Are Indian IT Firms Ready For Social Software?

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Abstract

With the advent of knowledge intensive firms, organizations have started viewing knowledge as an important resource for their competitive advantage. In order to make knowledge as a resource, organizations have implemented knowledge management initiatives. From the beginning, information systems have been playing a vital role in knowledge management practices, which basically encourages employees to codify, share and create knowledge.

Recently, newer forms of Information and Communication Technologies (ICT) such as web 2.0 (also known as social software) are facilitating user participation, communication, interaction and collaboration on the web. Hence organizations want to reap the benefits of these web 2.0 tools by deploying them as knowledge management initiatives to enhance knowledge sharing and collaboration among employees. Since these tools are not very expensive, it is easy for organizations to deploy them, but the main issue is the adoption of these tools by the employees.

Therefore, the focus of this thesis is to investigate the adoption of web 2.0 tools among knowledge workers working in Indian based software consultancy firms. The aim of the thesis is to find out till what extent these tools have been adopted and what are the factors affecting the adoption of these tools by employees. A quantitative descriptive-explanatory study (online questionnaire) and a qualitative exploratory study (semi-structured interviews) have been employed to gather relevant data needed for the analysis. Both inductive and deductive approaches have been used to get a better understanding of the factors affecting the adoption of social software by knowledge workers and also to find out the causal relationships between usage and the factors influencing it.

Based on the analysis of this data, we have found that even though software consultancy firms are good at deploying tools, the adoption of these tools is rather low among knowledge workers. Moreover, we have also observed that lack of certain personal and organizational factors are hindering the adoption of tools. Furthermore, a good strategy, top management support, incentives and proper training will encourage employees to adopt the tools. The success of social software in organizations does not depend solely upon the manager's attitude but also on organizational current policies and practices.

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Contents

CHAPTER 1

Introduction

The evolution of technology has a noticeable impact on organizations. Among other things, the impact can be seen in how employees work, communicate and share information. The knowledge management (KM) is a discipline that has its roots in 1960s, growing constantly since the early 90's(Kirchner et al., 2009). The rationale behind knowledge management initiatives is to create, capture, share, organize and use the intangible asset such as Knowledge of the organization.

As part of knowledge management initiatives, the organizations focus on Information and Communication Technologies (ICT) to improve knowledge management processes, flow and creation of Knowledge. However "Knowledge management is not a technical project. It is driven by business objectives to create business values, and technology must meet these objectives" (Gartner, 2002 cited in Coakes, 2006). Furthermore, new technological developments such as computing and information networks that emerged in the last quarter of the 20th century lead to organizational changes in the 21st century (Bloisi et al., 2006, p.20).

In the last quarter of the 20th century, contemporary forms of knowledge-intensive-firms emerged such as media, advertising, software development companies, etc (Newell et al., 2009, p.31). In these knowledge intensive firms, for example in software consultancy firms, employees' major contribution in work involve in the creation of new knowledge or using and combining the present knowledge in new ways. In general, these knowledge workers have high levels of education, a specialised skill set, and the capacity to identify and solve problems by applying these skills in practice. Therefore, their work became knowledge work and organizations started viewing knowledge as an important resource for their competitive advantage (Newell et al., 2009, p.24).

In the process of producing knowledge based products and services, knowledge work demands a communication medium to create and share knowledge.

Therefore, certain strategies and mechanisms are required to support the coordination and integration of knowledge work processes across the teams as well as organization.

In general, as mentioned above, there is always a relationship between technology and organizations. Information and communication technologies (ICT) have a constant impact on work and work relationships in organizations. In order to make knowledge as a resource, it is important for knowledge-intensive firms to implement knowledge management initiatives such as strategies, tools and practices along with providing suitable context for their employees. Therefore software consultancy firms deployed the knowledge management systems (KMS), a type of ICT to capture, store, search, connect, and transfer knowledge so that employees can reuse it (Alavi and Tiwana, 2003 cited in Newell et al., 2009, p.145).

Recent trends on Internet and in web technologies (web 2.0) have changed the Web from read only static web pages to having easy-to-use editing facilities (Stenmark, 2008). A new phenomenon occurred where millions of ordinary people were sharing ideas, up loading content and collaborating with other users. This is something which was previously unheard of on the Internet. It has caught the attention of enterprises, and in order to reap the benefits of the social dimension of web 2.0 tools (Kirchner et al., 2009), Knowledge-intensive-firms also started deploying the 2.0 tools as knowledge management initiatives.

According to Vat (2006 cited in Coakes, 2006), "managing organizational knowledge is 70% managing people, 20% managing processes, and 10% managing technology". However knowledge transfer within the organizations can be supported by ICT. Knowledge sharing occurs in organizations either through capturing explicit knowledge or sharing tacit knowledge through interpersonal interaction and social relationships. Therefore, KMS should be designed to connect people and facilitate their knowledge sharing processes (Lang, 2001). Any web 2.0 tool or social software's unique feature is its sharing facility. With the help of these tools content can be easily shared among individuals, within and across organizations (von Krogh, 2012). Whether it is a blog, a wiki or a social networking site, its main purpose is to share knowledge. Any individual or project teams can use these tools for collaboration and sharing of knowledge (Avram, 2005). However, after deploying the tools in their organizations, it is important to inves-

tigate the willingness employees show in adopting these tools and sharing their knowledge on these tools. It is especially interesting to investigate employee's adoption and knowledge sharing on web 2.0 tools in a country like India, where power distance and authoritative culture exist in the society.

1.1 Problem statement

In a previous semester's elective course project, the author did a preliminary study on the role of web 2.0 tools in managing knowledge work, in a project-based organization located in India. The project found some interesting observations/results about adoption of web 2.0 tools. Even though the web 2.0 tools are deployed successfully, it shows that only very few employees are actually using them. The project didn't focus on the factors affecting the adoption of the tools by employees. However the project has only covered employees of one organization and also very few interviews were conducted.

Furthermore according to von Krogh (2012), one of the strategic research agendas proposed by him is to explore the barriers and enablers in organizations for the adoption of knowledge management using social software. In similar lines and based on the results of the previous project, we chose to carry out further in depth analysis to explore the adoption of social software among knowledge workers in Indian software consultancy firms. Furthermore, we also want to understand the factors that are hindering or facilitating the adoption of tools by the employees and sharing their knowledge on these tools.

The scope of this thesis is limited to knowledge workers working for the Indian based software (IT) consultancy firms. In this thesis, we have considered Indian based firms as the organizations that have been established and owned by Indians having their branches worldwide and it also includes multi-national companies having their branches in India.

Having defined the scope of this thesis, the primary aim is to explore the following research questions.

1. *To what extent are social software tools used by the knowledge workers?*

2. *What are the factors that hinder or facilitate the adoption of social software tools by knowledge workers?*

Furthermore, it should be noticed that we have used the terms ***web 2.0/ enterprise 2.0/ social media/social software*** interchangeably throughout this thesis.

Chapter 1 (p.3) presents the main focus of the thesis and introduces the problem statement as well as research questions. Chapter 2 (p.7) presents the theoretical framework adopted for this thesis, where as chapter 3 (p.24) explains the research methodology and research design adopted for this thesis. Furthermore, chapter 4 (p.35) presents the quantitative analysis using statistical methods on the data collected using an online questionnaire. On the other hand, in chapter 5 (p.51), we will explain the qualitative analysis of the data collected through semi-structured interviews that were conducted with the knowledge workers as part of the thesis. In the final chapter (chapter 6 (p.61), we will present the discussion and conclusions of the thesis, followed by limitations and future work.

Theory

In this chapter, we will present the theoretical framework that is used as basis for the thesis. In the first section, we will present theory regarding social software including the concepts related to web 2.0 tools. In the section 2.2, we will present the theoretical background about Knowledge and then we will present concepts related to knowledge management and knowledge sharing in sections 2.3 and 2.4 respectively. Finally, we will discuss theory of motivation in the section 2.5.

2.1 Social media/Social Software

Social media has changed the dynamics of the Internet, as people who were initially only consumers of the online content (news and opinions, information) became consumers as well as creators of the content. The online users are creating, consuming, sharing, and conveying their thoughts and opinions with other users through textual, visual or aural messages. The content has become user-generated because of the shift from traditional way of transmitting and distributing content to people (broadcast) to people-to-people transmission (Cook, 2008, p.7).

According to Kaplan and Haenlein (2010), the online social networking site Facebook's active users are more than the population of Germany and less than the population of Brazil. Not only this, but more and more content is being uploaded all the time on to video sharing platforms such as YouTube and image hosting sites such as Flicker. The Internet has become another world where consumers get information easily, share content quickly, and can also talk freely with each other. This new trend (or social media) gained importance among businesses all over and it is also of interest to organizations whether they are operating online (Amazon, E-bay) or as bricks and mortars (having physical space). The definition of social media is as follows.

"Social media is a group of internet-based applications that build on the ideological and technological foundations of web 2.0, and that allow the creation and exchange of User Generated Content" (Kaplan and Haenlein, 2010).

We can observe from the above statement that social media is built over web 2.0 technology.

