

الاية

قال عزَّ و جلَّ:

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Abstract

As the technology continuous to advance, new technologies have emerged with the capability to revolutionize knowledge sharing practices. Web 2.0 exemplifies such new technologies, which provides dynamic way of interaction. In working environment, Web 2.0 technologies should support and enhance the interaction between the employees, therefore the main aim of this study is to evaluate the impact of web2.0 technology on knowledge sharing. An open source package for knowledge sharing was implemented and a questionnaire survey was conducted in Grater Nile Petroleum Company (GNPOC) as a case study, the results showed that the proposed system played significant role in enhancing the interaction between the employees. In addition, the study found that the proposed system played a significant role in facilitating the knowledge sharing between employees. Furthermore, the proposed system improved the accessibility and availability of knowledge to employees.

المستخلص

نتيجة للتطور الهائل والمستمر فى تقنيات الويب ظهرت تقنية الويب 2 التى تمكن من تحسين التفاعل والتواصل بين المستخدمين واصحاب الاعمال . حيث نجد فى بيئة العمل ان هذه التقنية مكنت المستخدمين من التفاعل بصورة افضل حيث اتاحت لهم العديد من المزايا مثل التعليق والتعليق والنشر للافكار والمشكلات التى تطرح بواسطة زملائهم وذلك من اجل توسيع نطاق المعرفة وتسهيل عملية الحصول على حلول المشكلات ، الغرض الاساسى من هذا البحث هو دراسة اثر تقنية الويب 2 على مشاركة المعرفة ، تم اجراء هذه الدراسة على شركة النيل الكبرى لعمليات البترول كدراسة حالة حيث تم تطبيق نظام معلومات لمشاركة المعرفة (مفتوح المصدر) و اظهرت النتائج بان النظام المقترح لمشاركة المعرفة ادى الى تحسين التفاعل والتواصل بين الموظفين كما لعب النظام دوراً كبيراً فى عملية تسهيل الوصول الى المعلومات بالاضافة الى اتاحة المعرفة و توفيرها فى اى زمن كما سهل النظام المقترح من عملية مشاركة المعرفة.

Dedication

I would like to dedicate this work to my supervisor Dr. Niseren Beshir Osman she always support and help me to complete this thesis

Acknowledgement

I would like to express my deepest gratitude to all the professors for their support and guidance.

*A very special and well-deserved thank to **Dr. Nisreen Beshir Osman** . As my supervisor, she helped me to successfully coordinate my ideas, offered direction with the implementation of those ideas, provided insight in the interpretation of my work, and supported me.*

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List of abbreviations

XML stand for extensible markup language

CSS stand for cascade style sheet

ERP stand for enterprise resources panning

“Odo” stand for open ERP software

“SECI” model stand for Socialization, Externalization, Combination, and Internalization.

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Chapter One

Introduction

1.1 Background of the Study

The web 2.0 plays a significant role in enhancing the ways people interacts and collaborate and share knowledge among people. The web 2.0 has various names such as “read and write”, “create and share”, “like and comment”. (Shuaibu hassan usman and ishaq oyebisi oyefolahan, 2014) The huge evolution in information technology has made the sharing of Knowledge and experiences of people easy and low cost by using various Web 2.0 technologies such as blog systems, Skype, video conference, Wikipedia, .Etc. regardless of geographical area. (Shuaibu hassan usman and ishaq oyebisi oyefolahan, 2014).

After World Wide Web crash in 2001, a new version of web is arise on the Web that is often referred to as “Web 2.0” (O'Reilly, 2007). Although the name indicate to new technology but it was a new method of how users and developers use the Web. (Thomas Bebensee , 2010).

The main idea behind web2.0 is give the user the control on content of the web and enable them to collaborate and interact with each other. Web 2.0 has become a mass phenomenon. (Thomas Bebensee , 2010).

furthermore, web2.0 technologies change the using the internet nowadays, most of companies begin started adopting Web 2.0 technologies such as wikis, blogs and social networking for enhance and improve their daily task and business processes often referred as “Enterprise 2.0” (Chui et el,2009). (Thomas Bebensee , 2010).

As executive surveyed in 2007 by McKinsey show more than half of the 2,800 they are satisfied with their companies’ return on investment in Web 2.0 technologies, also the adopting Web 2.0 technologies seem interesting from a financial point of view. (Thomas Bebensee , 2010).

1.2 Problem Statement

In Grater Nile Petroleum Company the employees have a problem they can't comment on posts or interact with each other to share their knowledge, furthermore they need to facilitate and enhance knowledge sharing process to share experience and problem solutions, so the research was conducted to enhance the interaction and facilitate knowledge sharing process among employees through proposed system.

1.3 Research questions

The questions in this research is:

Q1: What is the impact of knowledge sharing system on enhancing interaction between the employees?

Q2: What is the impact of knowledge sharing system in facilitating sharing knowledge process among employees?

Q3: What is the impact of the age of employees on using the knowledge sharing system?

Q4: What is the impact of the education level of employees on using the knowledge sharing system?

Q5: What is the impact of the experience of employees on using the knowledge sharing system?

Q6: What is the impact of knowledge sharing system in improving accessibility and availability of knowledge?

Q7: What is the impact of knowledge sharing system in decrease the cost and time of knowledge acquisition?

Q8: Is the knowledge sharing system encourage the employees to share their knowledge?

1.4 Hypothesis of research

Table 4.1: hypothesis research

No	Hypothesis
H1	Using the knowledge sharing system will positively enhance interaction between employees of company.
H2	Using the knowledge sharing system will facilitate knowledge sharing among employees.
H3	Age of the employee will influence their using of knowledge sharing system.
H4	Education of the employee will influence their using of knowledge sharing system.
H5	Prior experience of employees will influence their using of knowledge sharing system.
H6	Using the knowledge sharing system will positively saving the time of knowledge acquisition.
H7	Using the knowledge sharing system will positively improve the accessibility to knowledge.
H8	Using the knowledge sharing system will positively improve the availability of knowledge.
H9	Using the knowledge sharing system will positively encourage the users to be a contributor to the knowledge in specific domain.
H10	Using the knowledge sharing system will positively decrease the cost of knowledge acquisition.

1.5 Aim of research

To explore the advantages of web2.0 technology regarding information sharing inside the company.

1.6 Research Objectives

In order to achieve the aim of the research, the research objectives are:-

- To design a proposed system for knowledge sharing system.
- To evaluate the advantages of the proposed system regarding sharing knowledge.

1.7 Research methodology

This study used the quantitative method (questionnaire survey) to answer the questions of the research.

1.8 Scope and Limitations of the study

This study was conducted in the head quarter of GNPOC from 20 October 2016 to 6 February 2017. Furthermore, the designed system is a prototype.

The proposed system was implemented in local area network so this had limited the acquisition and sharing of knowledge.

1.9 Thesis organization

This thesis consists of five chapters. The current chapter introduces the reader to the area being covered in this research. Chapter 2, literature review, is intended to introduce the reader the main theoretical concepts that have been used in this research according to previous studies related to this study. The chapter is structured so as to build overall understanding regarding the impact of web2.0 technologies on knowledge sharing, it demonstrate benefits that can obtained from using those technologies. Chapter 3 explains research framework. Chapter 4 research results and discussions. Chapter 5 conclusion and recommendation for further work.

Chapter Two

Literature Review

2.1 Introduction

The previous literature present this topic in variety of contexts such as educational environment, but this study primarily focus on web2 technology regarding sharing knowledge in work environment.

Research Question

The main research question that I would like to answer in this research is:

- What is the impact of using Web 2.0 technologies on knowledge sharing process?

2.2 Overview of knowledge and common types

According to (Khroude laimi , Ajax Persaud , 2014) Knowledge is what a person know about specific topic possibly using it for a specific goals, for example a person who have information on how to fix car's problems. Thus, knowledge can categorized into two common type (Xu , 2007):

- **Explicit knowledge** is organized, easy to express and transfer to other persons, i.e. experiences and practical skills.
- **Tacit knowledge** resides in the brain of a person but it is difficult to transfer this knowledge to others, meaning that it cannot be put in structured form.

Huysman, (2002) (Khroude laimi, Ajax Persaud , 2014) Explains that as tacit knowledge resides in person's mind, it is "Subjective Knowledge", therefore, it's difficult to capture and be formulated and transferred to another person than the explicit form of knowledge "Documented Knowledge".

Nonaka&Takeuchi, (1996) (Alan frost updated, 2012) Introduced new model that is called "conversion model" it's popular as ("SECI") model stand for Socialization, Externalization, Combination, and Internalization. It's become most popular model in knowledge creation and transfer theory, it is based on the two types of knowledge (tacit and explicit) mentioned above. This model is considered to be the main model in theory of generation and sharing knowledge, it explains how knowledge is created and disseminated in organizations.

Nonaka, (1995) (Khroude laimi, Ajax Persaud , 2014) described the SECI model in details as flowing:-

1. Socialization (tacit to tacit):

This process indicates the learning by sharing the knowledge and skills with other, for instance, a person who has good knowledge and experiences in web page design and share it with other.

2. Externalization (tacit to explicit):

It Mean transforming knowledge from tacit to explicit form, example professional persons recommend some solutions to solve specific problems as advice to other.

3. Combination (explicit to explicit):

It's the process of enhancing and improving the explicit knowledge to generate new knowledge, example incorporate employees and organizational knowledge to support decision making in organizations.

