information from different organizational repositories instead of having corporate information spread across many sources within the organization
- vi. **Collaboration:** they present a natural forum for online collaboration by assembling a set of content and services to which members of a group have special accesses.

2.7.2 Supportive capabilities

These are mainly tools necessary for the well-functioning of the corporate portal and consist of the following parts Benbya, et al., (2004).

- i. **Security:** The ability to secure access to diverse range of resources.
- ii. **Profiling:** A technique aimed at sending personalized information to the user depending on his profile. Two techniques can be used: explicit profile based on the expressed preferences of the user or implicit profile based on data obtained from the human resources.
- iii. **Scalability:** The ease with which the system can expand to support an increasing number of users or can be modified to fit the problem area.

2.7.3 Web services

A wide range of services that the firm can provide to users ranging from analyses, news to an e-marketplace where a company offers employees discounts on products and services that it has negotiated with vendors.

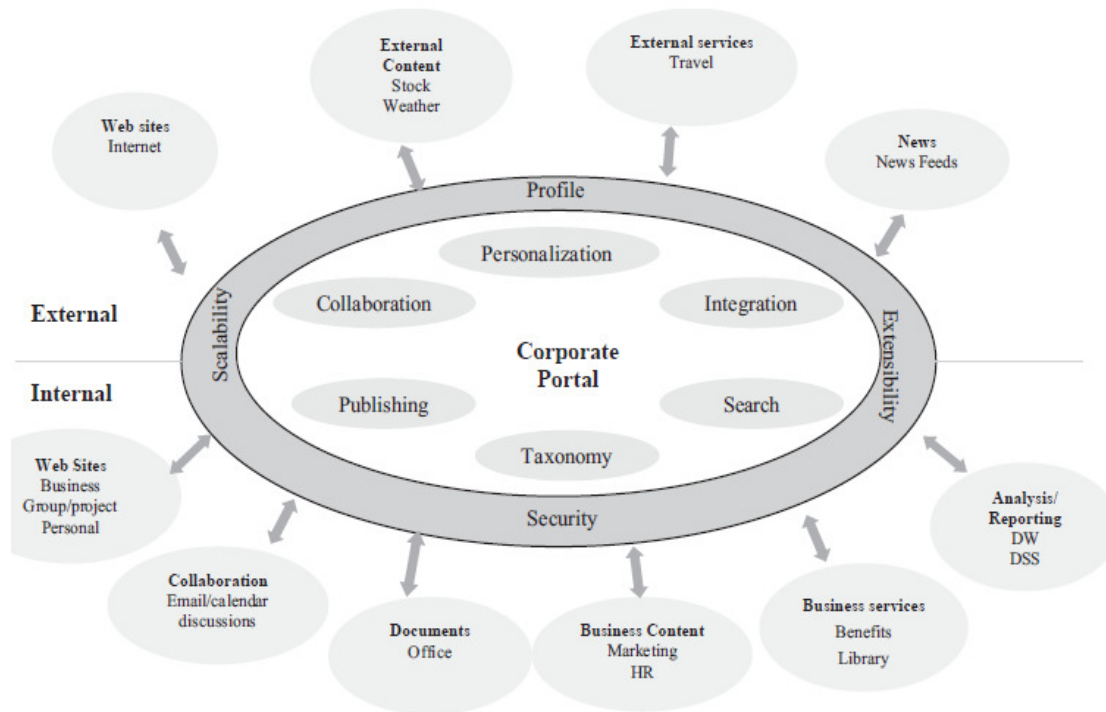


Fig. 2.2 Knowledge portal framework

Source: Aneja et al., (2000) referred by Benbya, et al., (2004)

2.8 Application of Knowledge portals

Portals are considered to be a type of information systems used to gather, manage, share, and utilize information that has been stored in different databases throughout the organization; thus portals provide users with a single point of access to personalized information needed to make informed business decisions. Portals can bring significant benefits to organizations at both the individual and organizational levels. This is because portals enjoy the ability to integrate different information sources and allow easier access to existing applications within the organization; and hence portals allow staff to find the information and knowledge that they need to do their jobs effectively Jalal & Al-Debei (2012). Moreover, portals can further enhance effectiveness by supporting communication between individuals and workgroups; thus allowing increased collaboration Benbya, et al., (2004).

In addition to that, portals can improve internal operations and collaboration with external business partners, such as customers and suppliers Detlor (2000). Besides, portals can reduce information overload, reduce organizational costs, and enhance employee innovation and business intelligence capabilities Sugianto & Tojib (2006). Portals also benefit in streamlining business processes, increasing efficiency and productivity, and improving employee satisfaction due to increased convenience in accessing relevant applications and information Jalal & Al-Debei (2012). Therefore, portals synchronize knowledge and applications, creating a single view into the organization's intellectual capital Benbya, et al., (2004). Portals' competitive advantage depends on their abilities to filter, target, and categorize information so that users will get only what they need Jalal & Al-Debei (2012).

The advantage of portals is their ability to integrate and personalize several technologies (e.g. groupware, databases, data warehouses, e-mail, meta-data, intelligent management systems, and other technologies) in a unique business management tool.

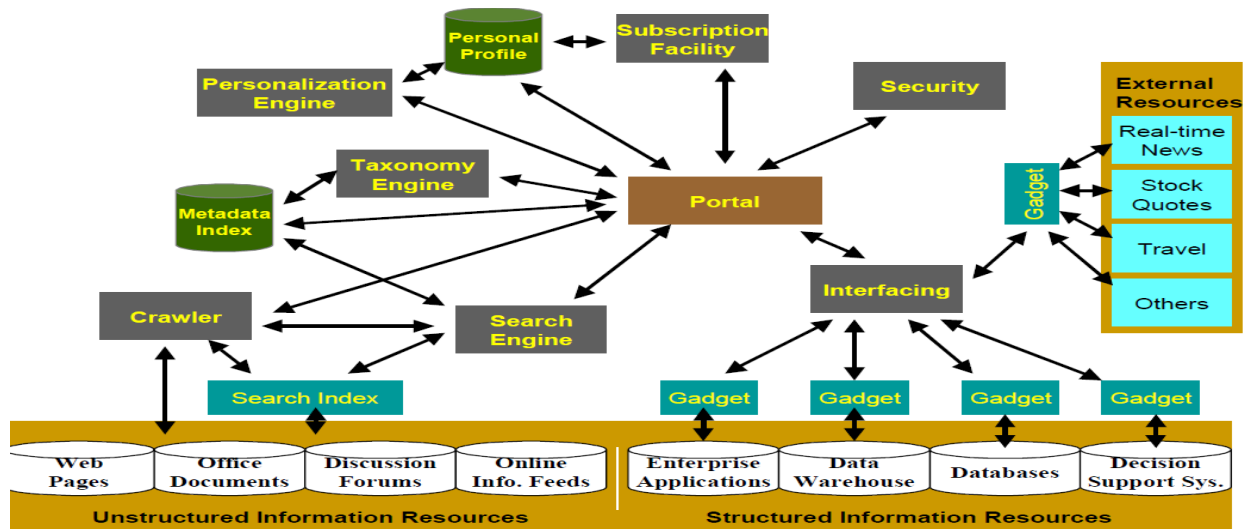


Fig. 2.3 Knowledge portal capability architecture

Source: Intranets (2000)

2.9 Assessing the success of Knowledge portals

According to Urbah, et al., (2009) view employee portals are widespread, but there is no known comprehensive, integrated theoretical framework for measuring their success. Due to this Urbah, et al., (2009) proposed a conceptual model of employee portal success by referring on the D&M IS Success Model. Moreover, the author stated the following conceptual model for measuring employee portal success dimensions:

- i. **System quality**, It considers performance characteristics, functionality, and portal usability, among others.
- ii. **Information quality**, which focuses on the quality of the employee portals' output, (i.e., the quality of the information that the portal provides) and its usefulness for the user. Information quality has been shown to be a prominent success factor when investigating overall IS success, especially in the context of web-based systems.
- iii. **Service quality**, which includes measures of the overall support delivered by the service provider. In the context of employee portals, this success dimension covers aspects such as responsiveness, reliability, empathy, competence, and the overall quality of the portal owner.

- iv. **Portal use**, which measures the perceived use of the employee portal by a company's staff. To assess use in this context, it is possible to measure the perceived time of use of the different functionalities such as e-mail, searching for information, as well as the overall portal usage time.
- v. **User satisfaction**, which is the affective attitude of the employee who interacts directly with the portal towards the user satisfaction, is considered one of the most important measures when investigating overall IS success. The proposed construct evaluates adequacy, efficiency, effectiveness, and overall satisfaction with the portal.
- vi. **Individual portal benefits**, which subsume measures of the perceived individual benefits gained by the employee through the use of the portal. These benefits cover aspects like task performance, job efficiency, improved use and exchange of knowledge, improved communication, and overall usefulness.

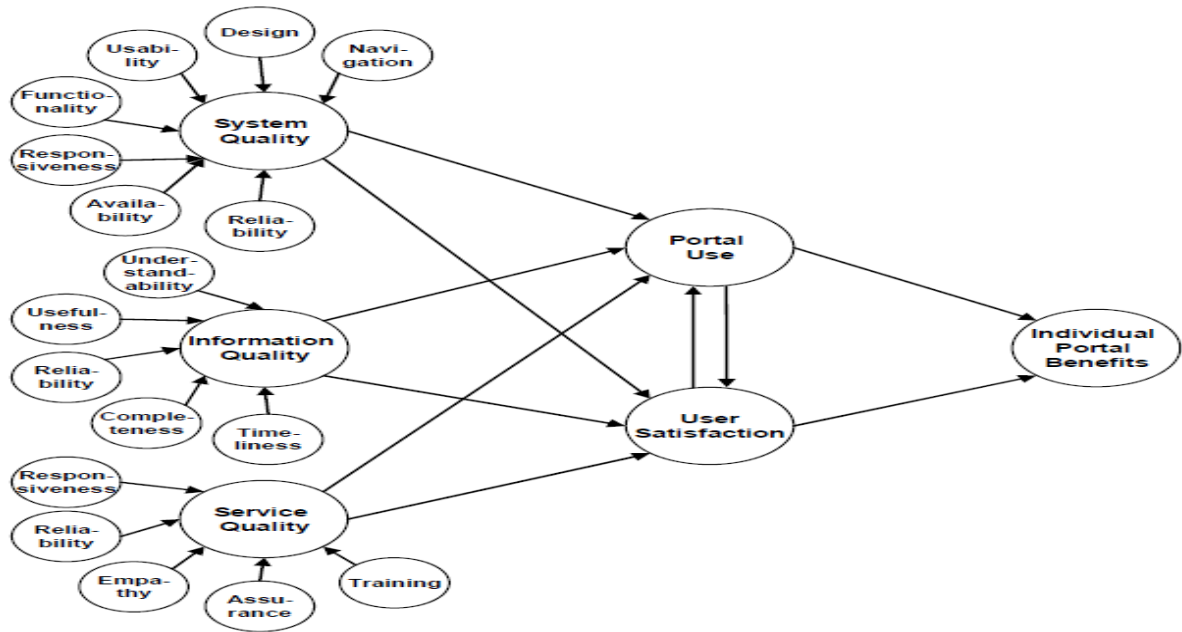


Fig.2.4 Conceptual models for success of Knowledge portal

Source: Urbach, et al., (2009)

2.10 Success factors for the implementation of Knowledge portals

There are three categories of factors for the successful implementation of Knowledge portals, namely managerial, technical, and social aspects Benbya, et al., (2004).