2.1.1   Web 2.0

The term web 2.0 was coined by O'Reilly (2005b). Web 2.0 technologies are made up of a wide variety of interactive tools and social communication techniques such as blogs, wikis, tagging, folksonomies, RSS feeds, widgets, podcasts and social networking sites. The name Web 2.0 caught the attention of the business world since 2004 (Chaffey, 2009, p.23-24) and social media gained popularity in 2005, due to the creation of social networking sites such as MySpace in 2003 and Facebook in 2004 (Kaplan and Haenlein, 2010).

According to O'Reilly (2005a), the definition of web 2.0 is *"Web 2.0 is the network as platform, spanning all connected devices; Web 2.0 applications are those that make the most of the intrinsic advantages of that platform: delivering software as a continually-updated service that gets better the more people use it, consuming and remixing data from multiple sources, including individual users, while providing their own data and services in a form that allows remixing by others, creating network effects through an "architecture of participation", and going beyond the page metaphor of web 1.0 to deliver rich user experiences.*

The definition cited above explains the difference between web 2.0 and web 1.0, wherein web 1.0 focuses more on taxonomies and hierarchical classification to organize content and web 2.0 encourages users to share and create content (Grossman and McCarthy, 2007). These are "facilitating user participation, communication and interaction on the web" (Chaffey, 2009, p.23). The two-way interactive mechanism of web 2.0 allows users to contribute knowledge/information towards shared platforms (Lee and Lan, 2007). Some of the major components of web 2.0 are blogs, wikis, social networking sites, content communities and social bookmarking.

2.1.1.1 Weblogs or Blogs

These are websites based on web applications, where users post their content and the posts are presented in reverse chronological order. It is very easy to find the content even after the content is removed from the front page to archive. Furthermore, no special training is required to edit or post a blog. Additionally, a blog is subjective in the sense that it represents ideas and opinions of the contributors. It also encourages and allows readers to comment on the shared content (Avram, 2005; Cook, 2008, p.21, 47). For instance, IBM defines blogging guidelines and encourages its employees to share their knowledge with others (Kirchner et al., 2009).

2.1.1.2 Wikis

A wiki is also a website, where users can add and edit the content. A wiki is used to write collective documents and it also allows users to create and update the pages easily. The wiki technology is designed in such a way that one can see the recent changes of a page and allows users to go back to the previous versions. Therefore meaningful content will be available because of correcting mistakes (Avram, 2005; Cook, 2008, p.21). The famous publicly available wiki is Wikipedia, which is created and maintained collaboratively by many users all over the world, it is available in different languages, and is also a free online encyclopedia (Kaplan and Haenlein, 2010). Organizations also started using wikis/ wiki base solutions as collaborative tools to manage knowledge (Kirchner et al., 2009; Razmerita and Kirchner, 2011).

2.1.1.3 Social networking sites

Examples of social networking sites are Facebook and MySpace, where people connect and interact, based on their shared interests and hobbies. These sites are very popular especially amongst the younger generation. These tools allow users to connect with others by having their own profiles, through which they can connect with others by sending e-mails and instant messages (Kaplan and Haenlein, 2010; Avram, 2005; Cook, 2008, p.71). Moreover these social networking sites

provide an option for privacy by allowing users to choose whether or not to allow others to view their profile. Most of the organizations have social networking sites for their employees. For example, Serene Software Company encourages its employees to use Facebook (Kirchner et al., 2009; McAfee, 2009, p.97-99).

2.1.1.4 Content communities

Content communities help members to share their content with other users. You tube and Flickr are the best-known examples of content communities. In content communities, user are not required to create a profile page (Kaplan and Haenlein, 2010). In order to view the content one need not be a member but if one wants to post a comment, he/she should be a member. Comments are also visible to everyone. Organizations have started using content communities to share their corporate information with employees and investors. For example, Cisco and Goggle are communicating with their employees and investors through content communities to share their speeches, announcements and recruiting videos (Kaplan and Haenlein, 2010).

2.1.1.5 Social bookmarking

Social bookmarking is way of tagging online content for saving and sharing with others. It helps users to store, search and share links to web content using a service on web instead of saving them on the browser. The tags or bookmarks can be used to organize the content and connect the bookmarks posted by different people (Cook, 2008, p.21, 58).

Furthermore, while referring to Cisco report, Bughin (2008) mentioned that web 2.0 tools (collaboration tools) are eroding the silos in organizations and reducing the necessity of the middleman. Moreover, these tools are also facilitating open innovation and knowledge creation in organizations. The reasons for deploying web 2.0 tools in organizations could be to maintain relationships with customers and employees and/or to shape internal processes to increase customer's/employee's satisfaction and/or to gain huge returns (Bughin, 2008) and /or as a knowledge management initiative (Avram, 2005; Lee and Lan, 2007; McAfee, 2006). All the

above trends show that web 2.0 tools have entered into the organizations.

2.1.2 Enterprise 2.0

McAfee (2006) coined the new term Enterprise 2.0 for web 2.0 technologies, that are deployed on the intranets/extranets of organizations. Moreover he argued that "these tools are focusing on practices and output of knowledge workers, but not on capturing knowledge". Moreover, these tools also facilitate bottom up knowledge sharing and collaboration within organizations (Grossman and McCarthy, 2007). Furthermore McAfee (2009) explained how the development of technology has made collaboration and interaction easy among users as compared to earlier times. He explained that wiki tools not only support the collaborative work of knowledge workers who have strong ties amongst themselves but also facilitate version control and simultaneous editing (McAfee, 2009, p.91-96). Social networking sites, for example, connects weakly tied employees within the organization and enables their interaction (McAfee, 2009, p.97-104). Through these sites an organization can create a strong sense of community among employees. Furthermore he argued that the transition from web 1.0 to web 2.0 is not only because of network effects but also due to the convergence of three important trends on the Internet. These trends are as follows: 1) Free and easy platforms for communication and interaction 2) lack of imposed structure and 3) mechanism to let structure emerge (McAfee, 2009, p.47-63). Enterprise 2.0 not only connects individuals with information but also connects people with other people who have important information (McAfee, 2009, p.114). As stated by McAfee (2009, p.73), "Enterprise 2.0 is the use of emergent social software platforms by organizations in pursuit of their goals".

Emergent: means that the software is free of imposed structures. The pattern and structure emerge with the help of features such as links and tags and over a period, users interactions become more visible.

Social software: social software enables social interactions among the participants. Through computer-mediated communication people connect or collaborate and form online communities.

Platforms: are digital environments where all the content and interactions are

created and are visible to everyone and last over time.

2.1.3 Social software

Traditional communication software tools such as e-mail, instant messaging, and discussion forums can be classified as social interaction tools to a certain degree. Organizations have been using these software tools for communication and collaboration for quite some time now. These social software tools to a certain extent do encourage social interactions. Recently web 2.0 tools have also been labeled as social software (Avram, 2005; von Krogh, 2012; Cook, 2008, p.35) because these tools support and derive added value to and from social interactions (Lawley, 2004, cited in Avram, 2005).

In spite of increasing importance and attention being paid towards the social software platforms/enterprise 2.0 by many researchers, some researchers expressed major concerns of the management/organizations in deploying the social software tools. Some of the concerns are: fear of losing control, risk of losing information, security issues, trust issues regarding employees (Tebbutt, 2006; Gilchrist, 2007; Bennett et al., 2010).

However, organizations are still deploying these tools as knowledge management initiatives, which could be because, as argued by Levy (2009, p.120) the features and principles of web 2.0 are very close to knowledge management. Coakes (2006) argued that organizations with the help of social software can overcome specific concerns relating to time and space. Furthermore, he explained the usefulness of social software such as wikis and blogs etc. in knowledge management. Moreover, Zhang et al. (2008) argued that social software is a "promising area for knowledge management". They have also argued that wikis act as a link between employees and information, whereas blogs for knowledge sharing. Therefore knowledge within the organization becomes shared and connected effectively. Finally, we can conclude that social software tools are useful for managing knowledge work within the organizations.

2.2 Knowledge: An intangible asset

According to Blair (2002), the unambiguous example of knowledge is mostly philosophical knowledge. Since the Greek period there have been debates to define what knowledge is among philosophers (Newell et al., 2009, p.3). The philosophical definition of knowledge as defined by Plato is justified true belief (Nonaka et al., 2000; K Kakabadse et al., 2001; Blair, 2002; Newell et al., 2009, p.4).Not only has there been research in cognitive psychology and social science related to knowledge, but there has also been focus in management and organizational areas (Grover and Davenport, 2001). Even though the terms knowledge and information are interchangeable, there is still a difference between knowledge and information (K Kakabadse et al., 2001). According to Nonaka and Peltokorpi (2006), one of the most common ways to define knowledge is by differentiating it from data and information. Data are facts and figures having no value of their own, until unless used for some purposes, but however the facts and figures are meaningful in some way. When this data is organized, summarized, transferred or corrected for a purpose in a recognizable shape, then it will become information within a certain context (Grover and Davenport, 2001; Blair, 2002; Newell et al., 2009, p.3).