4. Internalization (explicit to tacit):

It's a process where a person learning by reading information and convert it inside his/her mind, for instance, when you read an article about how you can use the internet, you get the information and put it in mind.

2.3 The “SECI” Model Knowledge Creation Spiral

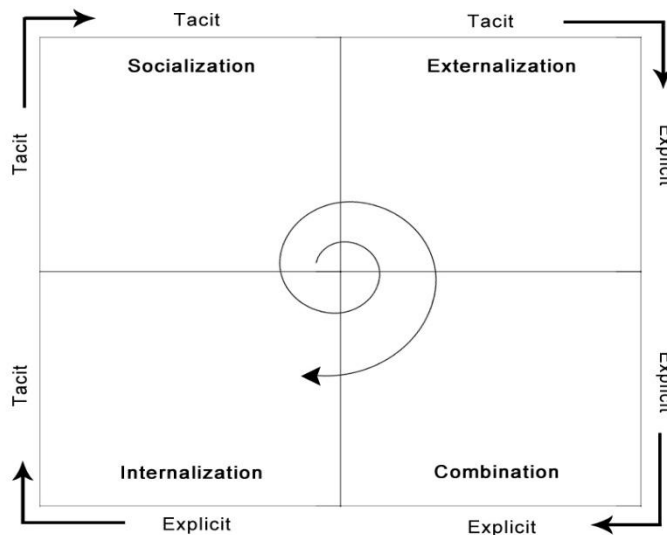


Figure 2.1: conversion model (“SECI”) [2].

In this SECI model, knowledge is continuously transformed and created, the process should be seen as a continuous, dynamic, circulate of knowledge [2].

2.4 Definition of knowledge management (KM)

According to (William r. king – katz, 2009) It mean process of planning, arranging, and managing different component of organization i.e. people, process, electronic systems, to grantee the knowledge resources is managed and utilize it properly and effective method. Knowledge can found in deferent forms: in the form of hardcopy such as handbooks, or stored in content management system as a “best-practices” databases, or employees knowledge about best practice to do their tasks, or the knowledge owned by people they working on specific problems face the organization.

2.5 Knowledge sharing definitions

In fact, there is various definitions of knowledge sharing. According to (Jackson, et al) cited by (Ammar Dheyaa Noor, Hayder Salah Hashim and Norashikin Ali , 2014, p2) interpret as “the fundamental means through which employees can contribute to knowledge application, innovation, and ultimately the competitive advantage of the organization”.

"Cummings" cited by (Ammar Dheyaa Noor, Hayder Salah Hashim and Norashikin Ali 2014) defined knowledge as provide information to help people to interact with each other to give problems solutions and produce new idea.

From above definition the knowledge sharing it can be done through different methods according to (Ammar Dheyaa Noor, Hayder Salah Hashim and Norashikin Ali , 2014)

- Straight interaction (face to face).
- Virtual method such as using Skype.
- Using hard copy of papers example articles, books, or professional lessons.

According to Ipe (2003) cited by (Zoltán Gaál et al ,2015) indicate that knowledge sharing in organization sophisticated issue, interpreted knowledge sharing as which knowledge of people is transferred into forms that other people can comprehend and recognize it.

“Knowledge transfer” are often referred to knowledge sharing, it describe as activities of interchange of information, proficiency, experiences between people, companies. (Onwika Kaewchur and Kongkiti Phusavat, 2016).

As stated by Bellefroid (2012) cited by (Zoltán Gaál et al , 2015) There are three generations of knowledge sharing:

1. First generation

The classic way to sharing knowledge its concept of record and documentation and store the knowledge, this type is easy to support by information technologies.

2. Second generation

This type focus on: social networks, personal preferences customization, and how people can interact and contact with each other’s. This type mixed between formal and informal strategy of interact such as direct (face to face meeting), or traineeship. This generation use the categorization as basic way were employee discover what is other employee know.

3. Third generation

this generation depend manly on social networks to enhance and facilitate interact and collaborate with professionals and expertise persons, this type add new Advantages to knowledge sharing, it can be done regardless geographic area, knowledge can get from outside of organization, different social media is use to reduce physical contact between employees.

2.6 Key Factors Influencing Knowledge Sharing

Summarize various Dimensions and factor influencing knowledge sharing. (Onwika kaewchur, and kongkiti phusavat, 2016).

Table 2.1: Key Factors Influencing Knowledge Sharing

Dimension	Sub-dimension	Factors
Organizational level	Culture	Sharing culture - cooperation and collaboration culture- learning culture
	Structure	Incentive and reward- work design – management support – norm - political directives
	People	Arduous relationship - shared understanding - similar knowledge frame - social interaction
	Technology	IT infrastructure- IT know-how - IT support
Individual level		Motivation- prior experience - absorptive capacity - source credibility
Knowledge level		Explicit and tacit knowledge - causal ambiguity –knowledge articulability - knowledge embeddedness

2.6.1 Requirements of knowledge sharing

According to (Shuaibu hassan usman and ishaq oyebisi oyefolahan, 2014) who cited by Bukowitz and Williams (1999) the Requirements as following:

1. **Articulation:** indicate to user's capability to identify and define what he requirement.
2. **Awareness:** mean the awareness that knowledge is accessible, making it easier to benefit from the directories, maps and available information.
3. **Access:** indicate to knowledge should be accessible to all users.
4. **Guidance:** persons who responsible of managing knowledge paly important role in practice of knowledge sharing, they can help in determine the domains of expertise and professional member of organization, guide and help them and coordinate the dismiss of knowledge this help to prevent of duplicated information.

5. **Completeness:** Indicate to how knowledge is managed, generally, the information managed by one person it often accurate but will take time to review for publish, in contrast, may be not trusted and in complete.

2.6.2 Motivations of knowledge sharing practice

As mentioned by (Nóra obermayer-kovács – anthonywensley) cited by (Davenport and Prusak , 1998) . Classify possible stimulus behind knowledge sharing as flowing:

- **Altruism:**

Indicate to manner my take time and effort from person to give others people something voluntary i.e. experiences, best practice, valuable information, without asking them money or any interests, altruistic behavior (Chattopadhyay,1999).

- **Reciprocity:**

Refers to the response, whether that was negative or positive actions which person should treat others as one wish to treat himself. Often, persons have limited time and energy, and have not willingness to share knowledge with others unless they get benefit or interest behind it.

- **Reputation:**

It refers to the degree of share information and experiences with others, where people who share knowledge with others became famous more than others they do not.

2.7 Web 2.0 technologies

2.7.1 Brief introduction of Web 1.0 technology

According to (Sareh Aghaei et al 2012) cited by Tim Burners-Lee (1989) its proposed make a universal hypertext area in any network reachable information using single Universal Document Identifier (UDI), the main vision was introduce public information space to enable people to interact and exchange information Web 1.0 was mainly a read-only web and there is no interactivity.

company owners was use web 1.0 to push their handbooks, lists of products,... etc., so people can read them and contact to Businesses owners, in fact this handbooks, lists similarly to announcement in magazine. (Sareh Aghaei et al 2012).

At this time the website is static without any interact with users or visitors the goal of this website is just disseminate the information. (Sareh Aghaei et al 2012).

2.7.2 Brief history of web 2.0

The term of web2.0 technology is introduced by “Tim O’Reilly” after conference on the next-generation Web concepts and issues organized by O’Reilly Media and Media Live International in 2004. (Shuaibu hassan usman and ishaq oyebisi oyefolahan, 2014).

2.7.3 What is web 2.0

Web 2.0 evidence the evolution of World Wide Web applications, its merge the concepts, technologies, and directions that help users to share, communicates, cooperate, and produce information on the web. (Shuaibu hassan usman and ishaq oyebisi oyefolahan, 2014).

The web 2.0 is a new release of the internet change way of how end-users and developers use the Web without need to changing in technical infrastructure. (Shuaibu hassan usman and ishaq oyebisi oyefolahan, 2014).

Web 2.0 technologies is significant development in computer manufacturing, its result of transform to internet as platform, this study indicate to success in this transformation should create applications depend on network facility and advantages to attract users to use them. (Sareh Aghaei et al 2012).

Table 2.2: Comparison of web 1.0 and web 2.0. (Sareh Aghaei et al 2012).

Web 1.0	Web 2.0
Reading	Reading/Writing
Companies	Communities
HTML, Portals	XML, RSS
Taxonomy	Tags
Owning	Sharing
Netscape	Google
Web forms	Web applications
Dialup	Broadband
Hardware costs	Bandwidth costs
Lectures	Conversation
Services sold over the web	Web services
Information portals	Platforms
Client-Server	Peer to Peer
Advertising	internet purchase and complete payment services

2.7.4 Advantages and Disadvantages of Web 2.0

In fact web2.0 have various advantages such as, inexpensive and accessible to persons who have Internet access, also enable user to contribute and to be part of world communities, help them to share knowledge and interact and collaborate with others, and it different from old generations of websites is that it does not need technical skills to add information, therefore, web2 enable persons to interact and share their knowledge and experiences globally. (Shuaibu hassan usman and ishaq oyeibisi oyefolahan, 2014).

Furthermore, web2 can find out and collect the information from many users regardless the geographic places and everybody can create information collaboratively, this verity give it power and multiple perspective that help in decision making, enhance way people interact and share the knowledge such as community of practice(COPS) which define as group of people interested in one subject, they can create and share their knowledge and experience without physical interaction but often virtual environment. (Thomas Bebensee , 2010).