Fig.2.5 optimal implementation of Knowledge portal

Source: Benbya, et al., (2004)

2.10.1 Managerial context

One of the major factors inhibiting portal's adoption is their cost effectiveness. The method is cost-effective because portal technology uses artificial agents, tiny programs developed to find and organize information, rather than salaried employees. The costs of portals include hardware costs, software license costs, software development costs, design costs, system integration costs and maintenance. Corporate portals need to show an ROI in the same way as every other IT project, especially since the purchase of a portal is now clearly seen as a strategic investment and that CEOs demand greater justifications and outputs of the dollars spent or projected in the initiative. After considering cost issues managers should adopt a complete strategy to support the implementation phase that includes communication and training aspects. In many cases, users are unaware of a technology's existence or do not know how to use it effectively. To remediate these problems and stimulate employee's participation to the knowledge base, some managers propose financial incentives to the worker. In many cases, using straightforward monetary incentives does not appear to be an effective solution. People often value the satisfaction derived from giving reasons of professional affiliation or commitment to a larger cause not because they are rewarded with a "carrot". They offer the example of Xerox technicians who value their name being posted in "lights" before thousand of peers over small financial incentives Benbya, et al., (2004).

2.10.2 Technical context

An ignorance of information needs and practices of users that often result in ineffective use of technology. This is mainly due to:

- i. **Poor design:** Frequently, technology is not designed for the work people actually do but rather for the work technologies think they should do.
- ii. **Poor usability:** People will only use technology if it provides: an easy way to locate the information they need; effective interfaces; and quality service delivery.
- iii. **Failure to match the medium with the message:** Technology can be an effective way to speed information around an organization, especially if it's geographically dispersed. However, it is not a very rich medium. For deeply contextual, tacit information, the best way to share can be using technology to connect people to experts and then let them exchange information.

2.10.3 Social context

Another critical element which can stimulate or inhibit the effective use of corporate portal is the social environment within which people operate. The level of trust that exists between the Organization, its sub-units, and its employees greatly influences the amount of knowledge that flow both between individuals and from individuals into the firm's portal. Therefore, companies should pay considerable attention to supporting norms and behavioral practices that manifest trust as an important organizational value. In an organization with a positive social interaction culture, in which both management and employees socialize and interact frequently with each other, people would share their knowledge; while in an organization that promotes individualistic behaviors people will be more reluctant to give away their most valuable knowledge because they will feel it too risky. Consequently, an important element that must be considered in any discussion of knowledge sharing is how to motivate an individual to share knowledge that they believe to be valuable to themselves within their organizations Benbya, et al., (2004).

Table 2.3 shows the challenges of knowledge portals stated by Akhavan et al., (2010).

Table 2.3 challenges of knowledge portals

Challenges of knowledge portals	
Challenge Factors	References
Organizational strategy weakness	Remus(2007), Barna(2003), Ginsberg and Kambil (1999),Holsapple and joshi(2000), jennex(2003),Koskinen (2001), Mandviwalla et al.(1998), Sage and Rose (1999), Yu et al(2004), Jennex et al. (2003)
Information overcrowd and content management weakness	Uden and Naaranoja (2007), Landqvist and Stenmark (2007)
Weakness in training	Uden and Naaranoja (2007), Remus (2007), Okujava and Remus (2007), Holsapple and Joshi (2000), Barna (2003)
Motivation weakness among portal's users and stakeholders	Landqvist and Stenmark (2007), Alavi and leidner (1999), Davenport et al. (1998), Jennex and Olfman (2000), Malhotra and Galletta (2003), Barna (2003)
Lack of flexibility and weakness in change management	Remus (2007), Landqvist and Stenmark (2007)
Lack of cohesion between portal and organization structure	Remus (2007), Bergeron (2003), akerman (1994), Barna (2003), Cross and Baird (2000), Davenport et al. (1998), Ginsberg and Kambil (1999), Jennex and Olfman (2000), Mandviwalla et al. (1998), Sage and Rose (1999)
Lack of senior manager's commitment and support	Remus (2007), Uden and Naaranoja (2007) , Davenport et al. (1998), Jennex and Olfman (2000), Sage and Rose (1999), Yu, et al. (2004), Holsapple and Joshi (2000), Barna (2003)
Weakness in knowledge sharing culture	Remus (2007), Alavi and Leidner (1999), Davenport et al. (1998), Jennex and Olfman (2000), Sage and Rose (1999), Yu, et al. (2004), Barna (2003)
High technical complexity of portals	Hahn and Wang (2009), Okujava and Remus (2007),Alavi and Leidner (1999), Ginsberg and Kambil (1999), Mandviwalla et al. (1998), Jennex and Olfman (2002), Barna (2003)
Weakness of portal technology infrastructure	Remus (2007), Alavi and Leidner (1999), Cross and Baird (2000), Davenport et al. (1998), Ginsberg and Kambil (1999), Jennex and Olfman (2000), Mandviwalla et al. (1998), Sage and Rose (1999), Yu, et al. (2004)
Weakness in security and protection of information and knowledge	Jennex and Olfman (2000), Sage and Rose (1999)

2.11 Knowledge portals in KM

Goswami (2007) detailed discussed that a fundamental aspect of knowledge management is capturing knowledge and expertise created by knowledge workers as they go about their work and making it available to a larger community of colleagues. Technology can support these goals, and knowledge portals have emerged as a key tool for supporting knowledge work. Knowledge portals are single-point-access software systems intended to provide easy and timely access to information and to support communities of knowledge workers who share common goals.

Guran (2008) mentioned that knowledge portals are creating complete and uniform linkage of information and knowledge resources distributed through the organization.

Guran (2008) further discussed about the roles of knowledge ports in KM, he mentioned the following key points:

- ❖ It focuses on sharing of application and exploitation of the organization's differential knowledge, experience and learning.
- ❖ Support and promote efficiency, effectiveness and competitive edge through close integration with the core, knowledge-based processes and activities of organization.
- ❖ Help the people to find easily what they need, and other people applications or documents, internal or external of the organization.
- ❖ Help people Help people to communicate and collaborate, real-time, on-line or off-line
- ❖ Automate intelligent, decision-making tasks and workflows.

2.12 Knowledge portals and Organizational Memory

According to Priebe & Pernul (2003), enterprise knowledge portals are the ideal user interface to a knowledge management or organizational memory system (OMS) .Typical elements of an OMS are operative application, OLAP (Online Analytical Processing) system to access data

warehouse, and an Information Retrieval (IR) system to search for documents in a corporate document base. Additional components might include geographical information systems (GIS) or other decision support systems like expert systems. Being integrated into a corporate intranet through the portal, typical intranet content such as news articles is obviously also an integral part of an OMS. As Priebe & Pernul (2003) cited [Lehn02], the architecture of an OMS can be divided into three layers.

- i. **The knowledge administration layer;** contains the software components that are used to access and interpret the different data sources.
- ii. **The memory repositories layer;** includes all the data stores that together build the organization’s knowledge base.
- iii. **The presentation layer;** is responsible for transporting the information to the end user.

The overall architecture of an organizational memory system using a knowledge portal as a user interface is shown in fig.2.6.

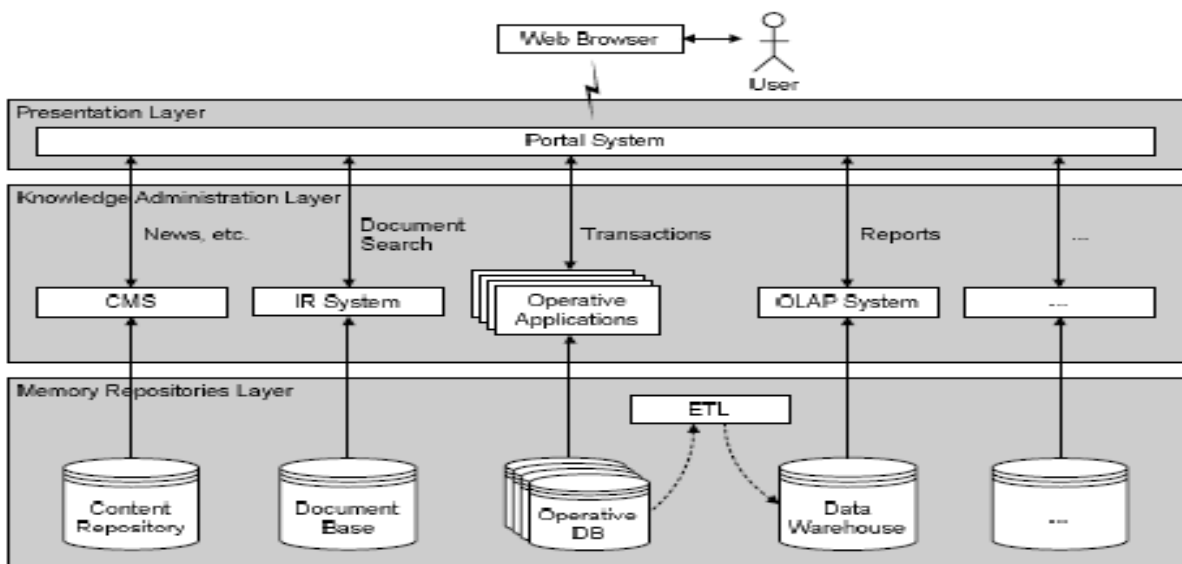


Fig.2.6. Organizational memory system with knowledge portal

Source: Priebe & Pernul (2003)

2.14 related works on knowledge portal

As a related research work, the researcher reviewed unpublished master's thesis by the title "Implementing Knowledge Management System For Ethiopian Telecommunications Corporation's Call Center" at the former CTIT (College of Telecommunications and Information Technology).

As Abrham (2009) on his research work by the title "Implementing Knowledge Management System For Ethiopian Telecommunications Corporation's Call Center" mentioned, the following problems in the former ETC (Ethiopian Telecommunications Corporation) call center has been observed. That is, even if ETC's call center provides several services for its customer like directory service, bill information, recording and passing customers' trouble to the responsible body for maintenance, the following shortcomings have been observed:

- ❖ Inquiries of customer related to customer support, product description, tariffs, coverage areas of the service and such related question of customers do not get first call resolution or those kinds of questions are transferred to other related division according to the query, while it was the responsibility of the call center to give appropriate answer or support for customers. Such customers' queries include, "the network of my mobile is not working?", "I purchased Broad Band but the speed is less than dial up. Why is that? And so-on.
- ❖ Questions related to product description are also not answered by agents of the call center which include "what is Roaming? And in which country could I use the service?", "what are value add services (VAS) and what is the requirement to be a user?," "what kind of equipment should I buy to use video conferencing in order to be compatible with ETC's network?"
- ❖ Inquiries of customers which are transferred by agents of the call center are those which are related with policy and rules of the corporation such as "could I rent the broad band to the third party? And how many computer should I use effectively for a specific bandwidth?", "could I get SMS advertisement for my company?" And so-on

In general, Abrham characterized former ETC call center service by the following points:

- ❖ very low rate of first call resolution
- ❖ Lengthy time lap in providing answers
- ❖ Low rate of right answers with limited periods of time.
- ❖ In consistency in answers which are provided by different agent for the same question
- ❖ Limitation of services

After identifying such problems on the former ETC call center, Abrham set an objective to establish a knowledge management system for the former Ethiopian Telecommunications Corporation Call Center defined a call as” voice operations center that interfaces with the customer in a variety of ways from customer support, billing, provisioning, directory assistance, to technical support” and implementing knowledge management system in the call center to improve quality of customer services, by addressing the issues specifically related to information and knowledge management that support agents.