In comparison to data and information, knowledge is different and is a difficult content to manage, because it evolves from being applied in the minds of individuals (Grover and Davenport, 2001, p.6). An individual or knowledgeable person with his or her subjective experiences, judgment and expertise draws conclusions or creates new information based on available data and information. Hence, we can say that knowledge is the most valuable form of content, having the highest value, having involvement of human contribution, and depends on a specific situation (Grover and Davenport, 2001, p.6). Knowledge is personal property (Newell et al., 2009, p.3) or personalized information (Alavi and Leidner, 2001). According to Nonaka et al. (2000), the two types of knowledge are tacit and explicit.

Basically understanding the two debates of knowledge such as "epistemology of possession" and "epistemology of practice" (Cook and Brown, 1999 cited in Newell et al., 2009, p.3) is necessary to understand knowledge work in organizational context. The former explains that knowledge is something people possess

or have in their heads, also known as tacit knowledge. The latter explains something people do or practice through social interactions. We can conclude that the knowledge that resides in organizations could be in the form of tacit, explicit, individual or collective form (Kirchner et al., 2009). In order to manage knowledge, organizations have started implementing knowledge management initiatives.

2.3 Knowledge Management

Knowledge management is a discipline that is influenced by different disciplines, such as philosophy, cognitive science, social science, management science, information science, knowledge engineering, artificial intelligence, and economics. Hence there are a lot of definitions for knowledge management (Kakabadse et al., 2003).

In order to discuss knowledge management initiatives, both epistemology of possession view and epistemology of practice view are considered here. These two views have influence on the decisions taken by management regarding practices, tools and strategies to manage knowledge work. For instance, in an organization if knowledge is seen as possessed, then the management's challenges is to free knowledge from employees or individuals and make it a resource of the organization, i.e. transforming tacit knowledge into explicit knowledge by using information systems or some other means. On the other hand if knowledge is seen as what people do or practice, then knowledge management's challenge is to provide a supporting context for employees to do things differently in a better manner (Newell et al., 2009, p.6).

In this regard it is worth mentioning about the role of Information and Communication Technologies (ICT) in organizations. Thus, in order to improve knowledge management processes, flow of knowledge, and creation of Knowledge, organizations focus on ICT: knowledge management systems (KMS). Basically, KMS are knowledge management initiatives and these systems are used to create, capture, store, search, connect, transfer and reuse information and share knowledge among individuals (Newell et al., 2009, p.147). Therefore when implementing technologies, knowledge is seen as a cognitive resource, which resides in people's minds (tacit knowledge) and hence can be identified, captured and stored

in a sense, to make it explicit. This codified knowledge can be transferred to a particular individual or particular group through e- mail or stored in a repository such as an intranet and it can be moved easily across people, place, and time. This view supports the epistemology of possession (Newell et al., 2009, p.145).

According to McAfee (2006), the current organizational KMS are described as platforms and channel technologies. Channel technologies are also called collaboration technologies, for example, e-mails, mobile phone texting and Google talk or Skype, where the visibility of the information is low. These channels make communication more private between individuals or between individual to a group and hence the contributions are not visible to everyone. But on the other hand keeping the documents on some kind of platform or repository or intranet where content is generated or approved by a small group so it can be stored, searched and retrieved, then it will be more visible and available. But these have some limitations because they are based on a structural "epistemology of possession" view (Newell et al., 2009, p.151-153), so it won't make the process and practice visible.

On the other hand newer forms of ICT such as enterprise 2.0/ social media/ social software, "open up opportunities for knowledge work and knowledge workers from a practice perspective" (Newell et al., 2009, p.155-157). These new platforms are "focusing more on the practices and output of knowledge workers, but not on capturing knowledge" (McAfee, 2006). They are facilitating user participation, communication and interaction on online (Chaffey, 2009, p.23), which are "free from workflow, interdependencies, and decision right allocations", in other words they are free from imposed structures (McAfee, 2009, p.51-52).

By deploying each successive wave of the ICT in the organizations, one can argue here that knowledge management practices have taken a shift from a more structured (documentation process) way to an unstructured way (web 2.0 tools). Using these collaborative tools, anyone can create, edit and delete the information. This shows that the journey of knowledge management practices in organizations has started from encouraging employees to codify, share and create knowledge by using information systems (which can be considered as the first phase of knowledge management) to motivate employees to use the social dimension of web 2.0 tools for collaboration and knowledge sharing. This is referred to as the second

phase of knowledge management (Kirchner et al., 2009).

Furthermore, in this thesis we are not looking deep into different types of frameworks for understanding knowledge types nor are we looking at separate possession, practice and process perspectives, but are trying to explain how well social software tools could be helpful in sharing knowledge and managing knowledge work. In our opinion, social software tools are fulfilling the views of both debates of knowledge, such as epistemology of possession and epistemology of practice. In other words social software tools are fulfilling the challenges of knowledge management initiatives based on debates of knowledge, such as making the tacit knowledge of employee to explicit/ making it a valuable resource for organization and creating/ enabling context for employees to do things differently, so that one can observe the practice and the process of knowledge work.

We could argue that social software tools help in conversion of employee's tacit knowledge into explicit knowledge. These platforms could act as "shared space or Ba, where knowledge is created through the interactions amongst individuals or between individuals and their environment" (Nonaka et al., 2000). The studies in existing research argued that social media can help in attaining knowledge conversion and team performance (Janhonen and Johanson, 2010 cited in Razmerita and Kirchner, 2011).

Enterprise 2.0 (McAfee, 2006) or web 2.0 (O'Reilly, 2005b) that have welcomed knowledge work and knowledge workers to work together while creating documents collectively, engages employees in a process of joint knowledge creation and also observes the output of that activity (McAfee, 2006).

The six important features of enterprise 2.0 (McAfee, 2006) explains how well social software tools are making practices of knowledge workers and interdependencies between the practices visible.

Search: Generally knowledge workers have to depend on navigation options but with the help of new tools, it became easier for knowledge workers to search for the information.

Links: Links between content make it visible regarding how users have moved from one page to other or one site to another. Links help users to identify and find related or useful content.

Authoring: Many people have a desire to write to broader audiences. Wikis and

blogs allow groups and individuals respectively to author content easily.

Tags: Tags allow users to categorize their content. Folksonomies are user generated categorization systems and they emerge over a period of time based on the user's interests.

Extensions: Extensions are bit more advanced than tags, as the work of categorization and pattern matching will be automated using algorithms.

Signals: Signals are helpful to alert users, regarding their subscribed interesting information, such as RSS (Really Simple Syndication) feeds.

The above features explain the user friendliness of tools. For example, any knowledge worker using a web browser can do authoring, tagging and linking.

The above discussion explains the overall benefits of social software tools. Organizations can exploit the benefits of social software tools by deploying them. However, the introduction of new technology and adaptation of tools by employees are important for organizations to reap benefits. This will happen when employees show willingness to use them.

When a new technology is introduced in the organization to enable knowledge work, it will not change the knowledge workers' practices immediately. However, the success of deployment of tools depends on how employees are using technology in their day-to-day work practices in different ways. Employees shape the way technologies are actually used in their daily work (Orlikowski, 2000 cited in Newell et al., 2009, p.58). For example, employees may not use the newly introduced technology right away and they may simply ignore it or use it only occasionally. They prefer to work with their established practices. Hence, employees play a major role in the usage of the technology whether it is social software or some other tools. Furthermore, when social software tools are deployed in organizations as a knowledge management initiative, immediate adoption of the tools by the employees and sharing their knowledge on these tools is an interesting dimension to explore. Knowledge sharing behavior and conditions favoring such behavior are important for dissemination of organizational knowledge.

2.4   Knowledge Sharing

There are many theoretical concepts in academic research on knowledge sharing in organizations and it is not possible to explain all the theories here. However, the theory of social dilemma is explained here as it is related to the individual's dilemma regarding knowledge sharing. The theory on social dilemma suggests factors that may influence knowledge sharing attitudes of the individuals in organizations (Cabrera and Cabrera, 2002, 2005).

2.4.1   Social Dilemma

Knowledge sharing can be explained as a particular case of social situation. This social situation is also known as social dilemma, where "individual rationality leads to collective irrationality" (Kollock, 1998 cited in Cabrera and Cabrera, 2002). It can lead to collective damage if the individuals try to concentrate only on enhancing their pay off. Employees can improve their performance by taking the ideas from their co-workers. This doesn't diminish their potential value to others (Cabrera and Cabrera, 2002). However there are situations where individuals do not cooperate with each other, thinking, "If everyone else cooperates and I do not, I enjoy the good for free. If no one else or very few others cooperate, I will be saving a wasted contribution" (Cabrera and Cabrera, 2002).

Employees only share their knowledge in an ideal situation, but in reality employees do cost benefit analysis before sharing their knowledge with others. If there are costs associated with knowledge sharing, then the sharing of the knowledge will be less. On the other hand, if the employees perceive the benefits of sharing then sharing will be more (Cabrera and Cabrera, 2002, 2005). The costs could be, for example, spending time, giving away the expertise and the benefits could be, for example, gaining a status, recognition by top management or peers or personal satisfaction (Cabrera and Cabrera, 2002, 2005). If the resulting benefits exceed the costs then only will the employees share their knowledge. Hence, if we look from an individual employees' point of view, his/her rational decisions lead to different outcomes. We can conclude that the costs and benefits are important factors, which decide individual behavior. Therefore the same factor are also

applicable in the adoption of tools.