However, web2.0 has disadvantages as example, the result of huge information generated by users overload may occur and grate content and much valuable my fail to notice also lack of good filter make find good content hard finally, there many security issue not solved completely such as stealing money and personal information's. (Thomas Bebensee , 2010).

2.7.5 Applications of web 2.0 technology

According to (Thomas Bebensee , 2010). There is various applications of Web 2.0 technology such as:

1 Blogs

Its regular website managed by single person, its similar to a personal journal, consist of multimedia stuff such as, pictures, videos .And articles, etc. furthermore, enable user to comment and contribute to content of the blog. The min advantages of benefits is share the knowledge effectively.

2 Really Simple Syndication (RSS)

“Is a protocol allows users to subscribe to web feeds of published works, and allows publishers to automatically syndicate content. The user would use software called RSS reader to subscribe and read feeds. The reader regularly checks the user's subscribed feed for new work and downloads updates”. (Thomas Bebensee , 2010, P5).

3 Social Networking

Define as online group of users who share personal preferences with other people. Such as Facebook where user can share articles, text, images, and different types of document even videos like tutorials and lessons, Facebook its consider as top of social media , in addition to many like Tweeter, Google, LinkedIn, etc.

4 Tagging

The user can write some key word to characterize some text or work, for instance to share post in Facebook we can make tag some users or specific words. The advantages of it enable user of categorizing them work according to author or interest, etc.

5 Wiki

It's an organized document by different users as collaborative effort for share, adding information in specific context. Always it created by volunteers users, it use by organization for learning and knowledge sharing. For example is Wikipedia.



Figure 2.2: web2.0 applications

2.7.6 Overview of impact of technology on organizations

The theoretical base introduced for exploring the interaction between technology and organizations. In contrast, to earlier studies attempted to illustrate this relation, it conclude two significant concepts: first one: is the duality of technology, i.e. technology is not just formation by humans but also technology formation the humans activity's, second one: interpretive flexibility of technology i.e. the result of Implementing technology rely on actors themselves and Circumstances of implementing it. (Thomas Bebensee , 2010).

(Orlikowski, 1992) argues that technology is often implemented in various organizations. She therefore differentiate between a “design mode” and a “use mode” of technology. (Thomas Bebensee , 2010).

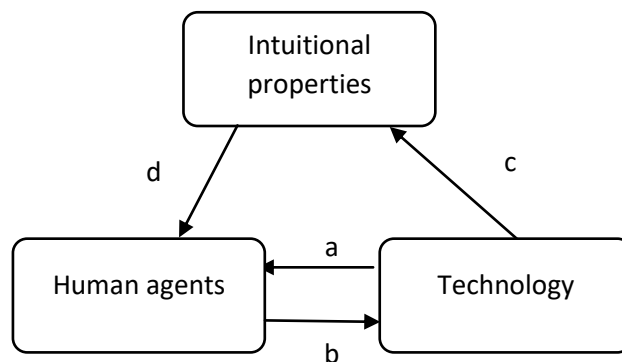


Figure 2.3: Structuration Model of Technology

Accordion to (Orlikowski, 1992) their deferent types of impacts as flowing (Thomas Bebensee , 2010).

a. Technology as a Product of Human Action:

Technology is a result of human activity i.e. design, development, etc.

b. Technology as a Medium of Human Action:

Technology make human works easy through provide standards and facilities, for instance if user need to write article he can use MS. Word to do that.

c. Institutional Conditions of Interaction with Technology:

The characteristic and conditions of organizations is effect on how employee is interact with technology.

d. Institutional Consequences of Interaction with Technology:

Interaction with technology impacts on attribute of organizations.

(DeSanctis and Poole ,1994) moreover, introduced new Structuration Theory in order to explain notions to investigate possible changing when apply technology in organizations they named it Adaptive Structuration Theory (AST). its argue between two different perspectives of the decision-making strategy, which suppose that technology is increase productivity and efficiency so this lead to change organizational structure, and the institutional strategy, which suppose that technology is developed by human therefore it give an chance for change.

Furthermore, social technology strategy that suppose the technology have impact on organization structure also being effected by social activities, and AST theories related to this strategy.

The AST theory also extend to include technological effects that occur as a result of the combined effect of both the technology of social activities. (Thomas Bebensee , 2010).

2.7.7 Benefits of Web 2.0 technologies

In fact their many common advantages of Web 2.0 technologies this is example of it: [12]

1. Simplicity:

So any beginner user can use an operate it easily it design for normal user not programmers.

No need expert user so user can build what he need through complete platform with templates whiteout need to know even hypertexts markup language (HTML).

2. Economically:

Reducing traffic and storage because software e.g. blogs and wikis data is stored and maintained outside company.

3. Encouraging innovations:

Where new idea and problems is available online so enable people to share their problems with expertise in the specific domain, so this will motivate people to produce new idea and solutions.

4. Customization and flexibility

One of important of advantages is flexibility where normal user can do re-structuring and customization according to his needs.

2.8 Social networks

Web 2.0 facilitates and enhance knowledge sharing through social networking therefore, web2.0 technology's often referred to social networking or social media. (Nóra obermayer-kovács – anthonywensley).

Social media has a various definitions:

According to (Nóra obermayer-kovács – anthonywensley)

Its online applications help persons to interacts and collaborate for involvement and make discuss and socialization with others

- Web-based application enable persons to collaborate according to their personal activities (Storey et al, 2010).
- (Surowiecki, 2005) defined that social media is to make use of the “wisdom of the crowd”.
- Persons have knowledge in specific domain and they do problems solving practice and enhance decision making as group and utilize of knowledge sharing to encoring organizations to use their knowledge sharing technologies and practices in effective way (Mentzas et al, 2007) .

Vuori (2011) Categorize social media according to their role of supporting communication, interaction, connecting and incorporate people. (Nóra obermayer-kovács – anthonywensley)

1. **Communication:**

Social media come up with new tools enable user to store, share and disseminate content, discuss and express their new idea and experience:-

a. **Blogs** (e.g. Google Blogger) and microblogs (e.g. twitter).

b. **Video sharing** (e.g. YouTube).

c. **Presentation sharing** (e.g. SlideShare).

d. **Instant messaging service in addition to video calling** (e.g. Skype).

2. **Collaboration:** social media enables persons to contribute to specific content, creation and edition it without any limitations due to geographical location or time constraints.

a. **Wikis** (e.g. Wikipedia)

b. **Groupware/shared workspaces** (e.g. GoogleDocs).

3. **Connecting:** social media offers new ways of interacting and communicating with other people:-

a. **Social networking services** (e.g. Facebook, LinkedIn).

4. **Completing:** social media tools are enable users to completely manage the content by describing, adding or filtering information, tagging contents, and define links between contents:-

a. **Visual bookmarking tool** (e.g. Pinterest).

b. **News aggregator** (e.g. Digg).

5. **Combining:** social media tools provide most important feature its web services mean ability to Combination of pre-existing web services that allow user to use different application developed in different platform and language without any technical problems (Bonson and Flores, 2011).

a. **Mash-ups** (e.g. Google Maps).

2.8.1 Opportunities of using social media tools for organizations:

There is many opportunities to using social media tools in a manner meaningful to organizations. (Nóra obermayer-kovács – anthonywensley).

- **Communication:**

Social media tools motivate employee regard problem solving, for instance if their need for professional person to do some tasks or solve complex problems, it can post this on a blog and possible to get response from others employee or do search in deferent social media i.e. LinkedIn to find an expert to do the tasks.

- **convert personal knowledge to organizational knowledge:**

Senior employees can record videos about experiences and knowledge in work and share it with others employees, as a result of this can help to reduce costs of training programs for companies.

- **discuss professional problems:**

On this issue the community of practice (COPS) play an significant role in knowledge sharing, its consider as group of people often connected virtually all of them have mutual concern in specific domain of knowledge, commonly they share best practice, ask question, etc.

Furthermore, (COPS) is usually include people out of company this enable to get different point of view about specific issue.

- **reduce time and money:**

Social media enable managers to reduce cost and time of arrange events, meeting. Instate of use regular phone calls or sending message, can use i.e. blogs.

Generally the companies should encourage and support adopting social media technology for knowledge transfer among employees, in contrast it should draw rules and policy to usage in order to avoid missus of this technologies, also the companies should include the employees in a training program to guarantee effective use, Furthermore, companies should motivate employees to use social media tools for knowledge sharing.

2.9 Related work

2.10 Introduction:

Many theories had been proposed to explore impact of web2.0 technology on knowledge sharing., In contrast, the previous literature present this topic in variety of contexts such as educational environment, but this study primarily focus on explain the impact of this technology regarding sharing knowledge in work environment.

This study (Marianna Sigala, Kalotina Chalkiti, 2014) focus on explore the link between social media use and employee creativity, the main issue discussed in this paper is examine the impact of social media and interactions on individuals' creativity.

The conclusions of the study indicated companies need to move from managing creative individuals to managing creative social networks, use social media to publish and discussing information with others, improve and enhance employee's cognitive capacity and encouraging them to create new knowledge.

This study (Fahd OmairZaffar and Ahmad Ghazawneh) focus on seeks to investigate how Web 2.0 technologies are being used to overcome knowledge sharing and collaboration issues, the main issue discussed in this paper is the proposed knowledge sharing cycle model which has three main stages internalization, externalization, and objectification.