The research methodology Abrham used to develop knowledge management system (KMS) for former ETC call center was KM-IRIS methodology. As Abrham explained for his selection of this methodology that it has all the required knowledge management processes (phases) and with detailed steps to be followed as a guide throughout the development of KMS.

Abrham presented his research findings:

- ❖ Customer enquiries (frequently asked questions),
- ❖ Conceptual knowledge blocks and target knowledge (Knowledge required to satisfy customer queries
- ❖ Identifications of source of the target knowledge

Abrham has developed A KMS prototype to show how the identified, extracted and represented knowledge could be preserved and used in former ETC call center



Welcome To KMS of ETC's Call Center

User name

Password

Fig. 2.7 Login page
Abrham (2009)

The researcher observed that what Abrham showed as a prototype was similar to the existing ethio telecom call center (KBS) knowledge portal.

Chapter Three

Methodology

In this study, quantitative research with a descriptive type of survey has been made about the usability of the two existing ethio telecom Knowledge management portals. Survey research designs are procedures in quantitative research in which investigators administer a survey to a sample or to the entire population of people to describe the attitudes, opinions, behaviors, or characteristics of the population Creswell (2012).

In this section, the research design and methodologies used to conduct the research are presented.

3.1 Research design

In order to study the usability of the two existing ethio telecom knowledge management portals, the researcher surveyed perceptions from the selected officers, managers, supervisors and staffs using self administered questionnaires.

3.2 Target population

The target population for this study is shown in the annex parts of this research work (See Annex C). Among these 14 ethio telecom Divisions, customer service division users have access on both corporate/knowledge and customer service (knowledge Base system) portals. In addition, the day to day operations management part of customer service (knowledge Base system) portal is fully managed and accessed only by the customer service division employees. Therefore, employees who are working in customer service division are considered as the major parts of the target populations primarily.

Secondly, even if the corporate knowledge portal is accessed by all the divisions' employees, its day to day operation is fully managed by the Information system division concerned employees. Therefore, employees who are working in this division are also considered as the major parts of the target population next to customer service employees.

At last, as an insider based on the researcher’s observation employees who are working in human resource division, quality & process division and marketing & communications divisions were relatively better users of the corporate/knowledge portal to that of the rest of the other division employees. Therefore, some portions of those divisions’ employees are included as parts of the target populations for this study.

Based on the above scenario, a total of 2764 target population size was selected for this study. The summarized targeted population size from the five divisions is shown by table 3.1

Table 3.1 Target population size

Target population size from the five ethio telecom divisions			
Name of the Division	No. of male staffs	No. of female staffs	Total no. of staffs in the division
Customer Service	1060	1161	2221
Information System	183	71	254
Human Resource	127	75	202
Quality & Process	28	7	35
Marketing & communications	35	17	52
Total	1433	1331	2764

3.3 Sampling technique

Stratified random sampling technique was adopted in order to select five ethio telecom Divisions.

3.4 Sample size

The actual sample size has been determined from total targeted populations through online calculator (sample size calculator using software¹). With 95% of confidence level and 10% of

¹ (<http://www.surveysystem.com/sscalc.htm>), visited on 5/02/15, 1:55 PM.

confidence interval (margin of error), the sample size is 93. For the simplicity of calculations the sample size taken by the researcher was 100 ethio telecom permanent employees.

Also sample from each stratum is selected using purposive sampling a non-probability sampling technique. This involves nothing but purposely selecting individuals from the population in order to include managerial and non-managerial employees.

Two independent samples t-Test for mean scores of usability of corporate knowledge management portal has been made to make inferential conclusions shown at chapter four of this study.

As earlier explained both the customer service (Knowledge Base System) and corporate/knowledge portals are used by customer service division employees. Moreover, the day to day operational part of the KBS portal is managed by the concerned customer service employees. Due to this, 80% of the target population has been taken from customer service division. The researcher has observed and convinced at least to take 50% (50 employees) of the sampled population size from customer service division. For the rest of the target sample sizes, the researcher has taken 20% (20 employees) from Information system division and 10% (10 employees) from each of the remaining three divisions by considering the discussion part (target population for this study) above.

3.5 Data collection procedure

In order to address the research questions this study relied on primary data. Accordingly, primary data was collected through the use of questionnaire that contained close ended questions (See Annex A). Secondary data sources were also used including journals, books, and the internet. The questionnaire has been taken from similar researches (literatures) Ylimys (2011), Tullis & Stetson (2004), Basa (2011), Bargas-Avila et al., (2009), Goh et al., (2008), Van der Walt et al., (2004), Hub & Zatloukal (2010), Hub et al., (2009), Hub et al., (2010), Saeed & Ullah (2009), and Delic & Lenz (2008) with slight modification and customization.

The questionnaire has four parts: part one contained the background of the respondents, gender, age, education levels, field of study, Divisions in which the respondents currently working, positions and experiences.

Part two contained questions requesting the respondents to state their agreement or disagreement on usability of the two existing ethio telecom knowledge management portals. In this study, the 5 point (1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree) Likert Scale that was developed by Rensis Likert had been chosen and applied.

Part three contained three general questions about both corporate/knowledge and customer service (Knowledge Base system) portals.

- i. **The most useful information sharing tool in ethio telecom:** To speed up the day to day work activities sharing most useful information using daily meetings, portal pages, emails, and phone/conference calls are used among others in ethio telecom. The respondents have been asked to choose one or more than one choices which they most of the times used.
- ii. **Incentives given to ethio telecom employees for sharing their knowledge on the portals:** Employees will be more motivated to share their knowledge on the knowledge portals in a regular base if incentives are given to them. Accordingly, respondents were asked if any incentives like award recognition, promotion opportunities, training or educational opportunities are given to them by ethio telecom.
- iii. **Barriers to knowledge sharing on ethio telecom portals:** while employees use the two ethio telecom portals, they might face some hindrances. Accordingly, respondents were asked if the causes were emanated from organizational strategy weakness, information overflows, content management weakness, weakness in training, lack of senior manager's commitment, and weakness in knowledge sharing culture.

Part four contained questions requesting the respondents' experience of visiting both corporate/knowledge and customer service (Knowledge Base system) portals. In this study , the

6 point (1=Daily, 2=Weekly, 3=Less than weekly,4=Never, 5=Sometimes,6=Even I do not know about it) has been used.

The questionnaire was handed out to each respondent personally by the researcher. A cover letter was attached to the questionnaire to introduce the respondents and explain the purpose of the study as well as the researcher’s intention.

3.6 Reliability of the instrument

The researcher has checked the reliability of the questionnaires using one of the most commonly used indicators of internal consistency i.e. Cronbach’s alpha coefficient. The results of the Cronbach alpha are presented in Table 3.2

Table 3.2 Coefficient of internal consistency

Coefficient of internal consistency –Cronbach Alpha					
Label		N	%	Cronbach's Alpha	Number of items (questionnaires)
Cases	Valid	95	100.0	.772	32
	Excluded	0	.0		
	Total	95	100.0		

Low Cronbach’s alpha coefficient indicates weak internal consistency of instruments which means low reliability. Ideally, the Cronbach alpha coefficient of a scale should be above .7. J. Pallant (2005).

3.7 Validity of the Instrument

The researcher has undertaken discussions with the research advisor. That is, very few of the survey questionnaires have a bit far difference idea than the rests. Therefore, they were deleted in order to increase the Cronbach’s alpha coefficient.

3.8 Pilot test

Even if the questionnaires applied for this study were used by other researchers, customization and slight modification has been done. So that pilot test has been made with 25 intended participants to determine the clarity of the questionnaires.

As this research work is about the two domain specific ethio telecom knowledge portals, among the intended 25 participants 12 of them were taken from customer service division employees and the rest 13 were from Human resource, Quality & Process , Marketing & Communications, and Information system Divisions employees. Initially, the survey questionnaires were prepared and distributed separately. That is, 12 of the intended participants from customer service were asked about both Corporate (Intranet) and KBS (Knowledge Base System) portals. Whereas, the other 13 intended participants from the four Divisions were asked only about Corporate (Intranet) portal.

When analysis made separately in this pilot test, the result was almost similar for the two domain specific ethio telecom portals. The only difference as shown on the data analysis and presentation parts of this research work was the frequency of portals' visit by the users. Due to this fact, the researcher merged the two separate questionnaires for the final data collection. (See annex-A)

As the researcher observed while he was coding and inserting the collected data to the SPSS, almost all of the selected samples from customer service division employees were responded about both of the portals. On the other hand, all of the selected sample employees from the rest of four divisions were responded only about corporate /knowledge portal.

3.9 Data analysis and Presentation

The survey data was processed using statistical computer package; SPSS (Version 20). First relevant data were coded, summarized and then transferred to SPSS.

To present data this study has made use of tables and charts. In analyzing the results the study descriptively reports individual responses by using percentage and frequency to each category

and item on the questionnaire .This helped to understand clearly the results of the analyzed data. Moreover two independent samples t-Test for mean scores of usability of corporate knowledge management portal has been made to make inferential conclusions.

3.10 Ethical Issues

In order to ensure ethical issues, the researcher first produced full permission from the organization under study. This was done by providing information concerning the topic, purpose and overall benefit of the study to participants and the organization. While collecting data name of participants remained anonymous and data collection was undertaken without interrupting normal work of respondents. Final report is used for the purpose which has been mentioned on the specific objectives parts of this study.

Chapter Four

Analysis and Discussions

This chapter provides presentation and quantitative analyses of the data gathered by a structured questionnaire. Results of the quantitative analyses provided an overall insight on the common practices of the two existing ethio telecom Knowledge management portals.

Each part of the data analysis and presentations are intended to address the research questions which have been mentioned on the first chapter of this study.

As mentioned in chapter three the researcher distributed a questionnaire to a sample of 100 ethio telecom permanent employees which constituted officers, section managers, supervisors and staffs. Five questionnaires which were considered to be inappropriately filled by selected sample customer service employees were rejected and hence the analysis was conducted based on 95 (95%) survey responses.

4.1 Demography of the sample

On table 4.1 the demographical distribution of total number of respondents per gender, age, education, field of study, divisions, job position and work experience are shown.

Table 4.1 Distribution of respondents per gender

Gender			
		Frequency	Percent
Valid	Male	61	64.2
	Female	34	35.8
	Total	95	100.0

From table 4.1 it can be seen that out of the 95 respondents; gender wise, 34(35.8%) are females and 61(64.2%) are males.

Table 4.2 Distribution of respondents per age

Age			
		Frequency	Percent
Valid	Less than 23 Years	1	1.1
	23-30 years	48	50.5
	31-40 years	42	44.2
	41-50 years	2	2.1
	above 50 years	2	2.1
	Total	95	100.0

Age wise, 1(1.1%) fall in less than 23, 48(50.5%) in 23-30, 42(44.2%) in 31-40, 2(2.1%) in 41-50 and 2(2.1%) are above 50 years.

Table 4.3 Distribution of respondents per education

Education			
		Frequency	Percent
Valid	Bachelor	78	82.1
	Masters	17	17.9
	Total	95	100.0

Almost 100% have educational qualifications of Degree and above. This helped the researcher to ensure gaining of professional and educated judgment on the items covered in the survey.

Table 4.4 Distribution of respondents per fields of study

Field of study			
		Frequency	Percent
Valid	Accounting	7	7.4
	Economics	8	8.4
	Management	29	30.5
	Computer Science	22	23.2
	Computer Engineering	4	4.2
	Electrical Engineering	12	12.6
	Information Technology	13	13.7
	Total	95	100.0

In the field of studies wise, 7(7.4%), 8(8.4%), 29(30.5%), 22(23.2%), 4(4.2%), 12(12.6%) and 13(13.7%) are respectively graduates of Accounting, Economics, Management, Computer Science, Computer Engineering, Electrical Engineering and Information Technology.