2.4.2 Related Studies in Knowledge Sharing

There are numerous studies conducted in the area of knowledge sharing using ICT. For instance, the study (Hsu and Lin, 2008) focused on usage of blogs on the net for knowledge sharing motivation and social influence. Furthermore Lin et al. (2009) have studied the determinants of knowledge sharing in professional virtual communities . Knowledge contribution on electronic networks of practice has been studied by Wasko and Faraj (2005). Moreover Ardichvili et al. (2003) studied motivation and barriers on virtual knowledge sharing communities of practice. Finally, some studies focused on determinants of knowledge sharing using web 2.0 technologies and knowledge sharing behavior in the organizations (Paroutis and Al Saleh, 2009; Tohidinia and Mosakhani, 2010).

Within the context of factors affecting employees' knowledge sharing behavior, the study by (Paroutis and Al Saleh, 2009) has been explained here in detail, as it is quite related and similar to this thesis.

The study by Paroutis and Al Saleh (2009) conducted a qualitative study to explore the determinants of knowledge sharing by employees using web 2.0 technologies. The authors have conducted interviews in a large multi national organization and explored the factors influencing the knowledge sharing behavior by categorizing them into individual, organizational and technical factors. Four key determinants of knowledge sharing and collaboration using web 2.0 technologies have been identified in the study, which are explained briefly.

1. History: One of the main barriers to share knowledge on web 2.0 tools is the old/established way of working. Even though employees know the benefits of using web2.0 tools, they still prefer to work in their own established way (Paroutis and Al Saleh, 2009).

2. Outcome expectations: The outcome expectations of the use of web 2.0 tools are an important determinant of employee willingness to share knowledge. Some of the positive benefits of web 2.0 tools perceived by the employees are: increasing personal knowledge, reducing e-mail load, effective communication. On the other hand, employees who perceived the costs of using the tools have not shown

interest to share their knowledge. Perceived benefits, rewards and recognition are
the motivators for employee knowledge sharing (Paroutis and Al Saleh, 2009).

3. Organizational/management support: Top management support/managerial
support plays an important role in encouraging employees to use web 2.0 tools/-
social media for knowledge sharing. Managers should encourage employees by
promoting the technology, communicating the benefits of web 2.0 tools, provid-
ing suitable training for employees, encouraging active users by rewards (Paroutis
and Al Saleh, 2009).

4. Trust: Trust is an important factor in the open and informal nature of web 2.0
platform. The quality and the reliability of the information shared by the employ-
ees influence the employee willingness to adopt the tools and share knowledge.
Moreover, assumptions like misuse of the information, taking credit of the contri-
bution and not receiving feedback reduces trust among employees (Paroutis and
Al Saleh, 2009).

The authors Tohidinia and Mosakhani (2010) conducted research to examine
"knowledge sharing behavior and its predicators" in different Iranian oil compa-
nies. The reasons for choosing this type of industry for research by the authors
is because both the knowledge management practices and well developed infor-
mation and technology (IT) infrastructure are important in oil companies. Finally,
the research findings of Tohidinia and Mosakhani (2010) confirmed that the indi-
vidual and organizational factors affect employees' knowledge sharing.

The study conducted by Ardichvili et al. (2003) on "motivation and barriers
to participation in virtual knowledge-sharing communities of practice". The au-
thors conducted a qualitative study at a multinational organization, Caterpillar
Inc. The objective of the authors was to identify the factors affecting employee
participation to the virtual online communities of practice. Virtual communities
of practice are supported by Internet technologies where face-to-face communi-
cation is limited. Hence members should feel comfortable with online participa-
tion. The authors found that respondents motivated to contribute because of their
perception that regards knowledge as a public good. Several managers partici-
pated because of their self- interest to become mentors to new employees. The
other factors mentioned by the authors are organizational culture that encourages
supportive relationships between employees and also personal benefits in con-

tributing to virtual communities.Trust related issues, employees' fear of posting non-relevant or non- important information and the fear of criticism (which are personal factors) hinders the employee participation in virtual communities. The authors concluded that in order to facilitate knowledge sharing, removing these barriers is essential (Ardichvili et al., 2003).

Finally from the three studies we can conclude that individual/personal, organizational and technical factors have an impact on knowledge sharing by employees on virtual communities/ web 2.0 tools/ICT. Therefore, we have also considered these factors for the adoption of the tools by the employees. When we mention the personal factors, understanding an employees' concerns, attitudes, fears, expectations regarding work and work motivation are important.

2.5 Theory of Motivation

Furthermore when it comes to human behavior in work environment, it is interesting to understand what motivates an individual's behavior and what guides him/her to such behavior.

2.5.1 Self-determination Theory (SDT)

According to Ryan and Deci (2000, reprinted in Porter et al., 2002, p.49-62), in general individuals perform certain activities because: they value those activities and have a sense of personal commitment or they perform those activities because of strong external demand. These two kinds of contrasting behaviors can be explained by intrinsic motivation and extrinsic motivation (Ryan and Deci, 2000 reprinted in Porter et al., 2002). Intrinsically motivated individuals have a natural tendency to learn and to explore.

Cognitive evaluation theory (CET)

According to the Cognitive evaluation theory (CET) (Ryan and Deci, 2000 reprinted in Porter et al., 2002, p.52), which is a sub theory of SDT, explains that the social and environmental conditions facilitates or reduces (diminishes) the intrinsic motivation of individuals. It also explains the importance of basic needs of competence and autonomy for intrinsic motivation. Furthermore, the theory ex-

plains that feedback, communication and rewards for an activity leads towards a feeling of competence for that particular activity, which will enhance intrinsic motivation. Moreover, until and unless an individual perceives that their behavior as self-determined (a sense of autonomy), the feeling of competence will not enhance intrinsic motivation. Feedback and recognition also increases intrinsic motivation (Ryan and Deci, 2000 reprinted in Porter et al., 2002, p.52).

The CET explains about intrinsic motivation where individuals perform an activity because of self-interest. Individuals are intrinsically motivated to perform that activity because they perceive it as attractive and challenging.

Organismic Integration Theory (OTI)

OTI is a second sub theory of SDT, which explains different forms of external motivation and environmental factors that facilitate or hinder the internalization and integration of individual behaviors.There are certain activities, which are performed by the individuals, not because of intrinsic motivation, but because of extrinsic motivation. Extrinsic motivation explains that individuals perform an activity in order to attain certain outcomes or fulfill external demands. The four extrinsically motivated behaviors are externally regulation, introjected regulation, identified regulation, and integrated regulation. According to Ryan and Deci (2000, reprinted in Porter et al., 2002, p.55), the four forms of extrinsic motivation explain that individuals perform an activity to satisfy an external demand/ reward (externally regulated), and /or they perform because of the ego involvement (introjected regulation), and /or they perform because conscious valuing of a behavioral regulation (identified regulation) and /or individuals take values and attitudes in such a way that external regulation of a behavior is converted in to an internal regulation (integrated regulation). Moreover, when individuals internalize and integrate the regulation they experience a sense of self-determined behavior. According to Gagne and Deci (2005, p.335), "under optimal conditions, people can, at any time, fully integrate a new regulation, or can integrate an existing regulation that had been only partially internalized."

Finally we can conclude that apart from employees' intrinsic motivation, it is the management's responsibility to encourage employees by enhancing their extrinsic motivation in adopting social software tools. However, deploying social software tools and reaping its benefits, is a challenging task for manage-

ment.It cannot be achieved until and unless a suitable environment is created for collaboration, and encouragement is provided to the employees to use these tools (McAfee, 2009, p.74).

According to Stenmark (2008), when web 2.0 tools are deployed in organizations, information is created and owned by the users (bottom up approach), which contradicts with the traditional view of the organization (top down approach). If organizations are ready to implement web 2.0 tools then they have to accept the idea that employees will also become owners of information (Stenmark, 2008).

When web 2.0 is introduced in organizations, according to Stenmark (2008), one can see four different possible future scenarios from management perspective as shown in Table 2.1. Newly introduced tools can be supported or obstructed by the management. While doing so, management can be active or passive.

	Passive Management	**Active Management**
Supportive management	*Scenario #1:* Management is unaware of or uninterested in the use of Web 2.0 applications and has no strategy for organizational use. Use is implicitly allowed but not actively encouraged.	*Scenario #2:* Management is positive towards the use of Web 2.0 applications and decides to actively promote it and to foster a corporate attitude of participation.
Obstructive management	*Scenario #3:* Management does not believe in Web 2.0 applications and do not want it to be used within the organisation but takes no measures to actively obstruct it.	*Scenario #4:* Management is negative towards Web 2.0 applications and actively devices policies and regulation to prevent such applications from being used.

Table 2.1: Four different scenarios of Web 2.0 technologies in corporate environments (Stenmark, 2008)

Finally, according to Kirchner et al. (2009), when social software tools/web 2.0 are deployed in the organizations as knowledge management initiatives, critical success factors for knowledge management 2.0 are important which are: individual, management, technical and organizational as shown in Figure A.1 (Appendix A.1, p.80).

Research Methodology

In this chapter, we will introduce research methodology and design adopted in this thesis. The primary challenge of the thesis is to collect suitable and necessary data from the vast population of knowledge workers working in various Indian based organizations to explore the answers for the research questions (Section 1.1, p.5).