The conclusions of the study findings indicate that emergent social software platforms (ESSP's) can be used to support knowledge sharing practices and to help convert Knowledge into its different forms.

This study (Gina Harden , 2012) focus on proposing a theoretical framework to study the effects of trust, risk and benefits, critical mass, the main issue discussed in this paper is the Social media influence on Knowledge sharing intentions of employees using social media technology in the organization.

The conclusions of the study Businesses have the potential to gain many Benefits from incorporating social media into their knowledge sharing endeavors.

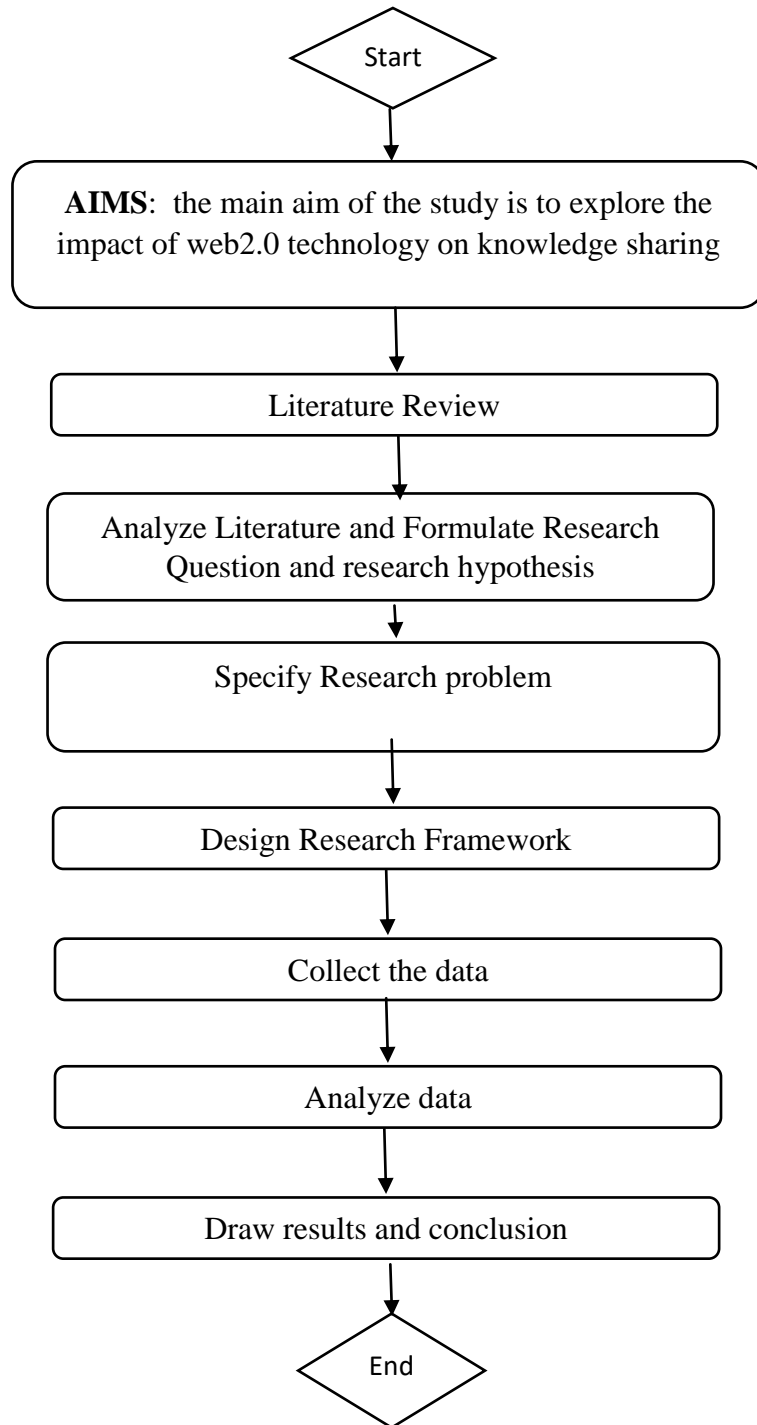
2.11 Summary of related work:

1	(Marianna Sigala, Kalotina Chalkiti , 2014) Knowledge management, social media and employee creativity	explore the link between social media use and employee creativity	examine the impact of social media and interactions on individuals' creativity	The conclusions of the study indicated companies need to move from managing creative individuals to managing creative social networks, use social media to publish and discussing information with others, improve and enhance employee's cognitive capacity and encouraging them to create new knowledge.
2	(Fahd OmairZaffar and Ahmad Ghazawneh) knowledge sharing and collaboration through social media - the case of ibm	Paper seeks to investigate how Web 2.0 technologies are being used to overcome knowledge sharing and collaboration issues.	this research is the proposed knowledge sharing cycle model which has three main stages internalization, externalization, and objectification	findings indicate that emergent social software platforms (ESSP's) can be used to support knowledge sharing practices and to help convert Knowledge into its different forms.
3	(Gina Harden ,2012) Knowledge Sharing in the Workplace: A Social Networking Site Assessment	proposing a theoretical framework to study the effects of trust, risk and benefits, critical mass,	Social media influence on Knowledge sharing intentions of employees using social media technology in the organization.	Businesses have the potential to gain many Benefits from incorporating social media into their knowledge sharing endeavors.

Chapter Three

Research Framework

Figure 3.1 research steps chart



3.1 Introduction

The research was conducted to explain the influence of using web 2.0 technology regarding knowledge sharing by implementing a blog system in (GNPOC) as case study.

(GNPOC) is a multinational company working in the petroleum field which needs extensive exchange of knowledge and the implementation of a knowledge sharing system was expected to add a great value.

A questionnaire survey was distributed among 169 respondents.

The research objective

- To propose a prototype for knowledge sharing system.
- To evaluate the advantages of the proposed system regarding sharing knowledge.

3.2 Brief history about Greater Nile Petroleum Company (GNPOC)

In 1998 to 1999 GNPOC installed oil production and processing facilities for 5 oil fields in the Muglad Basin of South Sudan. More than 15,000 KM pipeline was also constructed from the fields to Bashair terminal in the Red Sea. Production was estimated at 150,000 bpd and could grow to 300,000 bpd over the medium term. First shipment was transported in the pipeline in June 1999. Parts of crude oil is distributed to the El Obied refinery and the Khartoum Refinery for domestic consumption. The remaining oil is exported.

3.3 Brief About knowledge system in the company

The company has a knowledge management system called “the portal”. It involves all sub-systems in the company (ERP, RSS, mailing system, web site, events).

After observing and exploring the system it was noticed that there is no interaction between the employees in the system, so the proposed system was built basically to enable the employees in the company to share knowledge with each other and enhance the interaction between them professionally.

3.4 Research methodology

The methodology undertaken in this research is quantitative method in order to answer the research question.

3.5 Instruments

- This research used open source software “Odoon” to design a prototype for knowledge sharing system in order to explore the advantages of using web 2.0 technology regarding knowledge sharing.
- SPSS software was used to analyze the collected data through questionnaire survey.

3.6 The Design of the Proposed System

The system was designed to enhance the interaction between the employees, and also to enable them to be part of knowledge sharing process.

The proposed system consists of the following components:

- Blog: to enable the employees to post idea and problems with each other.
- Presentation slide: to enable the employees to upload different materials for example references, papers, books.
- Forum: enable user to post different tops and comment on it.
- The proposed system has many useful features such as sharing the posts by email or Google plus or any others social media account, also it enables the employees to comment on specific post and evaluate the posts by like or dislike. Also the system has different statistical reports on a specific post, for example when some employee post an idea, the other employees can comment on the post, the new feature that made in the system is the owner of the post can easily review a lot of useful information that indicate his post was valuable or not to others such as how many employees hit his post, how many employees made comment.
- The system was built using python programing language, Postgres database, XML, CSS, bootstrap for user interface.

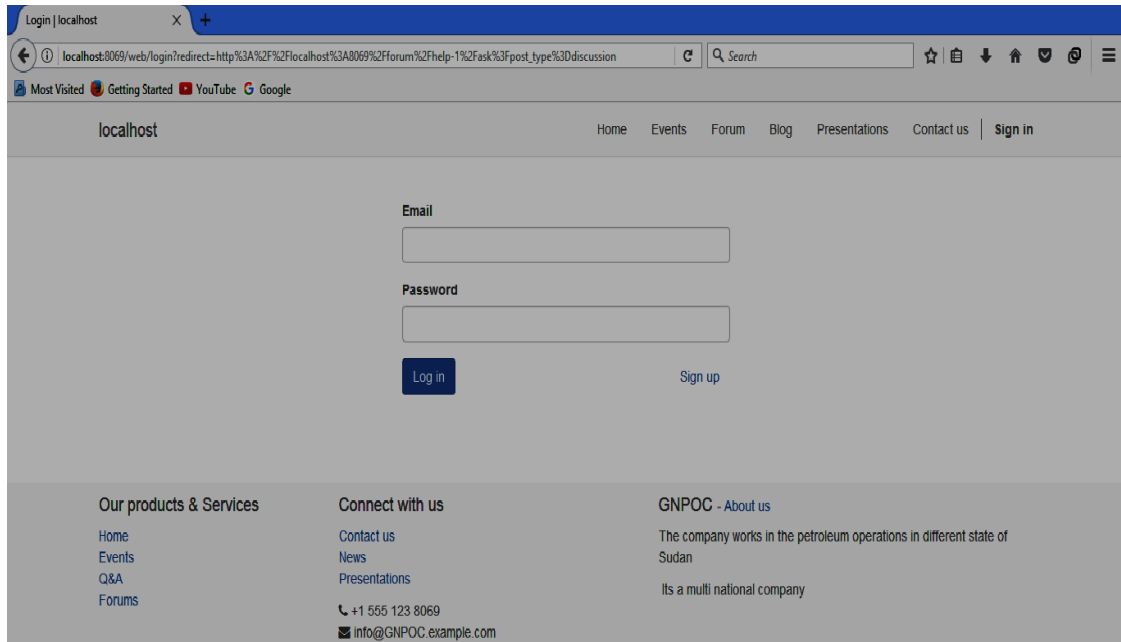
3.7 Why chose open source software?