Table 4.5 Distribution of respondents per divisions

Division			
		Frequency	Percent
Valid	Customer Service	45	47.4
	Information System	20	21.1
	Human Resource	10	10.5
	Quality & Process	10	10.5
	Marketing & communications	10	10.5
	Total	95	100.0

Divisions wise distribution of the sample suggests that majority of the respondents 45(47.4%) are from Customer service. This will help to get more concerned and understood feedback about the two ethio telecom knowledge portals as the respondents are using both of them on their day to day activities in related to the external as well as internal customers' needs.

Respondents 20(21.1%) which are taken from the information System Division are also double to that of the rest three Divisions respondents. It is the researcher's observation that most of the information System Division respondents are not only users of the corporate (Intranet) portal but also they are responsible for the system as well as technical management parts of the portal. Hence, better feedback has been given by the respondents.

Table 4.6 Distribution of respondents per Job positions

Job Position			
		Frequency	Percent
Valid	Staff	58	61.1
	Supervisor	18	18.9
	Manager	13	13.7
	Officer	6	6.3
	Total	95	100.0

In job position wise, 58(61.1%) are staffs, 18(18.9%) are supervisors, 13(13.7%) are managers and the rest 6(6.3%) are officers (department general managers). This is a notable feature of

the sample that significant number of 58(61.1%) employees participated who is working in a staff position. As the purpose of the issue covered in this study is to get valuable feedback from the actual and day to day users of the portals, this much participation of staff employees has widened the chance of getting experienced feedback on the current practices of Knowledge management portals in ethio telecom

Table 4.7 Distribution of respondents per work experience

Work Experience			
		Frequency	Percent
Valid	Less than 3 years	27	28.4
	3-10 years	35	36.8
	11-15 years	24	25.3
	Greater than 15 years	9	9.5
	Total	95	100.0

As to years of experience in their present position, 27(28.4%) fall below 3 years, 35(36.8%) in 3-10 years, 24(25.3%) in 11-15 years and the remaining 9(9.5%) in greater than 15 years.

In general these characteristics of the sample are considered as diversified and inclusive enough to serve for the purpose of this study.

4.2 Portals' usage by the employees

Among the different ways to examine portals usage by the employees' trend of ethio telecom, the researcher has prepared and asked six questions for the selected ethio telecom employees. Therefore, this part analyzes and presents the respondents' response on the six sub titles separately. Moreover, overall data presentation and discussions has been made on the results of the respondent's response regarding the two ethio telecom portals usage by the employees.

4.2.1 Easiness to read and understand information on the portals

Table 4.8 presents the response of respondents about the easiness to read and understand information on the two ethio telecom portals.

Table 4.8 Easiness to read and understand information on the portals

The Information provided on the portals is easy to read and understand		
Respondents response	Frequency	Percent
Disagree	5	5.3
Neutral	12	12.6
Agree	60	63.2
Strongly Agree	18	18.9
Total	95	100

For the question ‘the Information provided on the portals is easy to read and understand’, about 82.1 % of the respondents replied they agree (63.2%) and strongly agree (18.9%) with the idea. 12.6% of the respondents are in neutral stand. Other 5.3% of the respondents disagree. From this, it can be seen that information provided on both ethio telecom portals are easy to read and understand.

4.2.2 Help features like FAQ on the portals

Table 4.9 presents the response of respondents about the help features like FAQ of the two ethio telecom portals.

Table 4.9 Help features like FAQ of the portals

Portals offer help features like FAQ while working on them		
Respondents response	Frequency	Percent
Strongly Disagree	6	6.3
Disagree	19	20.0
Neutral	50	52.6
Agree	18	18.9
Strongly Agree	2	2.1
Total	95	100

For the question ‘help features like FAQ on the portals’, about 26.3% of the respondents replied they strongly disagree (6.3%) and disagree (20%) with the idea. 52.6% of the respondents are neutral. Others 21% of the respondent replied they agree (18.9%) and strongly agree (2.1%). From this, it can be observed that the portals help features like FAQ are not well implemented on both ethio telecom portals.

4.2.3 Portals enable users to recover from errors

Table 4.10 presents the response of respondents about enabling users to recover from errors on the two ethio telecom portals.

Table 4.10 Portals enable users to recover errors

Portals enable users to recover from errors		
Respondents response	Frequency	Percent
Strongly Disagree	4	4.2
Disagree	27	28.4
Neutral	53	55.8
Agree	11	11.6
Total	95	100

For the question ‘portals enable users to recover from errors’, about 32.6% of the respondents replied they strongly disagree (4.2%) and disagree (28.4%) with the idea. 55.8% of the respondents are neutral. Whereas, 11.6% of them reported they agree. From this, it can be deduced that portals to enable users to recover from errors are not well implemented on the two ethio telecom portals.

4.2.4 User friendness of the portals

Table 4.11 presents the response of respondents about user friendness of the two ethio telecom portals.

Table 4.11 User friendness of the portals

I am satisfied with the user friendness of the portals		
Respondents response	Frequency	Percent
Disagree	9	9.5
Neutral	29	30.5
Agree	50	52.6
Strongly Agree	7	7.4
Total	95	100

For the question ‘I am satisfied with user friendness of the portals’, about 60% of the respondents replied they strongly agree (7.4%) and agree (52.6%) with the idea. 30.5% of the

respondents are neutral. The remaining 9.5% disagree. From this, it can be summarized the two ethio telecom portals seems to be user friendly.

4.2.5 Helpfulness of Search functions

Table 4.12 presents the response of respondents about helpfulness of search functions of the two ethio telecom portals.

Table 4.12 Helpfulness of search functions

The Portals' search function are helpful		
Respondents response	Frequency	Percent
Strongly Disagree	2	2.1
Disagree	15	15.8
Neutral	38	40.0
Agree	36	37.9
Strongly Agree	4	4.2
Total	95	100

For the question 'helpfulness of search functions of the portals', about 42.1% of the respondents replied they strongly agree (4.2%) and agree (37.9%) with the idea. 40% of the respondents are neutral. Others 17.9% of the respondent replied they strongly disagree (2.1%) and disagree (15.8%). Considering the respondents response neutral (40%) and 17.9% of strongly disagree and disagree, it can be viewed that helpfulness of the portals search functions are not well implemented the two ethio telecom portals

4.2.6 Users' need to learn about the portals

Table 4.13 presents the respondents' responses on their need to learn about the two ethio telecom portals.

Table 4.13 Users need to learn about the portals

I need to learn a lot about these portals before I use it		
Respondents response	Frequency	Percent
Disagree	3	3.2
Neutral	22	23.2
Agree	53	55.8
Strongly Agree	17	17.9
Total	95	100

For the question ‘I need to learn a lot about these portals before I use it’, about 73.7 % of the respondents replied they agree (55.8%) and strongly agree (17.9%) with the idea. 23.2% of the respondents are in neutral stand. Other 3.2% of the respondents disagree. From this, it can be understood that enough and up-to-date trainings about the two ethio telecom portals are not delivered for the users.

In summary regarding portals usage by the employees, based on the majority of the respondents’ response, information provided on both ethio telecom portals are easy to read, understand and user friendly. Whereas, offering help features Like FAQ, enabling users to recover from errors, helpfulness to search, and learning a lot about these portals before using it, are not well implemented to the satisfaction level of portal users.

4.3 Completeness of the portals

In order to examine completeness of the portals, the researcher has prepared and asked three questions for the selected ethio telecom employees. Therefore, this part analyzes and presents the respondents’ response on the three sub titles separately. Moreover, overall data presentation and discussions has been made on the results of the respondent’s response regarding the completeness of the two ethio telecom portals.

4.3.1 Limitation of information on the portals

Table 4.14 presents the response of respondents about limitations of information on the two ethio telecom portals.

Table 4.14 Limitations of information on the portals

The information provided on the portals is limited		
Respondents response	Frequency	Percent
Disagree	4	4.2
Neutral	15	15.8
Agree	51	53.7
Strongly Agree	25	26.3
Total	95	100

For the question *'the information provided on the portals is limited'*, about 80 % of the respondents replied they agree (53.7%) and strongly agree (26.3%) with the idea. 15.8% of the respondents are in neutral stand. Other 4.2% of the respondents disagree. From this, it can be seen that information provided on the two ethio telecom portals is limited.

4.3.2 Supportiveness of portals to give feedback electronically

Table 4.15 presents the response of respondents about user supportiveness of the two ethio telecom portals to give feedback electronically.

Table 4.15 Supportiveness of the portals to give feedbacks electronically

Portals support users to give feedback electronically		
Respondents response	Frequency	Percent
Strongly Disagree	4	4.2
Disagree	15	15.8
Neutral	27	28.4
Agree	37	38.9
Strongly Agree	12	12.6
Total	95	100

For the question *'portals support users to give feedback electronically'*, about 51.5% of the respondents replied they agree (38.9%) and strongly agree (12.6%) with the idea. 28.4% of the respondents are in neutral stand. Others 20% of the respondents replied they strongly disagree (4.2%) and disagree (15.8%). From this, it can be understood that the portal users provide feedback electronically on the two ethio telecom portals in a moderately level.

In summary regarding portals completeness, based on the majority of the respondents' response, information provided on the two ethio telecom portals is limited .On the other hand, users can provide feedback electronically through the portals.

4.4 Simplicity (ease of usage) of the portals

In order to examine simplicity (ease of usage) of the portals, the researcher has prepared and asked four questions for the selected ethio telecom employees. Therefore, this part analyzes and presents the respondents' response on the four sub titles separately. Moreover, overall data presentation and discussions has been made on the results of the respondent's response regarding the two ethio telecom simplicity (ease of usage) of the portals.

4.4.1 Concept of the portals to the user context

Table 4.16 presents the respondents' response in alignment with the concept of portals to the user context on the two ethio telecom portals.

Table 4.16 Concept of the portals to the user context

The concept of portals are well adjusted to the user context		
Respondents response	Frequency	Percent
Disagree	22	23.2
Neutral	43	45.3
Agree	25	26.3
Strongly Agree	5	5.3
Total	95	100

For the question 'the concept of portals is well adjusted to the user context', about 31.6 % of the respondents replied they agree (26.3%) and strongly agree (5.3%) with the idea. 45.3% of the respondents are in neutral stand. Other 23.2% of the respondents disagree. From this, it can be seen that the concept of portals is not well adjusted to the user context on the two ethio telecom portals.

4.4.2 Easiness of information availability on the portals

Table 4.17 presents the response of respondents about easiness of information availability on the two ethio telecom portals.

Table 4.17 Easiness of information availability on the portals

It is easy to find information needed on the portals		
Respondents response	Frequency	Percent
Disagree	7	7.4
Neutral	28	29.5
Agree	50	52.6
Strongly Agree	10	10.5
Total	95	100

For the question ‘easiness to find information on the portals’, about 63.1 % of the respondents replied they agree (52.6%) and strongly agree (10.5%) with the idea. 29.5% of the respondents are neutral. Other 7.4% of the respondent replied they disagree. From this, it can be observed that information can be easily found on the two ethio telecom portals.

4.4.3 Easiness of service navigation on the portals

Table 4.18 presents the response of respondents about the easiness of service navigation on the two ethio telecom portals.