In order to answer the research questions more accurately, it is quite important to choose a good research methodology and research design that suits the objectives of this thesis (Saunders et al., 2009, p.141). First we will introduce the research methodology adopted in the thesis and then we will explain how this methodology has been used to adopt suitable data collection and analytical methods to meet-up the objectives of the thesis.

3.1   Research Methodology and Approach

Many variants of research methodologies are available in literature and therefore we will categorize and explain our research methodology with reference to the *The research onion* (as shown in Appendix A.2, p.81) approach proposed by Saunders et al. (2009, p.108). The following are the main components of research methodology.

3.1.1   Research Philosophy

Research philosophy contains assumptions about how we view the world and the assumptions form the basis for research strategy and methods adopted as part of the strategy (Saunders et al., 2009, p.108). Primarily, there are three major distinct research philosophies in the scientific research: Positivism, Interpretivism and Realism (Blumberg et al., 2008, p.19). The positivism is derived from natural

science and it holds the view that the social world is an objective reality and it is independent of human behavior.

On contrary, Interpretivism (also known as post-positivism) assumes that the social world or reality is a complex phenomenon that is constructed continuously and is interpreted subjectively by the people, therefore many differing interpretations are possible. As suggested by Proctor (1998 cited in Crossan, 2003), the social reality construction is influenced by various factors such as culture, cultural beliefs and gender. Therefore, Interpretivism agues that it is important to use the process of subjective interpretation by recognizing the motivations and interests of the participants (Blumberg et al., 2008, p.21). On the other hand, Realism takes an intermediatory view between Positivism and Interpretivism and considers that social reality exists independent of human mind, but the knowledge about the reality is interpreted through social conditioning (Saunders et al., 2009, p.119).

The research philosophy adopted in this thesis relates more closely to the Interpretivism because of two reasons. First of all, the primary focus of the thesis is humans (knowledge workers) and they are subject to many influences on their perception and behavior. Secondly the adoption of social media in organizations is a complex phenomenon that is influenced by many factors such as personal, organizational and technical which cannot be generalized across organizations and therefore it needs subjective interpretation, by taking into considerations of interests and motivation of the knowledge workers.

3.1.2 Research Approach

Primarily, there are two main research approaches/reasoning techniques available in the scientific research: deduction and induction. Deduction approach originated from natural sciences, based on inference and proof techniques (Blumberg et al., 2008, p.25). It is a highly structured approach and is used to explain causal relationships between variables by using quantitative data collection techniques based on an existing theory (Saunders et al., 2009, p.127). On contrary, induction approach is used to get a better insight into the nature of the problem, normally to get a better understanding of a research context using qualitative data collection techniques. Induction approach is used when we are interested to understand why

something is happening, rather than just describing what is happening (Saunders et al., 2009, p.126-127).

In this thesis, we have used both induction and deduction approaches, as our primary focus is not only to find out about adoption of social media tools, but also to understand which factors are hindering or fecilitating the usage. We have used deduction approach by preparing an online questionnaire (quantitative) based on the existing theory (Cabrera and Cabrera, 2002; Kirchner et al., 2009; Paroutis and Al Saleh, 2009; Newell et al., 2009; McAfee, 2009), to find out the usage along with the causal relationships between usage and the factors influencing it. On the other hand, we have used induction approach to get a better understanding about the factors that are hindering or fecilitating usage of social media tools by conducting personal interviews (qualitative) with the respondents.

3.1.3 Research Strategy

According to Saunders et al. (2009, p.141), the main research strategies available in social sciences are: experiment, survey, case study, action research, grounded theory, ethnography and archival research. Due to space limitations, we don't discuss all the strategies here, but we will only describe the *survey* strategy, which is the strategy adopted in this thesis. The *survey* strategy is most popular among the management research and it is used to answer *what?* and *how?* type of questions in explanatory and descriptive research (Saunders et al., 2009, p.144). The survey strategy allows for quantitative data collection, which can be used to suggest possible relationships between variables. In addition to the quantitative, the survey strategy allows for structured/semi-structured interviews and structured observation data collection techniques. As part of the thesis, we have adopted survey strategy and used both quantitative (online questionnaire) and qualitative (semi-structured interviews) as data collection techniques.

3.1.4 Method Choices

The most important method choices for data collection in the research literature are: *mono method* and *multiple methods* (Saunders et al., 2009, p.151). The *mono*

method, as its name indicates uses a single data collection technique and its corresponding analysis procedures. On the other hand, the *multiple methods* uses multiple data collection techniques and analytical procedures to answer the research questions. In this thesis, we have adopted *multiple methods* technique as we have used both qualitative and quantitative data collection techniques. Under *multiple methods* technique, our approach can be further sub-categorized as *mixed-method research* (Saunders et al., 2009, p.152) as we have used both quantitative and qualitative data collection techniques in parallel with their respective analytical procedures.

3.1.5 Time Horizons

An important key aspect of research planning is time horizon. According to (Saunders et al., 2009, p.155), the two main time horizons are: *cross-sectional studies* and *longitudinal studies*. The *cross-sectional studies* represents a snapshot time horizon, aim at study of a particular phenomenon at a particular point of time. On contrary, the *longitudinal studies* aim at study of change and development of a phenomenon over a period of time. As our research is a time constrained master's thesis, we have adopted *cross-sectional studies* in this thesis.

3.1.6 Data Collection and analysis methods

In this thesis, we have employed both quantitative and qualitative data collection techniques. As explained further in the next section (Section 3.2, p. 29), we have prepared an online questionnaire (quantitative) and conducted semi-structured interviews (qualitative) with few knowledge workers. As part of the quantitative analysis, we have used the following statistical methods.

3.1.6.1 Arithmetic Mean

Mean is defined as the average of all data values in a calculation. Even though it's value is influenced by extreme data values, it is the most used measure of central tendency. Furthermore, it also serves as a building block for many statistical methods that are used to explore relationships.

3.1.6.2 Standard deviation and coefficient of variation

The *standard deviation* is a measure of dispersion that is used to describe the extent by which data values spread around the mean. Furthermore, *coefficient of variation* is used to compare the relative spread of data among different variables and is defined as,

$$\text{coefficient of variation} = \frac{\text{standard deviation}}{\text{mean}} \times 100$$

Even though both *standard deviation* and *coefficient of variation* can represent measure of dispersion of data over the mean, we have used *coefficient of variation* in our quantitative analysis, as it is easy to understand and convenient to compare relative dispersion among variables.

3.1.6.3 Correlation coefficient

The *correlation coefficient* is used to measure strength of linear relationship between a pair of numerical or ranked variables. It is represented by r and can take values from -1 (perfect negative correlation) to +1 (perfect positive correlation). A value other than zero ($|r| > 0$) indicates that the variables are related, on the other hand a zero value ($r = 0$) indicates that the variables are not at all related. In case of positive correlation, if the value of one variable increase then the value of other variable also increases. On contrary, in case of negative correlation, increase in value of one variable will cause decrease in the value of the other variable. The main drawback of correlation is that it can only indicate the strength of relationship, but does not say which variable causes a change in the other, i.e. it will not identify which is the independent and which is the dependent variable (Saunders et al., 2009, p.459).

3.1.6.4 Regression coefficient

The regression analysis is a more accurate measure to find relationship among the variables. The *regression coefficient* (**R**) (also known as Multiple **R**) is used to measure strength of relationship between one dependent variable and one or more independent variables. Furthermore, *coefficient of determination* (**R**^{2}) is

the square of *regression coefficient* and it is a very useful statistic measure as it indicates the proportion of variation in the dependent variable due to one or more independent variables. In other words, it indicates how much change or the variation that can occur in the dependent variable because of the change in the independent variables.

3.2 Research Design

In this section, we will discuss the research design that has been implemented in accordance with the research methodology discussed in the previous section. The research design provides pointers to the researcher regarding which methods should be applied to gather data, what kind of sampling techniques are required and which analysis techniques would be used to derive conclusions.

As mentioned previously, we have employed both quantitative and qualitative data collection methods to meet up the objectives of this thesis, as no single method individually could meet the requirements. Both the methods follow different approaches as the quantitative rely on numbers and figures to deduce conclusions while the qualitative method use information such as narratives, words and sentences to derive conclusions inductively (Blumberg et al., 2008, p.192).

3.2.1 Quantitative Data Collection

In survey strategy, questionnaires are the most commonly used quantitative data collection methods. Questionnaires provide researchers an effective way to collect responses from a large sample by asking the same set of questions. Self-administered questionnaires such as web based surveys can be forwarded to respondents electronically (for e.g. email) in a very less expensive way to conduct opinion polls about employee policies, trade shows etc (Blumberg et al., 2008, p.305; Saunders et al., 2009, p.365). Furthermore, web based surveys also provide convenience to the researcher to check the response rate and to remind or pursue the respondents to answer or to forward the survey to others.

3.2.1.1 Online Questionnaire

Because of the above mentioned advantages, we have prepared a web based online questionnaire using Google Forms functionality (Google, 2012) and forwarded it to the respondents. The online questionnaire (Appendix B.1, p.82) starts with a brief introduction to make the respondent a bit comfortable, by mentioning the purpose of the survey and the kind of questions that will be asked.