Open source software is usually easier to obtain than proprietary software, often resulting in increased use. Additionally, the availability of an open source implementation of a standard can increase adoption of that standard. It has also helped to build developer loyalty as developers feel empowered and have a sense of ownership of the end product.

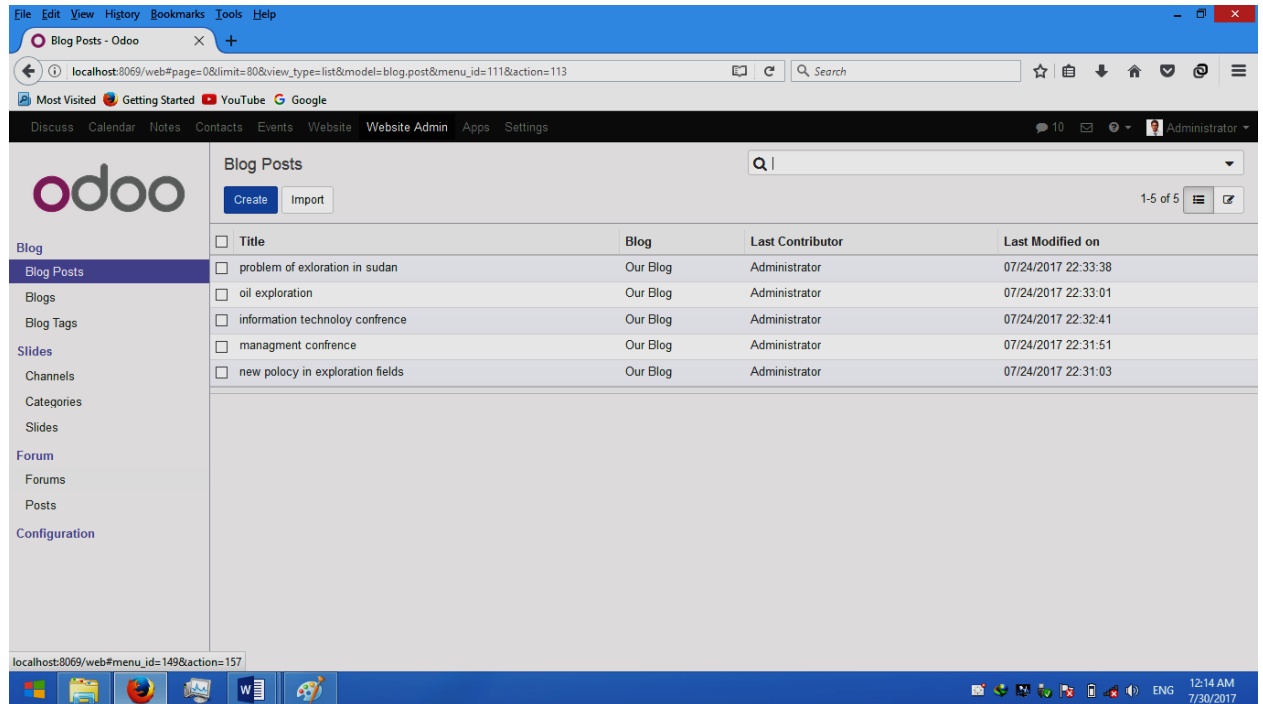
Moreover, lower costs of marketing and logistical services.

Open source development offers the potential for a more flexible technology and quicker innovation. It is said to be more reliable since it typically has thousands of independent programmers testing and fixing bugs of the software.

Home page screenshot

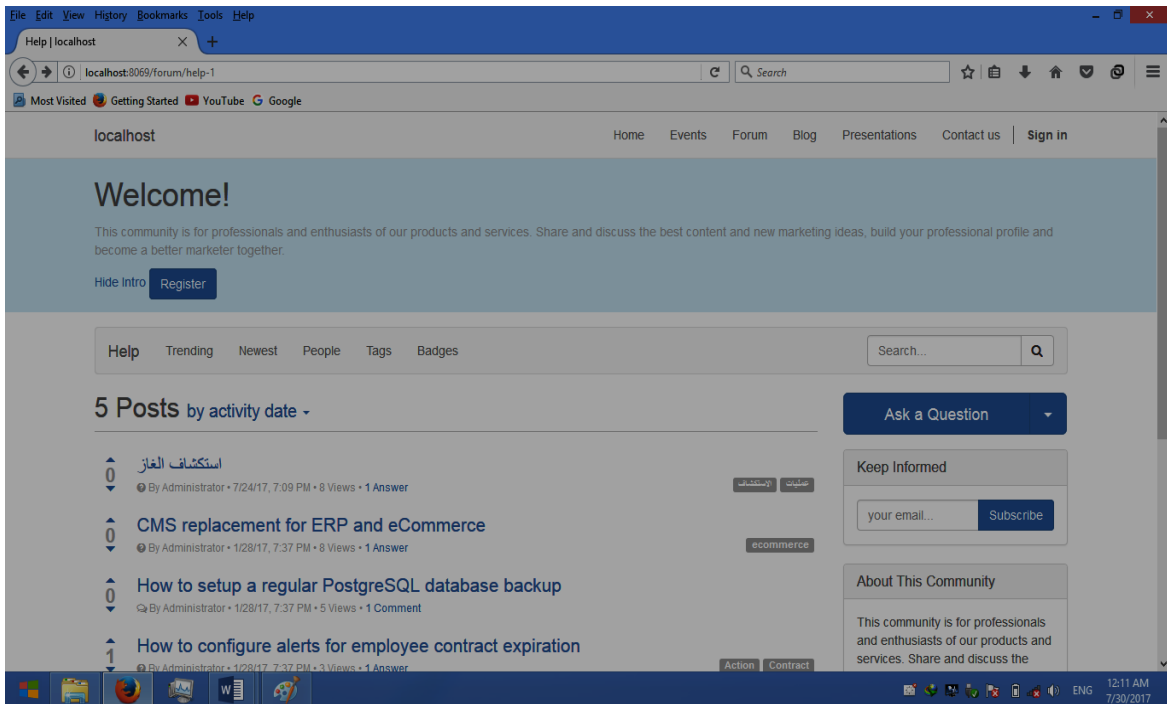


Admin panel screenshot



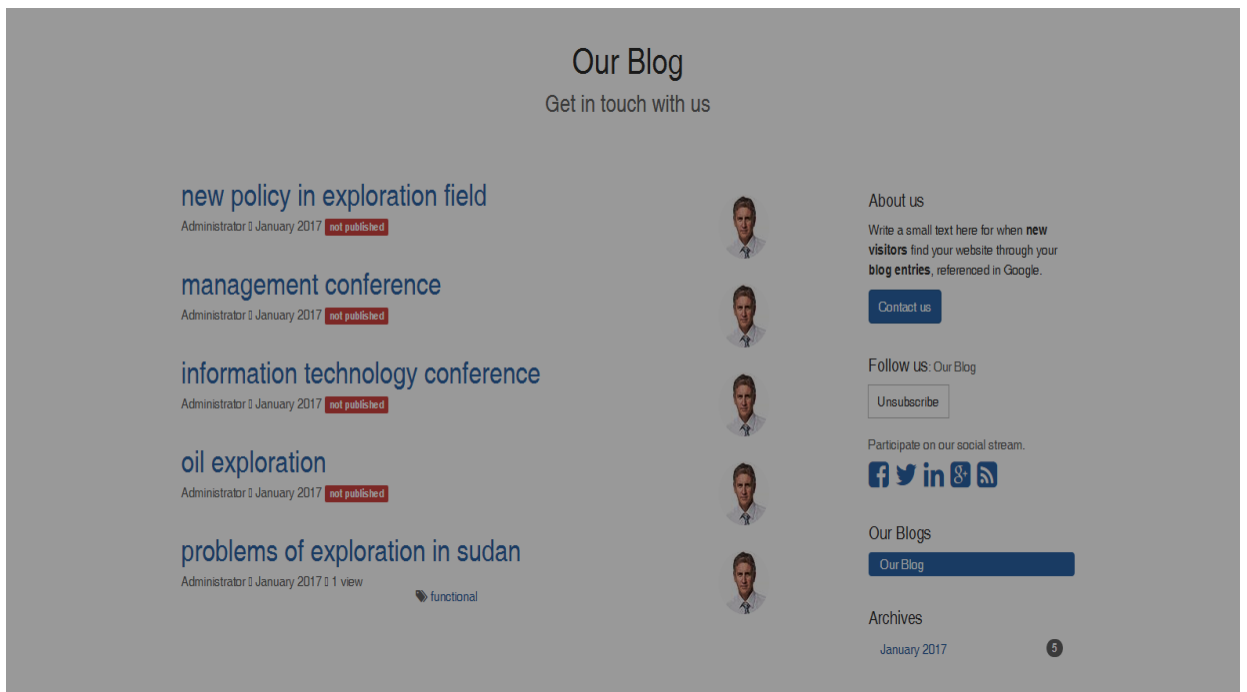
The admin panel enable user to create or delete post on blog system, forum also control over different setting and configurations.