Table 4.18 Easiness of service navigation on the portals

The portals system allow easy of navigation service		
Respondents response	Frequency	Percent
Disagree	11	11.6
Neutral	27	28.4
Agree	46	48.4
Strongly Agree	11	11.6
Total	95	100

For the question ‘the portals system allows easy of navigation service’, about 60 % of the respondents replied they agree (48.4%) and strongly agree (11.6%) with the idea. 28.4% of the respondents are in neutral stand. Other 11.6% of the respondents disagree. From this, it can be seen that the two ethio telecom portals give easy of navigation service.

4.4.4 Clarity of terminologies on the portals

Table 4.19 presents the respondents' response about the clarity of terminologies on the two ethio telecom portals.

Table 4.19 Clarity of terminologies on the portals

Terminology used on the portals are clear		
Respondents response	Frequency	Percent
Disagree	6	6.3
Neutral	30	31.6
Agree	49	51.6
Strongly Agree	10	10.5
Total	95	100

For the question 'terminologies used on the portals are clear', about 62.1% of the respondents replied they agree (51.6%) and strongly agree (10.5%) with the idea. 31.6% of the respondents are neutral. Whereas, 6.3% of them reported they disagree. From this, it can be viewed that terminologies used on the two ethio telecom portals are clear.

In summary regarding portals simplicity (ease of usage), based on the majority of the respondents' response, the concept of portals is not well adjusted to the user context on the two ethio telecom portals. Whereas, easiness to find information, easy of navigation service, and terminologies used are in the user satisfactory level on the two etho telecom portals.

4.5 Quality of the portals

In order to examine quality of the portals, the researcher has prepared and asked nine questions for the selected ethio telecom employees. Therefore, this part analyzes and presents the respondents' response on the nine sub titles separately. Moreover, overall data presentation and discussions has been made on the results of the respondent's response regarding the two ethio telecom quality of the portals.

4.5.1 Attractiveness of interface of the portals

Table 4.20 presents the response of respondents about the attractiveness of the interfaces of the two ethio telecom portals.

Table 4.20 Attractiveness of interfaces the portals

The interfaces of the portals are pleasant /attractive		
Respondents response	Frequency	Percent
Strongly Disagree	1	1.1
Disagree	11	11.6
Neutral	40	42.1
Agree	35	36.8
Strongly Agree	8	8.4
Total	95	100

For the question ‘the interface of the portals are attractive’, about 45.2% of the respondents replied they agree (36.8%) and strongly agree (8.4%) with the idea. 42.1% of the respondents are in neutral stand. Others 12.7% of the respondents replied they strongly disagree (1.1%) and disagree (11.6%). From this, it can be observed that the two ethio telecom portals have attractive interfaces.

4.5.2 Validity of hyperlinks on the portals

Table 4.21 presents the response of respondents about the validity of hyperlinks on the two ethio telecom portals.

Table 4.21 Validity of hyperlinks on the portals

Hyperlinks on the portals are valid		
Respondents response	Frequency	Percent
Disagree	6	6.3
Neutral	35	36.8
Agree	48	50.5
Strongly Agree	6	6.3
Total	95	100

For the question ‘hyperlinks on the portals are valid’, about 56.8% of the respondents replied they agree (50.5%) and strongly agree (6.3%) with the idea. 36.8% of the respondents are in neutral stand. Other 6.3% of the respondents disagree. From this, it can be seen that hyperlinks on the two ethio portals are valid.

4.5.3 Service inconsistency on the portals

Table 4.22 presents the response of respondents about service inconsistency on the two ethio telecom portals.

Table 4.22 Service inconsistency on the portals

There are too much service inconsistency on the portals		
Respondents response	Frequency	Percent
Disagree	5	5.3
Neutral	38	40.0
Agree	41	43.2
Strongly Agree	11	11.6
Total	95	100

For the question 'I think there are too much inconsistency on the portals', about 54.8% of the respondents replied they agree (43.2%) and strongly agree (11.6%) with the idea. 40% of the respondents are in neutral stand. Other 5.3% of the respondents disagree. From this, it can be observed that there is too much service inconsistency on the two ethio telecom portals.

4.5.4 Continuous updating of contents on the portals

Table 4.23 presents the response of respondents about continuous updating of contents on the two ethio telecom portals.

Table 4.23 Continuous updating of contents on the portals

Continuous updating of contents on the portals		
Respondents response	Frequency	Percent
Strongly Disagree	16	16.8
Disagree	30	31.6
Neutral	37	38.9
Agree	11	11.6
Strongly Agree	1	1.1
Total	95	100

For the question 'there is continuous updating of contents on the portals', about 12.7% of the respondents replied they agree (11.6%) and strongly agree (1.1%) with the idea. 38.9% of the respondents are in neutral stand. Others 48.4% of the respondents replied they strongly

disagree (16.8%) and disagree (31.6%). From this, it can be seen that there is no continuous updating of contents on the two ethio telecom portals.

4.5.5 Availability of services on the portals

Table 4.24 presents the response of respondents about the service availabilities on the two ethio telecom portals.

Table 4.24 availability of services on the portals

Services on the portals are available all the times		
Respondents response	Frequency	Percent
Disagree	5	5.3
Neutral	12	12.6
Agree	53	55.8
Strongly Agree	25	26.3
Total	95	100

For the question ‘services of the portals are available all the times’, about 82.1% of the respondents replied they agree (55.8%) and strongly agree (26.3%) with the idea. 12.6% of the respondents are in neutral stand. Other 5.3% of the respondents disagree. From this, it can be observed that services of the portals are available all the times on the two ethio telecom portals.

4.5.6 Organizations of contents on the portals

Table 4.25 presents the response of respondents about organizations of the contents on the two ethio telecom portals.

Table 4.25 organizations of the contents on the portals

Contents on the portals are well organized		
Respondents response	Frequency	Percent
Strongly Disagree	2	2.1
Disagree	18	18.9
Neutral	49	51.6
Agree	24	25.3
Strongly Agree	2	2.1
Total	95	100

For the question ‘the contents are well organized on the portals’, about 27.4% of the respondents replied they agree (25.3%) and strongly agree (2.1%) with the idea. 51.6% of the respondents are in neutral stand. Others 21% of the respondents replied they strongly disagree (2.1%) and disagree (18.9%). From this, it can be seen that the contents are not well organized on the two ethio telecom portals.

4.5.7 Readiness of the portals to link to other websites

Table 4.26 presents the response of respondents about readiness the two ethio telecom portals to link to other websites.

Table 4.26 Readiness of the portals to link to other websites

Portals facilitate to link to other websites		
Respondents response	Frequency	Percent
Strongly Disagree	31	32.6
Disagree	37	38.9
Neutral	25	26.3
Agree	2	2.1
Total	95	100

For the question ‘portals facilitates to visit other websites’, about 71.5% of the respondents replied they strongly disagree (32.6%) and disagree (38.9%) with the idea. 26.3% of the respondents are in neutral stand. Other 2.1% of the respondents agree. From this, it can be seen that the two ethio telecom portals do not facilitates to visit other websites.

4.5.8 The response times of portals

Table 4.27 presents the response of respondents about data uploading and downloading response times on the two ethio telecom portals.

Table 4.27 The response time of the portals

Portals response time to upload and download data is good		
Respondents response	Frequency	Percent
Strongly Disagree	1	1.1
Disagree	13	13.7
Neutral	29	30.5
Agree	43	45.3
Strongly Agree	9	9.5
Total	95	100

For the question *'the response time of the portals are good for upload and download data '*, about 54.8% of the respondents replied they agree (45.3%) and strongly agree (9.5%) with the idea. 30.5% of the respondents are in neutral stand. Others 14.8% of the respondents replied they strongly disagree (1.1%) and disagree (13.7%). From this, it can be seen that the two ethio telecom portals have moderate response time for uploading and downloading of data

In summary regarding portals quality, based on the majority of the respondents' response, validity of hyperlinks, 24*7 service availability, and attractiveness of the portals interfaces are in satisfactory level. Response time during data uploading and downloading on the two ethio telecom portals are in moderately level. Whereas, the two ethio telecom portals have too much service inconsistency, discontinues service updating, unorganized contents, and do not facilitates to visit other websites.

4.6 Security of portals

In order to examine portals security, the researcher has prepared and asked two questions for the selected ethio telecom employees. Therefore, this part analyzes and presents the respondents' response on the two sub titles separately. Moreover, overall data presentation and discussions has been made on the results of the respondent's response regarding the two ethio telecom portals security.

4.6.1 Safety and freedom on the portals service

Table 4.28 presents the response of respondents about safety and freedom services on the two ethio telecom portals.

Table 4.28 safety and freedom on the portals service

While I use the portals I feel of control safely and freedom		
Respondents response	Frequency	Percent
Strongly Disagree	2	2.1
Disagree	13	13.7
Neutral	31	32.6
Agree	35	36.8
Strongly Agree	14	14.7
Total	95	100

For the question ‘*while I use the portals I feel of control safely and freedom*’, about 51.5% of the respondents replied they agree (36.8%) and strongly agree (14.7%) with the idea. 32.6% of the respondents are in neutral stand. Others 15.8% of the respondents replied they strongly disagree (2.1%) and disagree (13.7%). From this, it can be seen that users feel of control and freedom on both of the two ethio telecom portals are in a moderately level.

4.6.2 Weakness in security and protection on the portals service

Table 4.29 presents the response of respondents about the weakness in security and protection on the two ethio telecom portals services.

Table 4.29 Weakness in security and protection on portals services

I observe weakness in security and protection on the portals service		
Respondents response	Frequency	Percent
Strongly Disagree	1	1.1
Disagree	16	16.8
Neutral	43	45.3
Agree	29	30.5
Strongly Agree	6	6.3
Total	95	100

For the question ‘*I observe weakness in security and protection on the portals service*’, about 36.8% of the respondents replied they agree (30.5%) and strongly agree (6.3%) with the idea. 45.3% of the respondents are in neutral stand. Others 17.9% of the respondents replied they strongly disagree (1.1%) and disagree (16.8%). From this, it can observed that there is some weakness in security and protection on both ethio telecom portals.

In summary regarding portals security, based on the majority of the respondents' response, there is some weakness in security and protection on the two ethio telecom portals. On the other hand, while users use on the two ethio telecom portals, they feel of control and freedom in a moderately level.

4.7 Integrations of portals

In order to examine a need for integration of portals, the researcher has prepared and asked two questions for the selected ethio telecom employees. Therefore, this part analyzes and presents the respondents' response on the two sub titles separately. Moreover, overall data presentation and discussions has been made on the results of the respondent's response regarding the two ethio telecom portals integration.

4.7.1 Users view on the combination of the two portals

Table 4.30 presents the response of respondents about the users view on the combinations of the two ethio telecom portals.

Table 4.30 users view on the combinations of the two portals.

I support if the two ethio telecom portals combine to make single Portal		
Respondents response	Frequency	Percent
Neutral	13	13.7
Agree	42	44.2
Strongly Agree	40	42.1
Total	95	100

For the question 'I support if the two ethio telecom portals combine to make a single Portal', about 86.3% of the respondents replied they agree (44.2%) and strongly agree (42.1%) with the idea. 13.7% of the respondents are in neutral stand. From this, it can be seen that users highly support the combination of the two ethio telecom portals into a single portal.

4.7.2 Integrations of one work unit portal to the other

Table 4.31 presents the response of respondents on the integrations of the two ethio telecom portals to each other.