The questionnaire (Appendix B.1, p.82) primarily contains four main components. The first component (questions 1-6) contains questions related to socio-demographic background of the respondents such as experience, type of position. country of location and others. The second component (questions 7-9) deals with questions related to usage of social media in their personal life such as which tools and how often do they use the tools. The third components (questions 10-15) aims at extracting information about the usage of social media tools in their office environment and it mainly contains questions related to which tools, for what purpose and how often they use the tools.

The fourth and final component (questions 16-24) aims at extracting information regarding motivation for using the tools and about their office work culture. As part of the motivational questions, we have included questions (questions 18-19) asking specifically what are reasons for using and not using the social media in their office work. We have also included few questions to capture characteristics of their work culture and managerial support. Finally, few questions to collect respondents' opinion about promoting social media in their organizations is also included in the end. We have used the term *social media tools* instead of the term web 2.0 tools or social software in questionnaire, as we had noticed in the previous project that *social media* is more familiar to the knowledge workers.

As part of the questionnaire, we have used a mix of different type of questions such as ranking, multiple choice questions with suitable answers. For some of the questions, we have used matrix type, where responses to two or more questions (in the form of statements) can be collected using the same grid. Moreover, for rating type of questions we have used a Likert-type scale in which the respondent is asked how strongly he/she agrees or disagrees with the given statement (Saunders et al., 2009, p.378). On the whole, we have used only the closed-ended or forced-

choice questions, where the respondent is offered some predefined choices and forced to choose one of the answers, as these type of questions will reduce the overall time for the answering the questionnaire (Saunders et al., 2009, p.375).

In order to eliminate ambiguity in the questionnaire, a pilot test was conducted by sending the questionnaire to our known friends and collected their feedback to improve the questionnaire in an iterative process. Finally the questionnaire link was forwarded to the respondents from 18th April 2012 onwards. A total of 140 responses were collected from the knowledge workers working in indian based software companies during the period from 18th April 2012 to 26th May 2012.

3.2.2 Qualitative Data Collection

As part of qualitative data collection, we have conducted semi-structured interviews (Saunders et al., 2009, p.320) with a few respondents working in various software consultancy firms. The primary reason for choosing the semi structured interviews is to understand and to get better insight into the research context and to collect employees opinions regarding the usage of social media in their organizations. Furthermore, even though semi-structured interviews might start with specific questions initially, but later on they allow interviewees to express their own thoughts freely. In this way, the interviewer can get additional information from interviewees by using probing techniques (Blumberg et al., 2008, p.385). An interview guide was prepared as a list of questions (Appendix C.1, p.116) covering the important topics, and to use it as a guide to make sure that the same topics/questions are covered in each interview.

As most of the interviewees are located in India, the author has made a short trip to India during 22nd April 2012 to 7th May 2012 and conducted 13 semi-structured interviews. Out of the 13 interviews, 3 interviews were conducted face-to-face and rest 10 were conducted over telephone. Regarding the language used in the interviews, 3 interviews were conducted in English and the rest were conducted in author's native language *Telugu* as it is also the native language for interviewees, which will allow the interviewees to express their thoughts more effectively. Moreover, all interviewees (except one who is in USA) are located in different cities in India.

On average, the interviews lasted in between 15-60 min and we have covered all the questions from the interview guide. We wanted to record the interviews, but our primary contact suggested that recording is not a good idea as no interviewee will come forward and express his ideas freely and frankly. Therefore, we followed an alternative approach, i.e. two people taking the interview notes simultaneously. With the help of my primary contact, we both noted down the interview details simultaneously and reconciled the notes after every interview. In this way we have tried our level best to not miss any information from the interviews.

3.2.3 Sampling

This thesis is mainly focussed on studying the adoption of social software among the vast population of knowledge workers working in various indian based organizations. Moreover it would be impractical to collect data from the entire population. Therefore we need to choose a good sample that maintains accuracy, precision and represents the target population (Blumberg et al., 2008, p.232), in case of both quantitative and qualitative data collection.

According to Saunders et al. (2009, p.213), the existing sampling techniques are: probability or representative sampling and non-probability or judgmental sampling. In case of probability sampling, the probability of each case being selected out of the population is known, where as in non-probability sampling, the probability of each case is not known, may be due to lack of information about the characteristics of the target population. Out of many types of samples under non-probability sampling technique (Saunders et al., 2009, p.213, 236, 240), *snowball sampling* is used when it is difficult to identify the members of the desired population. In *snowball sampling*, the main difficulty is to make initial contacts, and when once the initial contacts are established, they will identify the further members of the population and therefore the sample snowballs.

In this thesis, as we don't have full information regarding the target population, we have used non-probability sampling technique for both quantitative and qualitative data collection. Furthermore under non-probability sampling technique, we have used *snowball sampling* method as it is difficult to identify and get access to the members of the population. We have found the initial members of the sam-

ple through our known/personal contacts and with their help, we have reached the further members of the population. Finally, using *snowball sampling* method, in quantitative, we have reached 140 members of the population and in qualitative data collection, we have conducted interviews with 13 members.

3.3 Credibility of Research Design

According to Saunders et al. (2009, p.156), credibility of a research design can be judged using: reliability, validity and generalisability.

3.3.1 Reliability

Reliability indicates that to what extent, the adopted data collection techniques or analysis procedures would yield consistent results. As part of quantitative data collection, we have used an online questionnaire using Google Forms. Therefore the data from the respondents is directly saved into an excel sheet, thereby eliminating the mistakes that can happen while feeding the data to a computer for analysis. Furthermore, in order to check internal reliability of data pertaining to causal relationships, we have used Cronbach's coefficient alpha as explained in the analysis (Section 4.6, p.48) and the results found to be quite satisfactory.

Furthermore, according to Saunders et al. (2009, p.326), reliability of interviews might suffer from *interviewer bias* and *interviewee bias*. However, we have tried our level best to overcome *interviewer bias* by suitable prior preparation and also by conducting trial interviews for a couple of times.

3.3.2 Validity

The measure validity is concerned with whether the research findings meet up all the requirements of research design. If we imply the validity criteria to questionnaires, the validity refers to the ability of the questionnaire to measure what it is meant for (Saunders et al., 2009, p.372). As previously mentioned in research approach (Section 3.1.2, p.25), we have prepared the questionnaire based on the existing theoretical results and empirical studies, therefore, every care has been

taken to make the questionnaire represent the reality of what we want to measure. Furthermore, we have used forced-choice questions and rating questions with Likert-scale to make the questionnaire more clear and unambiguous for the respondents, which will also contribute to the validity of questionnaire. However, we have taken care to reduce the ambiguity in the online questionnaire (Appendix B.1, p.82), by providing detailed explanation and examples (e.g. content communities: Flicker and Youtube) of social media tools in the section headings of the questions.

As part of the qualitative data collection, even though the interviews were not recorded, the notes were taken by two people simultaneously and reconciled immediately after every interview. Furthermore, we have taken care to cover all the questions in the interview guide in all the interviews. We think that these measures will contribute to the validity of the semi-structured interviews.

3.3.3 Generalisability

Generalisability is also known as external validity and it refers to how far the research findings can be generalisable or applicable to other research settings beyond the scope of the thesis (Saunders et al., 2009, p.158). As previously mentioned in sampling (Section 3.2.3, p.32), we have used *snowball sampling* method in the thesis for both quantitative and qualitative data collections methods, as it is difficult to identify the members of target population (knowledge workers). In case of *snowball sampling*, the likelihood of sample being representative of population is low, therefore the research findings may not be fully generalisable to the entire population (Saunders et al., 2009, p.237). However, the research findings are indicative of the characteristics of the target population, as our samples consist of knowledge workers from many different organizations primarily located in India. Especially, if we consider from the generalisability point of view, the research findings from quantitative data collection (online questionnaire) are more indicative of the target population than the findings of the qualitative data collection (interviews), owing to the sample size and representation from many different organizations.

Quantitative Data Analysis

In this chapter, we will present analysis of the data collected through quantitative data collection methods. As part of data collection, we have prepared an online questionnaire (Appendix B.1, p.82) using Google Forms (Google, 2012) and forwarded the link to the questionnaire to various knowledge workers working in different software consultancy firms, through known contacts. Moreover, we have used the term *Social media tools* quite often in the questionnaire, as it is more familiar to our respondents.

4.1 Overview of Respondents

The actual number of users who responded to the online questionnaire is 140, but we have filtered out 3 responses because those are not from the software industry, thereby leaving the total number of responses to 137. Moreover as it is snowball sampling, we did not have full control over the selection of the sample. The profile of the 137 respondents is shown in the Table 4.1 in relation to their gender, age, total years of experience, type of position and location of their workplace.

As indicated in the table, the majority of respondents (about 74%) are located in India, where as few respondents are from the USA and Denmark. However, about 8% of the respondents didn't mention the location of their workplace, but all most all of the respondents are Indians working in different software organizations.

The aim of the online survey is to reach more and more Indian employees, who are knowledge workers, working in software organizations and find the results in relation to their adoption of the social media. The survey included the employees from all age groups and the type of positions. However most of the respondents are in the age group of 25-34.