Forum screenshot



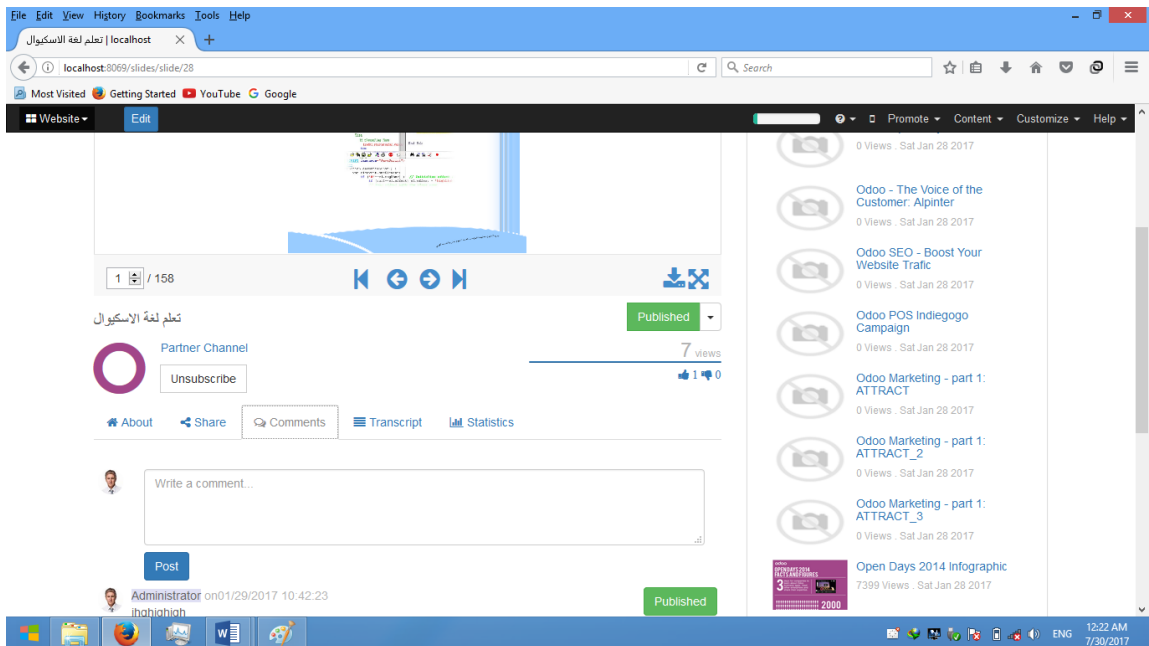
The forum enable the users to post different topics, ask questions, keep update by sending email when new tops is added also facilitate search by using tag feature.

Bog home page screenshot



Blog system enable users to post different topics of idea also share the topics by different social media.

Presentation slide feathers screenshot



Presentation slide enable users to upload different file type to dissection about it also provide different advantages such as comment or download it also see various statistic such as users who seen it , who like it or dislike .

3.8 Targeted population

The questionnaire survey was conducted in (GNPOC) in Khartoum city in head quarter of the company. The targeted people has really need to access technical information in short time to solve the problems that face them without physical interaction or traveling, to avoid loss of time and costs of movement from one place to another, by using web 2.0 technologies also they need to quickly retrieve prior best practice and solutions about specific issue, furthermore they need to keep updated with latest solutions and innovations to facilitate their tasks.

3.9 The design of the experiment

- The employees training was conducted in GNPOC to use the proposed system, the employees used the system for thirty days to enable them to examine and review different Features, furthermore test the advantages regarding sharing the knowledge.
- A questionnaire was designed to measure the impact of using the proposed system regarding sharing knowledge.
- A pilot study was conducted on sixteen respondents to validate the designed questionnaire survey.
- A questionnaire survey was conducted on the employees of GNPOC, the result was analyzed using the SPSS package.

3.10 Instructions before the experiment

- At the beginning the purpose of questionnaire survey was explained to respondents.
- A user training was conducted using demo data.
- The ethical and professional aspects related to the questionnaire was explained to ensure the respondents are comfortable and feel free to answer the questions to avoid any factors that might affect the quality of the questionnaire.
- The training sessions took seven days, divided to seven sessions according to break time of employees in the company, and to cover all targeted population.

3.11 Questionnaire Design

Before formulating final draft of the questionnaire, different sources of previous studies were reviewed, to avoid replication of efforts, and to validate research hypothesis.

The questionnaire consisted three parts and sixteen questions, it was made short and simple to avoid missing the interest of respondent to answer the questions.

3.12 Ethical Considerations

The questionnaire has been designed in a way to maintain the privacy of employees and remove any ambiguity of terms of the questionnaire, the respondents were alerted that survey is for scientific purposes only and it is completely voluntarily.

3.13 Pilot study

Before conducting the questionnaire survey a pilot study was conducted to ensure all constructs of the questionnaire has suitable readability level, and it's built correctly and accurate to guarantee the collected data is reliable to examine the validity of the research hypothesis.

3.14 Data collection

The respondents is trained on how to use the proposed system to share their knowledge. The study used structured questions (close – ended) to collect the data from respondent. Data was collected from Survey questionnaire was distrusted to total of 169 employees it took seven days. From 169 questionnaire distributed, 169 response were received. All respondents complete the questionnaire successfully.

3.15 Data Processing and Analysis

The study used SPSS software package to analyze the collected data using different formula and measurements such cronbach alpha, cross tabulation, ci squire, binomial test

3.16 Sampling and sample size

Sampling and sample size are crucial issues in pieces of quantitative studies, which seek to make statistically based generalization from the study result to the wider world. To generalize in this way, it is essential that the sampling method used and sample size are appropriate, such that results are representative, and that the statistic can discern association or differences within results of a study.

Sample size is an important feature of any empirical study in which the goal is to make inferences about a population from a sample.

Sample size may be chosen in several different ways: expedience—for example, include those items readily available or convenient to collect. A choice of sample sizes, though sometimes necessary, can result in wide confidence intervals or risk of errors in statistical hypothesis testing. Using target variance for an estimate to be derived from the sample eventually obtained using a target for the power of statistical test to be applied once the sample is collected.

3.17 Sample size calculation

To satisfy the objective of the study, the total number of subjects required (n) is calculated using the formula. (Nick Fox, Amanda Humn, Nigel, 2009)

$$n_0 = 4 \left[\frac{\pi_{plan}(1 - \pi_{plan})}{\omega^2} \right] z_{1-\alpha/2}^2$$

Where:

π : Anticipated population proportion

α : significant level.

$z_{(1-\alpha/2)}$: is a value from the normal distribution related to and representing the confidence interval.

ω : is the width of the confidence interval.

1- For this study we assume:

$$z_{1-\alpha/2} = 1.96$$

$$\alpha = 0.05$$

$$\omega = .1$$

$$n_0 = (\text{The sample size}) \approx 384.16$$

If the population is finite:

$$n = \frac{n_0}{(1 + n_0/N)}$$

$N = 300$ (The total population).

n_0 = the sample size from first equation.

n = the sample size.

$$n (\text{The sample size}) \approx 169.$$

Chapter Four

Results and Discussion

4.1 Introduction

This chapter presents the findings of the study, presents Respondent's analysis of Data, also explain how the reliability test for questionnaire constructs was calculated, the association between different variables, finally testing the hypotheses.

4.2 Respondent's analysis of Data

Demographic characteristics of participation were analyzed. The distribution, frequency, and percentage of the participants are shown in the following figures and tables.