Table 4.31 Integrations of the portals to each other

I support if portals are integrated with other work unit		
Respondents response	Frequency	Percent
Disagree	1	1.1
Neutral	22	23.2
Agree	41	43.2
Strongly Agree	31	32.6
Total	95	100

For the question 'I support if portals are integrated with other work unit', about 75.8% of the respondents replied they agree (43.2%) and strongly agree (32.6%) with the idea. 23.2% of the respondents are in neutral stand. Other 1.1% respondents replied they disagree. From this, it can be seen that users highly support the integration of the two ethio telecom portals each other.

In summary regarding portals integration, based on the majority of the respondents' response they highly agree on the integration of the two ethio telecom portals into a single portal and/or integration of the two ethio telecom portals with each other.

4.8 Portals and Knowledge Management

In order to examine the roles of portals in Knowledge management, the researcher has prepared and asked seven questions for the selected ethio telecom employees. Therefore, this part analyzes and presents the respondents' response on the seven sub titles separately. Moreover, overall data presentation and discussions has been made on the results of the respondent's response regarding portals and KM strategy.

4.8.1 KM initiatives in ethio telecom

Table 4.32 presents the response of respondents about KM initiatives in ethio telecom.

Table 4.32 KM initiatives in ethio telecom

Most of the times KM initiatives comes from one division (HR)		
Respondents response	Frequency	Percent
Disagree	13	13.7
Neutral	36	37.9
Agree	29	30.5
Strongly Agree	17	17.9
Total	95	100

For the question 'Most of the times KM initiatives come from one division (HR) in ethio telecom', about 48.4% of the respondents replied they agree (30.5%) and strongly agree (17.9%) with the idea. 37.9% of the respondents are in neutral stand. Other 13.7% respondents replied they disagree. From this, it can be seen that in ethio telecom current KM initiatives practice somewhat comes from one department (Division) which is HR.

4.8.2 Insufficient resources committed to KM initiatives

Table 4.33 presents the response of respondents about insufficient resources committed to KM initiatives in ethio telecom.

Table 4.33 Insufficient resources committed to KM initiatives

Insufficient resources committed to KM initiatives		
Respondents response	Frequency	Percent
Strongly Disagree	1	1.1
Disagree	5	5.3
Neutral	34	35.8
Agree	41	43.2
Strongly Agree	14	14.7
Total	95	100

For the question 'Insufficient resources committed to KM initiatives', about 57.9% of the respondents replied they agree (43.2%) and strongly agree (14.7%) with the idea. 35.8% of the respondents are in neutral stand. Others 6.4% of the respondents replied they strongly disagree

(1.1%) and disagree (5.3%). From this, it can be viewed that in ethio telecom there is insufficient resources committed to KM initiatives

4.8.3 Future plan needs knowledge communications

Table 4.34 presents the response of respondents about future plan need for knowledge communications in ethio telecom.

Table 4.34 Future plan needs knowledge communications

Future plan needs knowledge communications		
Respondents response	Frequency	Percent
Neutral	12	12.6
Agree	42	44.2
Strongly Agree	41	43.2
Total	95	100

For the question ‘communications of future knowledge needs plan’, about 87.4% of the respondents replied they agree (44.2%) and strongly agree (43.2%) with the idea. 12.6% of the respondents are in neutral stand. From this, it can be observed that there is a strong believe that communications of future knowledge needs plan in etho telecom by the users

4.8.4 Encouragements of leadership to share Knowledge in ethio telecom

Table 4.35 presents the response of respondents about the encouragements leadership to share Knowledge in ethio telecom.

Table 4.35 encouragements leadership to share Knowledge in ethio telecom

Leadership does not encourage employees to share Knowledge in et		
Respondents response	Frequency	Percent
Strongly Disagree	1	1.1
Disagree	9	9.5
Neutral	52	54.7
Agree	31	32.6
Strongly Agree	2	2.1
Total	95	100

For the question ‘leadership does not encourage employees to share Knowledge in etho telecom’, about 34.7% of the respondents replied they agree (32.6%) and strongly agree (2.1%)

with the idea. 54.7% of the respondents are in neutral stand. Others 10.6% of the respondents replied they strongly disagree (1.1%) and disagree (9.5%). From this, it can be seen that leadership somewhat does not encourage employees to share Knowledge in ethio telecom

4.8.5 Knowledge sharing culture in ethio telecom

Table 4.36 presents the response of respondents about knowledge sharing culture in ethio telecom

Table 4.36 knowledge sharing culture in ethio telecom

Ethio telecom has a culture of knowledge Sharing		
Respondents response	Frequency	Percent
Strongly Disagree	17	17.9
Disagree	41	43.2
Neutral	33	34.7
Agree	4	4.2
Total	95	100

For the question ‘ethio telecom has a culture of knowledge Sharing’ 4.2% of the respondents replied they agree with the idea. 34.7% of the respondents are in neutral stand. Others 61.1% of the respondents replied they strongly disagree (17.9%) and disagree (43.2%). From this, it can be seen that ethio telecom has no a culture of knowledge Sharing

In summary regarding roles of portals in Knowledge management, based on the majority of the respondents’ response, in ethio telecom there is insufficient resource committed to KM initiatives, leadership somewhat does not encourage employees to share Knowledge, KM initiatives practice somewhat comes from one department (Division) which is HR and culture of knowledge sharing is not yet well exercised. On the other hand, respondents have agreed that communications of future knowledge needs plan.

4.9 Users overall opinion on the services of ethio telecom portals

In order to examine users overall opinions on the services of ethio telecom portals, the researcher has prepared and asked three questions for the selected ethio telecom employees. Therefore, this part analyzes and presents the respondents’ response on the three sub titles

separately. Moreover, overall data presentation and discussions has been made on the results of the respondent's response regarding users overall opinions on the services of the two ethio telecom portals

4.9.1 Users intention to visit the portals regularly

Table 4.37 presents the response of respondents about their intention to visit the two ethio telecom portals regularly.

Table 4.37 User intentions to visit the portals regularly

I intend to visit the portals regularly in the future		
Respondents response	Frequency	Percent
Neutral	14	14.7
Agree	51	53.7
Strongly Agree	30	31.6
Total	95	100

For the question 'I intend to visit the portals regularly in the future', about 85.3% of the respondents replied they agree (53.7%) and strongly agree (31.6%) with the idea. 14.7% of the respondents are in neutral stand. From this, it can be seen that ethio telecom employees have strong stand to visit the portals regularly.

4.9.2 Users expectations on the services of the portals

Table 4.38 presents the response of respondents about the two ethio telecom portals service meet or not users' expectation.

Table 4.38 User expectations on the services of the portals

Overall the portals meet my expectations		
Respondents response	Frequency	Percent
Strongly Disagree	3	3.2
Disagree	33	34.7
Neutral	44	46.3
Agree	15	15.8
Total	95	100

For the question ‘overall the portals meet my expectations’, 15.8% of the respondents replied they agree with the idea. 46.3% of the respondents are in neutral stand. Others 37.9% of the respondents replied they strongly disagree (3.2%) and disagree (34.7%). From this, it can be seen that ethio telecom portals somewhat do not meet users overall expectations.

4.9.3 User satisfactions on the services of the portals

Table 4.39 presents the response of respondents about their overall service satisfactions on the two ethio telecom portals.

Table 4.39 User satisfaction on the services of the portals

Overall I am satisfied with the services of the portals		
Respondents response	Frequency	Percent
Strongly Disagree	6	6.3
Disagree	28	29.5
Neutral	47	49.5
Agree	13	13.7
Strongly Agree	1	1.1
Total	95	100

For the question ‘overall I am satisfied with the portals service’, about 14.8% of the respondents replied they agree (13.7%) and strongly agree (1.1%) with the idea. 49.5% of the respondents are in neutral stand. Others 35.8% of the respondents replied they strongly disagree (6.3%) and disagree (29.5%). From this, it can be understood that the users overall opinions on services of the two telecom portals is somewhat lower beyond to their expectations.

In summary regarding users overall opinions on the services of ethio telecom portals , based on the majority of the respondents’ response, the services given by the two ethio telecom portals is somewhat lower and do not meet users expectations. On the other hand, ethio telecom employees responded that they have strong stand to visit the portals in the future.

4.10 General questions regarding the two ethio telecom portals

In these parts, general questions like the most useful information sharing tool(s), features most of the times employees' use, success measures, incentives given to employees due to sharing their Knowledge, barriers for knowledge sharing, and frequency of users visit on the two ethio telecom portals are separately presented. Moreover, a discussion has been made regarding the general questions about the two ethio telecom portals.

4.10.1 Most useful information sharing tool(s) in ethio telecom

Table 4.40 shows the total sample (95) respondents response regarding the most useful information sharing tool(s) in ethio telecom.

Table 4.40 Most useful information sharing tool(s) in ethio telecom

Most useful information sharing tool(s) in ethio telecom		
	Frequency	Percent
Daily meetings	23	14.5
Portal pages	19	11.9
Emails	50	31.4
Phone or conference calls	3	1.9
Total	95	59.7

For the question 'most useful information sharing tool(s) in ethio telecom', respondents responded that 31.4% E-mails, 14.5% daily meetings, 11.9% portal pages, and 1.9% phone or conference calls.

4.10.2 Incentives given to employees for Knowledge sharing

Table 4.41 shows the total sample (95) respondents' response regarding incentives given to employees due to Knowledge sharing on the two ethio telecom portals.

Table 4.41 Incentives given to employees for Knowledge sharing

Incentives given to employees for Knowledge sharing		
	Frequency	Percent
Award and Recognition	6	6
Promotion Opportunities	6	6
Training or Educational opportunities	11	11
Funding for travel and attendance of conferences	2	2
I do not know	13	13
Not yet started	61	64
Total	99	102

For the question 'incentives given to employees due to Knowledge sharing', respondents responded that 6% award recognition, 6% promotion opportunities, and 11% training or educational opportunities. Others 77% responded that they did not know (13%) and not yet started (64%).

4.10.3 Barriers for Knowledge sharing

Table 4.42 shows the total sample (95) respondents' response regarding barriers of knowledge sharing on the two ethio telecom portals.

Table 4.42 Barriers for Knowledge sharing

Barriers for Knowledge sharing		
	Frequency	Percent
Weakness in organizational strategy	62	39.0
Information overflows and content management weakness	17	10.7
Weakness in training	33	20.8
Motivation weakness among portal users and stakeholders	42	26.4
Lack of senior managers commitment and support	23	14.5
Weakness in knowledge sharing culture	70	44.0
Total	247	155.4

For the question ‘barriers of Knowledge sharing ’, respondents responded that 44% weakness in knowledge sharing culture, 39% weakness in organizational strategy, 26.4% motivation weakness among portal users and stakeholders, 20.8% weakness in training, 14.5% lack of senior managers commitment and support, and 10.7% information overflows and weakness in content management.

In summary regarding the general questions about the two ethio telecom portals, based on the majority of the respondents’ response most useful information sharing tool is e-mail. Incentives given to employees due to Knowledge sharing is not yet started. Barriers of Knowledge sharing arose due to weakness in knowledge sharing culture and organizational KM strategy in ethio telecom.

4.10.4 Visit frequency of corporate knowledge portal without CSD employees

Fig. 4.1 shows corporate (intranet) portal frequency of visit by Information System Division, Human Resource Division, Quality & Process Division, and Marketing and Communications Division respondents (50) response. Here among the five selected sample divisions, Customer Service Division respondents are not included.