Characteristics	Frequency	Percentage	Adapted values
Gender			
Male	123	89.8%	
Female	14	10.2%	
Age			
less than 25 years	26	19%	
25 - 34 years	87	63.5%	
35 - 44 years	23	16.8%	
45 - 54 years	1	0.7%	
Total years of your experience			
less than 1 year	5	3.6%	
1 - 4 years	54	39.4%	
5 - 10 years	56	40.9%	
10 - 20 years	20	14.6%	
more than 20 years	2	1.5%	
Type of position			
Programmer / Developer	83	60.6%	101 (73.7%)
Manager	23	16.8%	36 (26.3%)
Senior Manager	56	40.9%	
Other	20	14.6%	
Location (Country)			
India	101	73.7%	
Denmark	8	5.8%	
U.S.A	17	12.4%	
Other	11	8.1%	

Table 4.1: Profile of 137 respondents

In the survey, the responses for the question, type of position (occupation) are divided in to 4 categories as shown in the table. About 60% of respondents are in the programmers / developers / tester category where as approximately 17% of the respondents are managers. However, there are about 20% of the respondents who come under another category and about 2% of respondents are senior managers. It should be noticed that in order to make the statistical calculations and analysis more convenient, we have not only added the senior managers into the managers category, but also the respondents from the other category are divided into managers and programmers based on their designation and number of years of experience. These adapted values are presented in the table 4.1. For example, a respondent who mentioned his designation as a project leader, is added to the manager category and the respondents who's experience is in between 1-4 years,

having the designation of a web designer, is added into the programmers category. After adapting the values, the ratio between managers and programmers is roughly maintained at 1:3.

4.2 Usage of Social media tools
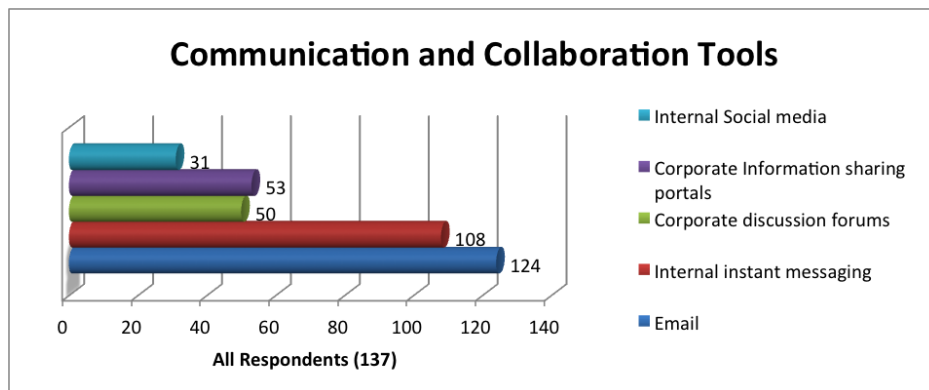
Figure 4.1: Usage of communication and collaboration tools

In question no.15 of online questionnaire (Appendix B.1, p.82), we asked the respondents which communication and collaboration tools do they use for knowledge sharing in their office work. It is a multi-select list question with a possibility to select more than one answer out of available answers as shown in Figure 4.1. One could notice from Figure 4.1, that still the e-mail and instant messaging are the most dominating tools in their work environment, as indicated by approximately 90% and 80% of the respondents respectively. On the other hand, internal social media is the least used one for communication and collaboration in their daily work activities.

As shown in Figure 4.2, we have categorized the total respondents into active and passive users based on the responses provided by them for question no.11 of online questionnaire (Appendix B.1, p.82) about the usage of social software in their office work. The respondents who mentioned their responses as *never (1), perhaps some times (2)* and *monthly (3)* have been classified as passive users and the respondents who mentioned that they use social software *weekly (4)* and *almost daily (5)* have been classified as active users.
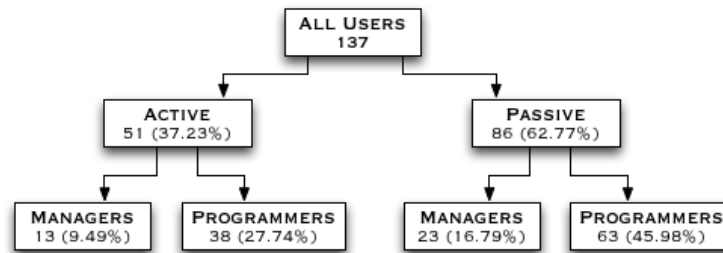
Figure 4.2: Active-Passive users categorization

Out of total 137 respondents, about 37% of the respondents are active users and the rest of the respondents are categorized as passive users. Furthermore, both the active and passive users are further categorized based on their occupation and have been divided in Managers and Programmers as shown in the Figure 4.2.

However, active users' opinion has been considered here in order to see which social media tools are mostly used, as those are the respondents using the tools on a regular basis.
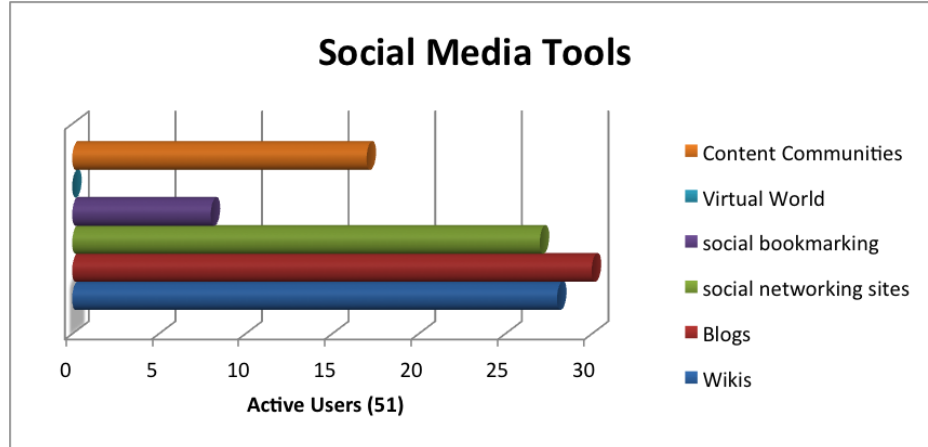
Figure 4.3: Usage of Social Media Tools by Active Users

As shown in the Figure 4.3, most of the active users are using the blogs, which is followed by wikis and social networking sites. Users are using content communities less when compared to blogs, wikis and social networking sites. The usage of virtual world is very less or almost non-existent when compared to other social media tools.
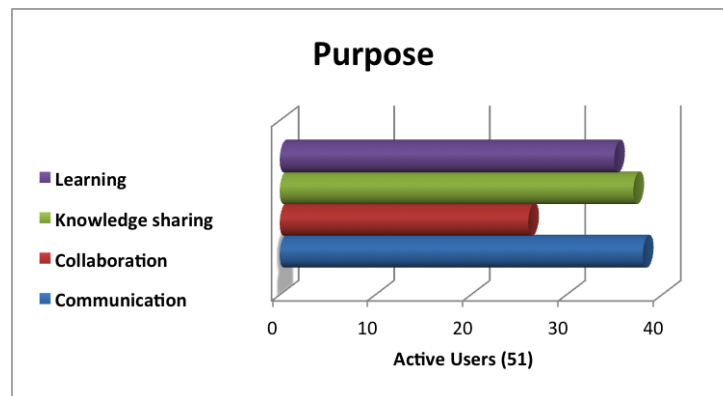
Figure 4.4: Purpose of social media tools - Active users

Furthermore, based on question no. 13 of online questionnaire (Appendix B.1, p.82), regarding purpose of using social software by the respondents, again active users' responses have been considered by filtering the reponses of passive users from total responses. The results are shown in Figure 4.4 where the active users expressed that they are using the tools mostly for communication and that is followed by knowledge sharing and learning, respectively. However, from the graph it is clear that the usage of tools for collaboration is very low.

4.3 Factors affecting usage of social media

One of the main focuses of the quantitative study is to figure out possible variables that would influence the usage of social media, by using statistical methods on the quantitative data. Therefore *use of internal social media in their office work* (question no.11) of the online questionnaire (Appendix B.1, p.82) has been considered as a dependent variable in our calculations. Furthermore, we have shortlisted 16 independent variables as explained in Section 4.3.2 (p.40) and we have calculated relationships between dependent and independent variables using correlation and other statistical methods. A five point Likert-style rating scale (Saunders et al., 2009, p. 409) was used to collect the responses of both dependent and independent variables and the rating scale details are appended to the respective tables.

4.3.1   Dependent variable

Table 4.2: Usage of social media in Office work (Dependent variable)

Dependent Variable	Mean (M)	CV %	Remarks
Usage of social media in office work	3.02	47.05	

Scale: Never (1), perhaps some times (2), monthly (3), weekly (4) and almost daily (5)
CV = coefficient of variation = (standard deviation / mean) $\times$ 100

As shown in the Table 4.2, the arithmetic mean value of all the respondents for the dependent variable *usage of social media in office work* is 3.02, which indicates a low value because on average, a respondent uses the social media only once in a month. Furthermore the coefficient of variation (CV) is approximately 50%, which indicates that relatively more dispersed data values over the mean or in simple terms it indicates more variation in the responses of the respondents regarding usage of social media in their office work.