Table 4.1: the respondents asked about their age

age			
		Frequency	Percent
Valid	20-30	72	42%
	31-40	56	33%
	41-50	37	22%
	51-60	6	4%
	Total	171	100.0

Figure 4.1 respondents age

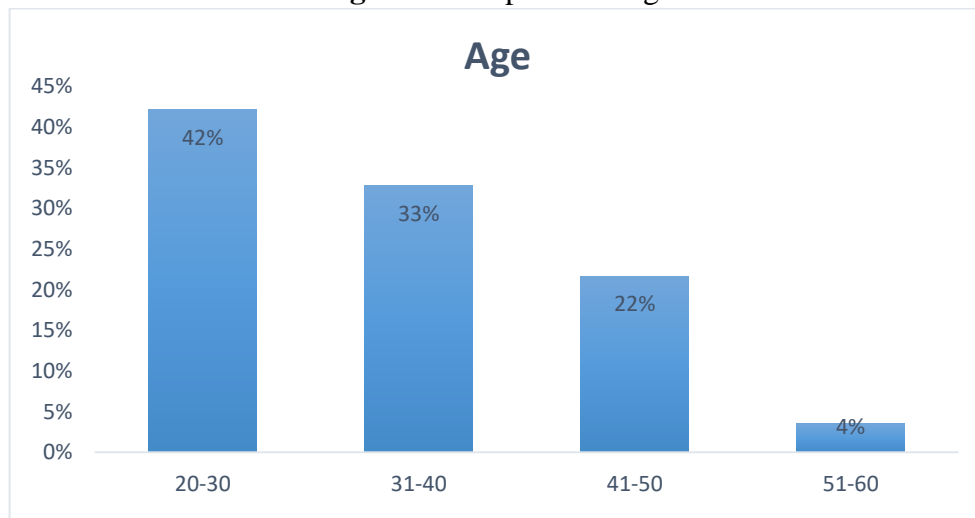


Table 4.2: the respondents asked about their educational level

educational level			
		Frequency	Percent
Valid	Diploma	10	6%
	Bachelor	104	61%
	Master	50	29%
	PHD	7	4%
	Total	171	100.0

Figure 4.2: respondent's educational level

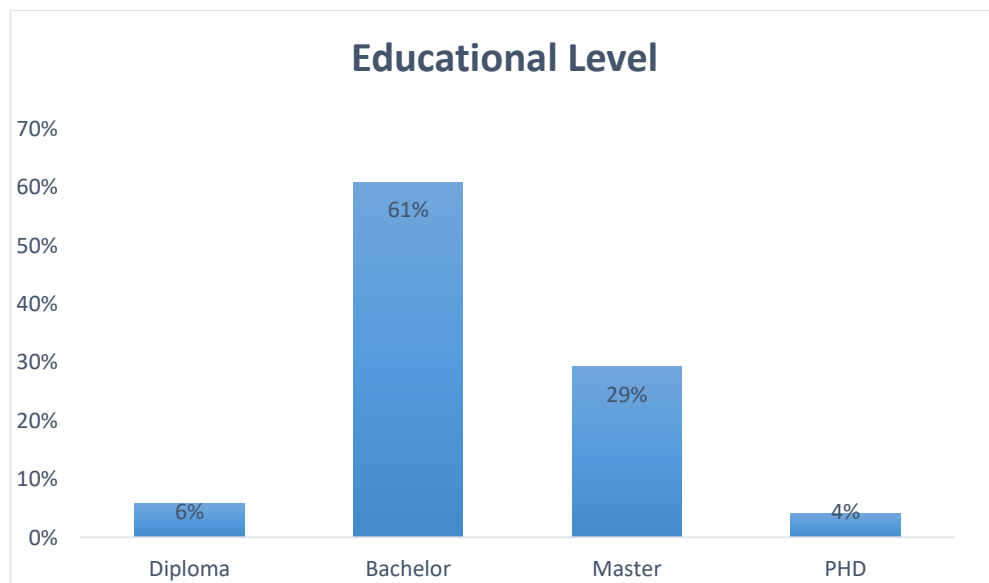


Table 4.3: the respondents asked about their experiences level in using the internet

Your experiences level in using the internet			
		Frequency	Percent
Valid	Excellent	27	17%
	Very Good	77	49%
	Good	41	26%
	Average	12	8%
	Total	157	100%

Figure 4.3: respondent's experiences level in using the internet



4.3 Reliability of Data

The study used Cronbach's alpha to calculating the reliability of the questionnaire survey.

Frist Construct:

Evaluate the advantages of the proposed system regard sharing knowledge.

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.825	.796	9

Second Construct:

How demographics characteristics effect on using the proposed sharing knowledge system.

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.655	.695	2

4.4 Hypothesis Teasing

The test was performed on the base of the value of significance. If the level of the significance is greater than 5 % (0.05), this mean that that value of calculated Chi-Square is less than the value of tabular Chi-Square and there is a statistical significance. In this case the null hypothesis will be rejected the alternative hypothesis (the research hypothesis) will be accepted.

Also the Binomial test was used to test some of research hypothesis.

H1: Using the knowledge sharing system will positively enhance interaction between employees of company.

A) H0 : $\pi \leq 50\%$ vs. H1: $\pi > 50\%$							
B) Binomial test:							
	Binomial Test						
			Category	N	Observed Prop.	Test Prop.	Exact Sig. (2-tailed)
	q8new	Group 1	No	23	.13	.50	.000
		Group 2	Yes	148	.87		
		Total		171	1.00		
c)	$\pi > 50$,thus the knowledge sharing system will positively enhance interaction between employees of company.						

H2: Using the knowledge sharing system will facilitate knowledge sharing among employees.

A)H0 : $\pi \leq 50\%$ vs. H1: $\pi > 50\%$							
B) Binomial test:							
	Binomial Test						
			Category	N	Observed Prop.	Test Prop.	Exact Sig. (2-tailed)
	q13new	Group 1	Yes	119	.70	.50	.000
		Group 2	No	50	.30		
		Total		169	1.00		
c)	$\pi > 50$, thus Using the knowledge sharing system will facilitate knowledge sharing among employees.						

H3: Age of the employee will influence their using of knowledge sharing system.

H0: there is no association between age and willing to sharing knowledge

A) Cross tabulation between age and willing to share knowledge:

		Are you willing to share your knowledge and experiences with others employees			Total
			Yes	No	
Your age	20-30	Count	37	35	72
		Expected Count	50.5	21.5	72.0
	31-40	Count	44	12	56
		Expected Count	39.3	16.7	56.0
	41-50	Count	34	3	37
		Expected Count	26.0	11.0	37.0
	51-60	Count	5	1	6
		Expected Count	4.2	1.8	6.0
Total		Count	120	51	171
		Expected Count	120.0	51.0	171.0

B) Chi square test

		value	p-value
	Pearson Chi-Square	22.861a	.000

P-value < 0.005 thus we will reject the null hypothesis, therefore there is an association between age of employee and the willing of sharing knowledge at significance level $\alpha = 5\%$

c) The age of employee influence on the willing on sharing knowledge

H0: $\rho=0$ vs. H1: $\rho \neq 0$			
		Value	Approximate Significance
Ordinal by Ordinal	Spearman Correlation	-.357	.000c

p-value < 0.005 thus we will reject the null hypothesis, therefore age of employee will influence on the willing of sharing knowledge at significance level 5% , the correlation coefficient = -0.357 this indicates that there is discordant relationship between age and willing to share (increase in age will decrease the willing to share)

H4: Education of the employee will influence their using of knowledge sharing system.

H0: there is no association between educational level and willing sharing knowledge

A) Cross tabulation between educational level and willing to share:

		Are you willing to share your knowledge and experiences with others employees			Total
			Yes	No	
Your educational level	Diploma	Count	1	9	10
		Expected Count	7.0	3.0	10.0
	Bachelor	Count	68	36	104
		Expected Count	73.0	31.0	104.0
	Master	Count	45	5	50
		Expected Count	35.1	14.9	50.0
	PHD	Count	6	1	7
		Expected Count	4.9	2.1	7.0
Total		Count	120	51	171
		Expected Count	120.0	51.0	171.0

B) Chi square test

	value	p-value
Pearson Chi-Square	28.638 ^a	.000

P-value <0.005 thus we will reject the null hypothesis, therefore there is an association between educational level and the willing of sharing knowledge at significance level $\alpha= 5 \%$

c) The educational level influence on the willing of sharing knowledge

		H0: $\rho=0$ vs. H1: $\rho\neq 0$	
		Value	Approximate Significance
Ordinal by Ordinal	Spearman Correlation	-.365	.000 ^c

p-value <0.005 thus we will reject the null hypothesis, therefore educational level will influence on the willing of sharing knowledge at significance level 5 % , the correlation coefficient= -.365 this indicates that there is discordant relationship between educational level and willing to share (increase in educational level will decrease the willing to share).

H5: Prior experience of employees will influence their using of knowledge sharing system.

H0: there is no association between experience level and ease of use

A) Cross tabulation between experience level and ease of use:

			No	Yes	Total
Your experiences level in using the internet	Excellent	Count	5	22	27
		Expected Count	4.3	22.7	27.0
	Very Good	Count	11	66	77
		Expected Count	12.2	64.8	77.0
	Good	Count	3	38	41
		Expected Count	6.5	34.5	41.0
	Average	Count	4	8	12
		Expected Count	1.9	10.1	12.0
	missing	Count	4	10	14
		Expected Count	2.2	11.8	14.0
Total		Count	27	144	171
		Expected Count	27.0	144.0	171.0

b) Chi-square test:

	value	p-value
Pearson Chi-Square	6.994 ^a	.136

P-value=.136 > 0.05 thus we will not reject the null hypothesis, therefore there is no association between experience level and ease of use at significance level $\alpha = 5\%$

H6: Using the knowledge sharing system will positively saving the time of knowledge acquisition.

A)H0 :$\pi \leq 50\%$ vs. H1: $\pi > 50\%$								
B) Binomial test:								
		Binomial Test						
				Category	N	Observed Prop.	Test Prop.	Exact Sig. (2-tailed)
		q7new	Group 1	No	32	.19	.50	.000
			Group 2	Yes	138	.81		
			Total		170	1.00		
A) $\pi > 50$, thus the knowledge sharing system will positively saving the time of knowledge acquisition.								

H7: Using the knowledge sharing system will positively improve the accessibility to knowledge.