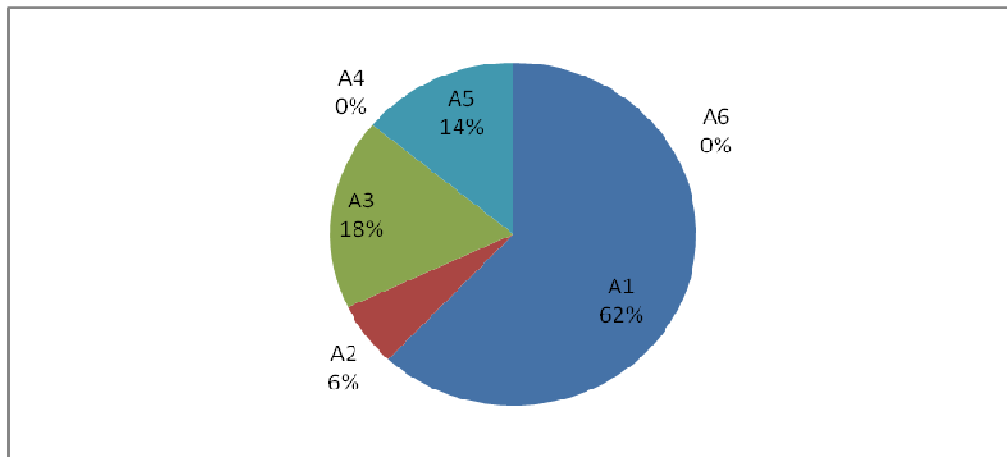


Fig 4.1 Visit frequency of corporate portal without CSD employees

Key:

A1: Daily A2: weekly A3: Less than weekly A4: Never A5: Sometimes A6: Even I don’t know about it

Based on Fig. 4.1 among the total (50) respondents, 62% (31) of them visit the corporate (intranet) portal daily. About 32% (16) respondents visit it less than weekly and sometimes. Others 6% (3) of the respondents visit the corporate (intranet) portal weekly.

4.10.5 Visit frequency of corporate knowledge portal by CSD employees

Fig. 4.2 shows corporate (intranet) portal frequency of visit by customer Service respondents' (50) response.

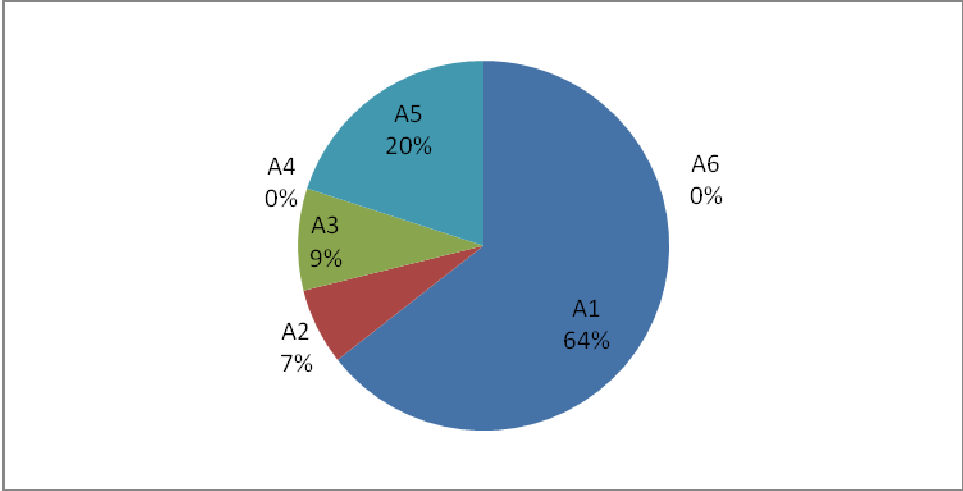


Fig 4.2 Visit frequency of corporate portal by CSD employees

Key:

A1: Daily A2: weekly A3: Less than weekly A4: Never A5: Sometimes A6: Even I don't know about it

Based on Fig. 4.2 among the total (45) respondents, 64% (29) of them visit the corporate (intranet) portal daily. About 29% (13) respondents visit it less than weekly and sometimes. Others 7% (3) of the respondents visit the corporate (intranet) portal weekly.

4.10.6 Visit frequency of KBS knowledge portal by CSD employees

Fig. 4.3 shows KBS (Knowledge Base System) portal frequency of visit by customer Service respondents (45) response.

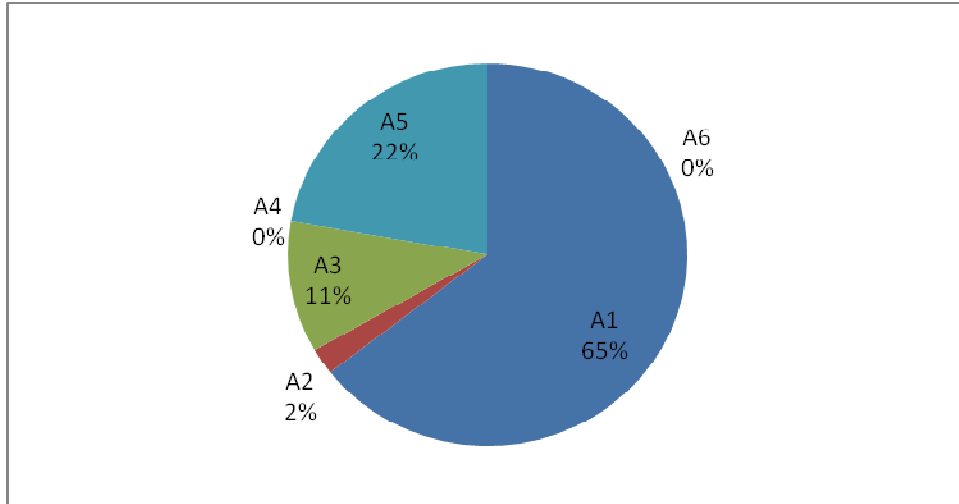


Fig 4.3 Visit frequency of KBS portal by CSD employees

Key:

A1: Daily A2: weekly A3: Less than weekly A4: Never A5: Sometimes A6: Even I don't know about it

Based on Fig. 4.3 among the total (45) respondents, 65% (29) of them visit the KBS (Knowledge Base System) portal daily. About 33% (15) respondents visit it less than weekly and sometimes. Others 2% (1) of the respondents visit the KBS (Knowledge Base System) portal weekly.

4.10.7 Visit frequency of KBS knowledge portal without CSD employees

Fig. 4.4 shows KBS (Knowledge Base System) portal frequency of visit by Information System Division, Human Resource Division, Quality & Process Division, and Marketing and Communications Division respondents (50) response. Here among the five selected sample divisions, Customer Service Division respondents are not included.

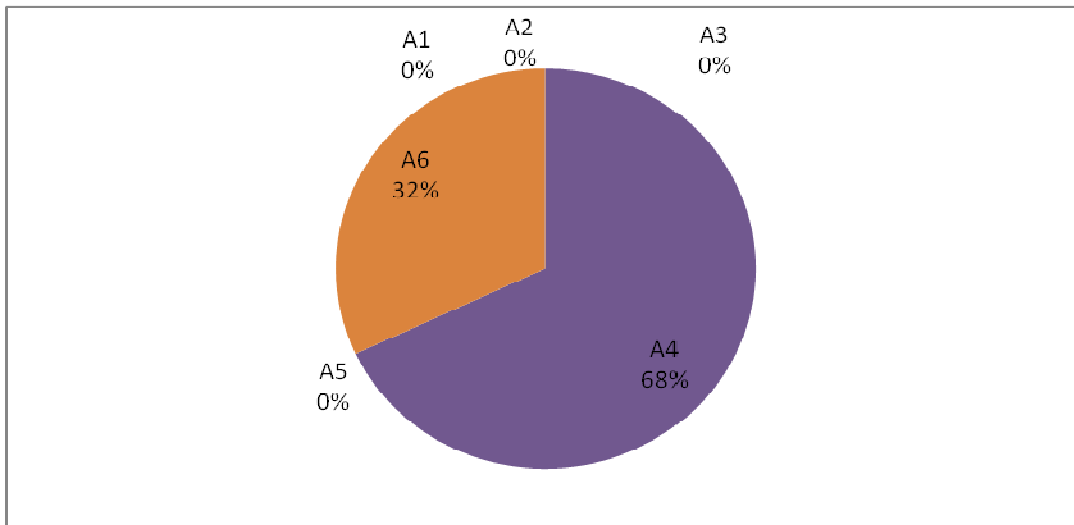


Fig 4.4 Visit frequency of KBS portal without CSD employees

Key:

A1: Daily A2: weekly A3: Less than weekly A4: Never A5: Sometimes A6: Even I don't know about it

Based on Fig. 4.5 among the total (50) respondents, 68% (34) of them never visit the KBS (Knowledge Base System) portal. The rest 32% (16) of the respondents don't know about the existence of KBS (Knowledge Base System) portal in ethio telecom.

Part 4.10.6 and 4.10.7 it can be summarized that corporate (intranet) portal frequency (daily, less than weekly and sometimes) of visit by all the selected samples in this research work is similar. Whereas, part 4.10.8 shows only Customer service employees visit the KBS (knowledge Base System) portal.

4.11 Independent Samples t-Test for mean scores

According to J. Pallant (2005), independent-samples t-Test is statistical technique used to compare the mean scores of two different groups of people or conditions. In this research work two independent samples t-Test for mean scores of usability of corporate knowledge management portal has been made. The first one is usability of corporate knowledge management portal between human resources division and the rest four divisions. The second t-Test is usability of corporate knowledge management portal between staffs and other job positions.

As previously mentioned, among the two ethio telecom knowledge management portals the corporate knowledge management portal is accessing by all ethio telecom employees. On the other hand, Knowledge Base System (KBS) portal is accessing only by customer service division employees. Therefore, independent sample t-Test has been conducted to compare mean scores on the usability of corporate knowledge management portal between HR (Human Resource Division) and other four (Information System, Customer Service, Marketing & Communications, Process & Quality) selected division respondents.

This comparison has been conducted due to the fact that Human Resource Division has great role in KM initiatives than the rest of 13 divisions. This fact has been clearly shown on part 4.8.1 table 4.32 of this research work.

Results of these computations between HR division and other four division respondents on the usability of corporate knowledge management portal are elaborated below.

4.11.1 Independent t-Test on usability of corporate portal by HR and CS divisions

The group statistics and independent samples Test together are shown by table 4.43

Table 4.43 Independent t-Test on usability of corporate portal by HR and CS divisions

Group Statistics			
Label	Division	Total no. of samples	Mean
Usability of Corporate portal	Human Resource	10	3.45
	customer Service	45	3.45

Independent Samples Test						
Usability of Corporate portal	Levene's Test for Equality of Variances		t-Test for Equality of Means			
	F	Sig.	t	Df	Sig.(2 tailed)	Mean difference
Equal Variances assumed	.593	.445	.024	53	.981	.003
Equal variances not assumed			.027	16.054	.979	.003

As put by J. Pallant (2005) the law of interpreting results of independent samples T-test is that, if Sig. value is greater than .05 (e.g. .07, .10) the first line in the table, which refers to equal variances assumed, shall be taken. And If Sig. value = .05 or less (e.g. .01, .001), this means that the variances for the two groups are not the same. Therefore, the data violate the assumption of equal variance.

In table 4.43 it can be seen that sig. value for this analysis 0.445 which is greater than 0.05. Therefore, it will be appropriate to take the value in the row equal variances assumed. Pallant in the same book provided that , if the value in the Sig. (2-tailed) column is equal or less than .05, then there is a significant difference in the mean scores on mean scores of the two groups under comparison. If the value is above .05 (e.g. .06, .10), there is no significant difference between the two groups.