A)H0 :$\pi \leq 50\%$ vs H1: $\pi > 50\%$								
B) Binomial test:								
		Binomial Test						
				Category	N	Observed Prop.	Test Prop.	Exact Sig. (2-tailed)
		q11new	Group 1	Yes	152	.89	.50	.000
			Group 2	No	19	.11		
			Total		171	1.00		
C) $\pi > 50$, thus Using the knowledge sharing system will positively improve the accessibility to knowledge.								

H8: Using the knowledge sharing system will positively improve the availability of knowledge.

A)H0 : $\pi \leq 50\%$ vs H1: $\pi > 50\%$							
B) Binomial test:							
Binomial Test							
			Category	N	Observed Prop.	Test Prop.	Exact Sig. (2-tailed)
q12new	Group 1	No		21	.12	.50	.000
	Group 2	Yes		150	.88		
	Total			171	1.00		
c)	$\pi > 50$, thus Using the knowledge sharing system will positively improve the availability of knowledge.						

H9: Using the knowledge sharing system will positively encourage the users to be a contributor to the knowledge in specific domain.

A)H0 : $\pi \leq 50\%$ vs. H1: $\pi > 50\%$							
B) Binomial test:							
Binomial Test							
			Category	N	Observed Prop.	Test Prop.	Exact Sig. (2-tailed)
q9new	Group 1	No		33	.19	.50	.000
	Group 2	Yes		138	.81		
	Total			171	1.00		
c)	$\pi > 50$, thus Using the knowledge sharing system will positively encourage the users to be a contributor to the knowledge in specific domain.						

H10: Using the knowledge sharing system will positively decrease the cost of knowledge acquisition.

Binomial Test						
		Category	N	Observed Prop.	Test Prop.	Exact Sig. (2-tailed)
q6new	Group 1	No	75	.44	.50	.126
	Group 2	Yes	96	.56		
	Total		171	1.00		
c) $\pi < .50$, thus the knowledge sharing system will not decrease the cost of knowledge acquisition.						

4.5 Summary of research hypothesis testing

Table 4.4: result of research hypothesis test

No	Hypothesis	
H1	Using the knowledge sharing system will positively enhance interaction between employees of company.	Supported
H2	Using the knowledge sharing system will facilitate knowledge sharing among employees.	Supported
H3	Age of the employee will influence their using of knowledge sharing system.	Supported
H4	Education of the employee will influence their using of knowledge sharing system.	Supported
H5	Prior experience of employees will influence their using of knowledge sharing system.	Not Supported
H6	Using the knowledge sharing system will positively saving the time of knowledge acquisition.	Supported
H7	Using the knowledge sharing system will positively improve the accessibility to knowledge.	Supported
H8	Using the knowledge sharing system will positively improve the availability of knowledge.	Supported
H9	Using the knowledge sharing system will positively encourage the users to be a contributor to the knowledge in specific domain.	Supported
H10	Using the knowledge sharing system will positively decrease the cost of knowledge acquisition.	Not Supported

4.6 Discussions

This study confirmed the proposed system play an important role in enhancing the interaction between employees in GPOC.

The researcher test the hypothesis using the Statistical Package for Social Sciences(SPSS) using the Chi square test at the level of significance 5 %(0.05) If the level of the significance is greater than 5 %(0.05), this mean that that value of calculated Chi-Square is less than the value of tabular Chi-Square and there is a statistical significance. In this case the null hypothesis will be rejected the alternative hypothesis (the research hypothesis) will be accepted.

The study find that:

- increase in age of employee will decrease his/her willing to share knowledge with other because the p-value <0.005 thus , will reject the null hypothesis, therefore age of employee will influence on the willing of sharing knowledge at significance level 5 % , the correlation coefficient= -0.357
- increase the educational level of employee will decrease his/her willing to share knowledge with other because the p-value <0.005 thus we will reject the null hypothesis, therefore educational level will influence on the willing of sharing knowledge at significance level 5 % , the correlation coefficient= -0.365
- There is no association between experience level and ease of use because the P-value= $0.136 > 0.05$ thus we will not reject the null hypothesis, therefore there is no association between experience level and ease of use at significance level $\alpha= 5 \%$.
- The proposed knowledge sharing system enhance interaction between employees of company because the calculated value of $\pi > 50$.
- The proposed knowledge sharing system will not decrease the cost of knowledge acquisition because the calculated value of $\pi < 50$.

- The knowledge sharing system saving the time of knowledge acquisition because the calculated value of $\pi > 50$.
- The proposed knowledge sharing system improve the accessibility to knowledge because the calculated value of $\pi > 50$.
- The proposed knowledge sharing system improve the availability of knowledge because the calculated value of $\pi > 50$.
- The proposed knowledge sharing system positively encourage the employees to be a contributor to the knowledge in specific domain of knowledge because the calculated value of $\pi > 50$.
- The proposed knowledge sharing system facilitate knowledge sharing among employees in GNPOC because the calculated value of $\pi > 50$.

Chapter five

Conclusions and Recommendations

5.1 Introduction

This chapter presents the conclusions and suggestions for future work to improving the proposed system regard knowledge sharing.

5.2 Conclusions

The main objective of this research was to evaluate the impact of using web2.0 technology on knowledge sharing.

In order to evaluate the advantages achieved by the proposed system, the questioner survey was conducted.

The Statistical analysis showed the following:

- There is a relationship between the ages and willing of employees to share knowledge, that's when the age of employee increases his/her willing to share knowledge decreases.
- There is a relationship between educational level and willing of employees to share knowledge, that's when the educational level employee increases his/her willing to share knowledge decreases.
- There is no relationship between prior experience of employees and ease of system using according to Statistical data analysis
- The proposed system was play a significance role of enhancing the interaction between employees in GNPOC.

- The proposed system has positive impact on saving the time of knowledge acquisition.
- The proposed system was played an important role improve the accessibility to knowledge.
- The proposed system was played an important role in improving the availability of knowledge in GNPOC.
- The proposed system was encouraged the employees to be a contributor to the knowledge field.
- The proposed system was play a significance role in facilitate knowledge sharing among employees in GNPOC.

5.3 Suggestions for Further work

After conducting the study the following issue are recommend:

- Increase the size of studied population to cover all employees in the greater Nile Company (GNPOC).
Furthermore, increase number of targeted people in order to increase the reliability and validity of the collected data about studied population.
- Increase the scope of objectives to involve different perspective such as analyze the various factors i.e. organizational factors my effect on employees willing to use the proposed system for knowledge sharing, personal culture my effect on using the proposed system.
- Add more Features to current proposed system such as make it work in internet environment in state of run it on local area network only , so this my need also to improve the current security and privacy Features to maintain the privacy of the data.

- Link the proposed system with the portal, so the needs enhance and develop it to facilitate employee's login and registration.
- During performing the questionnaire survey most of respondent addressed this issue, they considered as significant point in creating and disseminating knowledge it was who is confirmed the knowledge is trusted and reliable to make a decision base on it, so we recommend add Features to make some controlling on publishing the knowledge such as add approving Features, so when new employees post new knowledge or any information it still pending un till some one knowledgeable in specific domain of knowledge approve it and publish it to avoid miss leading.

Appendix

Evaluating the impact of using the proposed system

The main aim of this questionnaire explore the advantages of the system regard knowledge sharing in GNPOC Company.

This study is being conducted through Sudan University of science and technology - collage of graduated study – computer science and information technology.

Do not write your name, your response will be anonymous and will never be linked to you personally.

Your participation is entirely voluntary.

This questionnaire will take between 5-10 minutes of your time.

Thank you for cooperation.

Definition of Terms:

Web 2.0 technology: indicate to systems and technology help people to interact and collaborate with each other's .I.e. blogs, Skype. Etc.

Knowledge sharing: indicate to transfer information and experiences to others peoples.

Q. N		Section A –Please select <u>one</u> choice put (✓)				
1.	Your age	(20-30) <input type="checkbox"/>	(31-40) <input type="checkbox"/>	(41-50) <input type="checkbox"/>	(51-60) <input type="checkbox"/>	
2.	Your educational level	High school <input type="checkbox"/>	diploma <input type="checkbox"/>	Bachelor <input type="checkbox"/>	Master <input type="checkbox"/>	PhD <input type="checkbox"/>
3.	Your experiences level in using the internet	excellent <input type="checkbox"/>	Very Good <input type="checkbox"/>	Good <input type="checkbox"/>	Average <input type="checkbox"/>	Poor <input type="checkbox"/>

		Section B –Please select <u>one</u> choice put (✓)	
4.	Are you willing to share your knowledge and experiences with others employees?	Yes <input type="checkbox"/>	No <input type="checkbox"/>
5.	Do you think that sharing knowledge with others employees might affect your job positively?	Yes <input type="checkbox"/>	No <input type="checkbox"/>

		Section C –Please select <u>one</u> choice put (✓)				
		Strongly agree	agree	fair	disagree	Strongly disagree
6.	This system saving costs of knowledge acquisition By decreasing cost of bring professional persons to the company.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7.	This system reduce time of knowledge acquisition By enable users to post their knowledge using internet connection.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8.	This system enhance interaction between the employees by enable them interact with different comments on specific issue.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9.	This system enable you to contribute and create knowledge in specific domain.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10	This system facilitate knowledge sharing among employees.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11	This system enable you access to the knowledge from any places by using internet connection.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12	This system enable you get the knowledge at any time you want by using internet connection.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13	This system help you to get feedback about specific issue	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14	This system has simple interface.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15	This system is easy to use.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16	This system help you to search and retrieve the knowledge easily.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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