Accordingly, in the sig. (2 tailed) equal variance assumed result case the output value is .981. As this value is above the required cut-off of 0.05, it can be concluded that there is not a

statistically significant difference in the mean self-esteem scores on the usability of corporate knowledge management portal by Human Resource and Customer Service division employees.

4.11.2 Independent t-Test on usability of corporate portal by HR and IS divisions

The group statistics and independent samples Test together are shown by table 4.44

Table 4.44 Independent t-Test on usability of corporate portal by HR and IS divisions

Group Statistics			
Label	Division	Total no. of samples	Mean
Usability of Corporate portal	Human Resource	10	3.45
	Information System	20	3.47

Independent Samples Test						
Usability of Corporate portal	Levene's Test for Equality of Variances		t-Test for Equality of Means			
	F	Sig.	t	Df	Sig.(2 tailed)	Mean difference
Equal Variances assumed	1.715	.201	-.197	28	.845	-.017
Equal variances not assumed			-.178	14.114	.861	-.017

In table 4.44 it can be seen that sig. value for this analysis 0.201 which is greater than 0.05. Therefore, it will be appropriate to take the value in the row equal variances assumed.

In the sig. (2 tailed) equal variance assumed result case the output value is .845. As this value is above the required cut-off of 0.05, it can be concluded that there is not a statistically significant difference in the mean self-esteem scores on the usability of corporate knowledge management portal by Human Resource and Information System division employees.

4.11.3 Independent t-Test on usability of corporate portal by HR and Q&P divisions

The group statistics and independent samples Test together are shown by table 4.45

Table 4.45 Independent t-Test on usability of corporate portal by HR and Q&P divisions

Group Statistics			
Label	Division	Total no. of samples	Mean
Usability of Corporate portal	Human Resource	10	3.45
	Quality & Process	10	3.37

Independent Samples Test						
Usability of Corporate portal	Levene's Test for Equality of Variances		t-Test for Equality of Means			
	F	Sig.	t	Df	Sig.(2 tailed)	Mean difference
Equal Variances assumed	.583	.455	.737	18	.471	.081
Equal variances not assumed			.737	17.271	.471	.081

In table 4.45 it can be seen that sig. value for this analysis 0.455 which is greater than 0.05. Therefore, it will be appropriate to take the value in the row equal variances assumed.

In the sig. (2 tailed) equal variance assumed result case the output value is .471. As this value is above the required cut-off of 0.05, it can be concluded that there is not a statistically significant difference in the mean self-esteem scores on the usability of corporate knowledge management portal by Human Resource and Quality & Process division employees.

4.11.4 Independent t-Test on usability of corporate portal by HR and M&C divisions

The group statistics and independent samples Test together are shown by table 4.46

Table 4.46 Independent t-Test on usability of corporate portal by HR and M&C divisions

Group Statistics			
Label	Division	Total no. of samples	Mean
Usability of Corporate portal	Human Resource	10	3.45
	Marketing & communications	10	3.54

Independent Samples Test						
Usability of Corporate portal	Levene's Test for Equality of Variances		t-Test for Equality of Means			
	F	Sig.	t	Df	Sig.(2 tailed)	Mean difference
Equal Variances assumed	.203	.657	-.725	18	.478	-.091
Equal variances not assumed			-.725	17.871	.478	-.091

In table 4.46 it can be seen that sig. value for this analysis 0.657 which is greater than 0.05. Therefore, it will be appropriate to take the value in the raw equal variances assumed.

In the sig. (2 tailed) equal variance assumed result case the output value is .478. As this value is above the required cut-off of 0.05, it can be concluded that there is not a statistically significant difference in the mean self-esteem scores on the usability of corporate knowledge management portal by Human Resource and Marketing & Communications division employees.

4.11.5 Independent t-Test on usability of corporate portal by staffs and supervisors

In this second independent t-Test, usability of corporate portal between staffs and other job positions has been considered. As mentioned on part 4.1 table 4.6 significant number of 58(61.1%) employees participated who is working in a staff position. The group statistics and independent samples Test together are shown by table 4.47

Table 4.47 Independent t-Test on usability of corporate portal by staffs and supervisors

Group Statistics			
Label	Division	Total no. of samples	Mean
Usability of Corporate portal	Staffs	58	3.46
	Supervisors	18	3.44

Independent Samples Test						
Usability of Corporate portal	Levene's Test for Equality of Variances		t-Test for Equality of Means			
	F	Sig.	T	Df	Sig.(2 tailed)	Mean difference
Equal Variances assumed	1.412	.239	.175	74	.861	.015
Equal variances not assumed			.154	23.720	.879	.015

In table 4.47 it can be seen that sig. value for this analysis 0.23 which is greater than 0.05. Therefore, it will be appropriate to take the value in the raw equal variances assumed.

In the sig. (2 tailed) equal variance assumed result case the output value is .861. As this value is above the required cut-off of 0.05, it can be concluded that there is not a statistically significant difference in the mean self-esteem scores on the usability of corporate knowledge management portal by staffs and supervisors.

4.11.6 Independent t-Test on usability of corporate portal by staffs and managers

The group statistics and independent samples Test together are shown by table 4.48

Table 4.48 Independent t-Test on usability of corporate portal by staffs and managers

Group Statistics			
Label	Division	Total no. of samples	Mean
Usability of Corporate portal	Staffs	58	3.46
	Managers	13	3.41

Independent Samples Test						
Usability of Corporate portal	Levene's Test for Equality of Variances		t-Test for Equality of Means			
	F	Sig.	T	Df	Sig.(2 tailed)	Mean difference
Equal Variances assumed	1.623	.207	.635	69	.528	.054
Equal variances not assumed			.805	25.107	.428	.054

In table 4.48 it can be seen that sig. value for this analysis 0.207 which is greater than 0.05. Therefore, it will be appropriate to take the value in the row equal variances assumed.

In the sig. (2 tailed) equal variance assumed result case the output value is .528. As this value is above the required cut-off of 0.05, it can be concluded that there is not a statistically significant difference in the mean self-esteem scores on the usability of corporate knowledge management portal by staffs and managers.

4.11.7 Independent t-Test on usability of corporate portal by staffs and officers

The group statistics and independent samples Test together are shown by table 4.49

Table 4.49 Independent t-Test on usability of corporate portal by staffs and officers

Group Statistics			
Label	Division	Total no. of samples	Mean
Usability of Corporate portal	Staffs	58	3.46
	Officers	6	3.55

Independent Samples Test						
Usability of Corporate portal	Levene's Test for Equality of Variances		t-Test for Equality of Means			
	F	Sig.	T	Df	Sig.(2 tailed)	Mean difference
Equal Variances assumed	2.033	.159	-.740	62	.462	-.089
Equal variances not assumed			-1.221	9.306	.252	-.089

In table 4.49 it can be seen that sig. value for this analysis 0.159 which is greater than 0.05. Therefore, it will be appropriate to take the value in the row equal variances assumed.

In the sig. (2 tailed) equal variance assumed result case the output value is .462. As this value is above the required cut-off of 0.05, it can be concluded that there is not a statistically significant difference in the mean self-esteem scores on the usability of corporate knowledge management portal by staffs and officers.

4.12 Discussion on this research and related work

As mentioned on the literature review parts of this research work, Abrham (2009) made a research on the former ETC (Ethiopian Telecommunications Corporations) call center which has been providing directory services, bill information, recording and passing customers' trouble to the responsible body for maintenance. He showed that the call center had shortcoming in inquires of customer related supports, questions related to product descriptions, and other related situations. After he made detailed investigations on that call center, he proposed and showed a proto type to have a kind of knowledge portal in which now ethio telecom called KBS knowledge portal from its operational definitions aspects.

Fortunately, ZTE Telecom Company was under negotiation to deploy latest telecom Technology called NGN (Next Generation) in Ethiopia through vendor financing agreement. One of them was deployment of KBS knowledge portal for the existing ETC call center.

This research work has showed about the usability of KBS knowledge portal by ethio telecom call center employees since its deployment. Whereas, as there has been no research made on the usability of ethio telecom corporate knowledge portal, it is the researcher's belief that any interested researcher can use as one input for his/her further research work.

Chapter Five

Conclusions and Recommendations

This last section of the research work gives concluding points based on the analysis conducted and discussions made on the previous chapter.

5.1 Conclusions

The following conclusions are drawn based on the findings of the study:

The two existing ethio telecom Knowledge management portals are available 24*7. Moreover, terminologies used, attractiveness of the portals interfaces, hyperlinks, and user friendliness is in a satisfactory level. It has been also understood that users can easily navigate and give feedback electronically without any problems.

The two existing ethio telecom knowledge management portals have incomplete and inconsistent content management. Contents are also not regularly updated. In addition, search, help, recovering from non deliberate actions (like undo functions), and the response time during data uploading and downloading functions of those portals are not giving satisfactory services to the users. Moreover, those portals sometimes attacked by the computer viruses due to weakness in security and protection. Another weak point is that those portals do not facilitate to link to other external websites.

Even if the two ethio telecom existing Knowledge management portals are available 24*7, the respondents' response showed that most of them did not use it. Some of the reasons are prior trainings how to use the portals are not given, low resource allocation, and an incentive to the employees due to knowledge sharing through the portals are not yet started. Moreover, barriers of knowledge sharing arose due to weakness in knowledge sharing culture and organizational KM strategy. On the other side, the domain specific nature of the two knowledge management portals have somewhat impacted the users interest to widen their knowledge on the company's day to day activities as a whole.

5.2 Recommendations

The researcher recommends the following based on identified opportunities and problems in using the two ethio telecom knowledge management portals:

Proper training or orientation on the use of the portals should be conducted to create awareness. Proper resource should be allocated. Moreover, it is advisable to formulate a training policy in the institutional level. This training session can be helpful for those employees who have no previous experience of using it or who are hesitant to use these portals.

It is always desirable to provide detailed help for users but very lengthy description is not a good idea as users do not want to spend their time while reading lengthy descriptions. To make the help pages easily understandable for the employees, it is required to make these pages simpler and light. Currently the two ethio telecom knowledge management portals help pages give for very limited services in text form. Especially the KBS knowledge portal should support audio and video services.

The Frequently Asked Questions (FAQ) contains a list of questions asked by the users. Information available at the FAQ page can help the users to find solution from some frequently asked questions. There should be close follow up and frequent update to satisfy the users.

Services on the two ethio telecom knowledge management portals should support to link to other websites internally or externally. The employees have to get access like digital libraries from external sources.

The findings showed that one of barriers of knowledge sharing is weakness (lack of) KM strategy in ethio telecom. Therefore, above all, ethio telecom has to give prior attention for having KM strategy.

To improve employees' knowledge sharing culture, leadership teams should:

- ❖ Lead by example and show commitment to knowledge sharing through action

- ❖ Invest their own time and effort in creating a knowledge sharing culture in ethio telecom
- ❖ Identify and implement reward and recognition processes that suit the culture of ethio telecom
- ❖ Communicate a knowledge management plan and message that support and enhance a knowledge sharing culture in ethio telecom.

The findings also showed that employees in ethio telecom did not see or experience portals as a knowledge sharing enabler. A recommendation to change these issues includes:

- ❖ Investment on the right tools and make employees to ensure success of knowledge sharing throughout the institutions
- ❖ Integration of applications for routine tasks within the knowledge management portal environment
- ❖ Peer evaluations for quality of knowledge submissions and value added to the institutions

Knowledge management Portals represents a tool of potentially high value to any enterprise. Realizing this value, they should be properly managed and every employee should take ownership and understand the concept of the portals as a knowledge sharing enabler.

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