4.3.2   Independent variables

According to authors Cabrera and Cabrera (2002, 2005); Paroutis and Al Saleh (2009), the employees perform a cost-benefit evaluation in sharing their knowledge and therefore we have categorized some of the probable independent variables as costs and benefits. The reasons for not using social media tools are taken as costs, whereas reasons for using social media tools are taken as benefits and accordingly the independent variables are divided into costs and benefits for the data analysis. Moreover the role of managerial support is also considered as an important independent variable as the role of the manager is vital in the usage of social media tools in organizations (Paroutis and Al Saleh, 2009). As mentioned by Kirchner et al. (2009) that "If employees have good experiences with web 2.0 in their spare time, they will be likely to adopt them in the office as well". Therefore, we have also considered that the usage of social media in personal life will influence the usage of social media in office work.

Altogether, we have shortlisted 16 statements of 4 questions (question no.7, 18, 19, 20) of the online questionnaire ((Appendix B.1, p.82)) as independent variables, which could influence the dependent variable, the usage of social media

in their office work. Moreover the independent variables are categorized into benefits, costs, managerial support and usage in personal life as shown in Table B.1 (p.111) in the appendix.

The statistical values of 16 independent variables (Table B.1, p.111) are tabulated in the following sections as *benefits* (Table 4.3, p.41), *costs* (Table 4.4, p.42), *managerial support* (Table 4.5, p.43) and *usage in personal life* (Table 4.6, p.44). Each table of independent variables is divided into five columns with name of variable in first column and the arithmetic mean of the responses in second column. The third column represents coefficient of variation to represent the relative dispersion of data over the mean. The fourth column contains the correlation coefficient between the independent and dependent variables, which represents the strength of linear relationship between them. Based on the values of correlation coefficient, we marked whether the independent and dependent variable are related or not, in the fifth column.

According to Saunders et al. (2009, p.459) on correlation coefficient, a value of $\pm$ 0.70 or above indicates a strong relationship, where as a value of $\pm$ 0.30 or less indicates a weak relationship between the variables. However in the analysis, most of the calculated correlation values are low, therefore, we have considered that the relationship between the variables is significant only if the correlation coefficient is at least $\pm$ 0.20 and thereby marked them as *Related*, otherwise we have marked the relationship as *Not related*.

4.3.2.1 Benefits

Table 4.3: Benefits (Independent variables)

Independent Variables	Mean (μ)	CV %	ρ	Remarks
1. To increase my personal knowledge	4.06	18.84	0.25	Related
2. I like sharing my knowledge	3.99	21.94	0.23	Related
3. It helps in my promotion and further career growth	3.64	27.28	0.28	Related
4. It enhances my contacts and networks	4.16	18.26	0.31	Related

Scale: Strongly disagree (1), Disagree (2), Cannot say (3), Agree (4) and Strongly agree (5)
CV = coefficient of variation; ρ = coefficient of correlation

The data for the independent variables under the benefits category are col-

lected as part of the question no 18 of the online questionnaire (Appendix B.1, p.82) and statistical values have been calculated and tabulated as shown in the Table 4.3. In the case of the first independent variable *to increase my personal knowledge*, the respondent's average opinion is 4.06, which means that the respondents agreed that this variable is a motivating factor for using social media. The next two variables: *I like sharing my knowledge* and *it helps in my promotion and carrier growth*, are also in between 3-4 (leaning towards 4), hence we can also conclude that the respondents also agree to these statements. In the case of final independent variable the average opinion of respondents is 4.16 and employees' are viewing it as a benefit regarding using social media. The coefficient of variation for all the independent variables under benefits category is in between 18%-27%, which indicates that the dispersion of the data over the mean is far less, in other words the responses are more consistent.

Furthermore, we have also calculated the correlation coefficients in between the independent and dependent variables of benefits, which vary from 0.23 to 0.31 and they indicate a noticeable relationship (even though it is a weak relationship) between the independent variables and dependent variable.

4.3.2.2 Costs

Table 4.4: Costs (Independent variables)

Independent Variables	Mean (μ)	CV %	ρ	Remarks
1. Lack of time	3.24	35.01	0.00	Not related
2. Lack of motivation	2.70	38.46	0.13	Not related
3. Lack of perceived usefulness	2.65	37.90	0.19	Not related
4. Lack of trust regarding information	2.83	36.48	0.07	Not related
5. Knowledge is power and I don't want to share it	1.80	46.03	0.12	Not related
6. Lack of expertise and training	2.29	40.00	0.05	Not related

Scale: Strongly disagree (1), Disagree (2), Cannot say (3), Agree (4) and Strongly agree (5)
CV = coefficient of variation; ρ = coefficient of correlation

The data for the independent variables under cost category are collected as part of the question no 19 of the online questionnaire (Appendix B.1, p.82) and statistical values have been calculated and tabulated as shown in Table 4.4 . The variable *lack of time* has an average value of 3.24 which is in between 3 (cannot

say)-4 (agree), indicates that most of the respondents are not sure about the *lack of time* is an influential factor for not using social media. Similarly, regarding the next three variables: *lack of motivation*, *lack of perceived usefulness* and *lack of trust*, the results varies in between 2-3, but nearer to 3 (cannot say).

Therefore we can conclude that the average opinion of the respondents' is that they are not sure about these factors in relation to not using the social media. However, in the case of independent variable: *knowledge is power, I don't want to share it*, the average opinion of the respondents is between 1 (strongly disagree)-2(disagree). Hence this clearly shows that the respondents are NOT considering this variable as a factor for not using the social media. Similarly, the respondents also disagreed (2.29) in the case of *lack of expertise and training*. The coefficient of variation for all the independent variables under costs category is in between 35%-46%, which indicates that the dispersion of responses over the mean is considerable, i.e less consistent. Furthermore, the correlation coefficients in the fourth column vary from 0.00 to 0.19 (less than ± 0.20), which indicates that relationship between the independent and dependent variable is not significant, therefore all the variables are marked as *Not related* in last column.

4.3.2.3 Managerial Support

Table 4.5: Managerial Support (Independent variables)

Independent Variables	Mean (μ)	CV %	ρ	Remarks
1. My closest manager contributes	3.21	31.23	0.25	Related
2. My manager always encourages and gives feedback	3.20	31.24	0.17	Not related
3. My manager recognizes and value my contributions	3.28	31.34	0.12	Not related
4. My manager allows some of my time to contribute	3.25	30.74	0.18	Not related
5. It is strongly supported by the management	3.23	31.67	0.36	Related

Scale: Strongly disagree (1), Disagree (2), Cannot say (3), Agree (4) and Strongly agree (5)
CV = coefficient of variation; ρ = coefficient of correlation

The data for the independent variables under managerial support category are collected as part of the question no 20 on the online questionnaire (Appendix B.1, p.82) and statistical values have been calculated and tabulated as shown in Table 4.5. The average opinion of respondents is in between 3.0 - 3.28 which indicates a value *can not say*. Hence the respondents expressed that they are not

sure about the influence of managers' support over the usage of social media. The coefficient of variation is between 30%-32%, which indicates that the dispersion of the data over the mean value is low, that means responses are more or less consistent.

Furthermore, the correlation coefficients vary between 0.17 -0.36. However, in the case of the independent variables: *my closest manager contributes* and *it is strongly supported by the management*, the correlation coefficients are 0.25 and 0.36 (more than $\pm$ 0.20) respectively, which shows a significant relationship (even though a weak relationship) between dependent and independent variables and thereby they are marked as *Related*. The correlation coefficients for rest of the variables is not significant (less than $\pm$ 0.20), there we have marked them as *Not related*.

4.3.2.4   Usage of social media in personal life

Table 4.6: Usage of social media in personal life - All Respondents

Independent Variables	Mean (μ)	CV %	ρ	Remarks
1.Usage of social media in personal life	4.01	27.15	0.30	Related.

 Scale: Never (1), perhaps some times (2), monthly (3), weekly (4) and almost daily (5)
CV = coefficient of variation; ρ = coefficient of correlation;

Based on the responses for question no.7 of online questionnaire (Appendix B.1, p.82), the average opinion of respondents is 4.01, which indicates that respondents, on an average, use the social media tools in their personal life at least once a week. Furthermore, we notice a relatively considerable relationship between the usage of social media in personal life (independent variable) and office work (dependent variable). The observed value of correlation coefficient is 0.30, as shown in the Table 4.6.

4.4   Regression Analysis and Relationships

As discussed in previous section, we have used correlation to find out the strength of individual relationships between dependent and independent variables. The

list of dependent and 16 independent variables are provided in Table B.1 (p.111). The correlation can only indicate the strength of relationship between a pair of variables (e.g one dependent and one independent), but it will not differentiate between the independent and the dependent variables. Furthermore, correlation can not be used to calculate the combined effect of multiple independent variables on the dependent variable.

In order to assess the strength of combined effect (relationship) of two or more independent variables on the dependent variable, *multiple regression analysis* would be a more suitable statistical measure (Saunders et al., 2009, p.451). Moreover, regression analysis also provides *t-statistic* and *p-value* for a relationship between a pair of independent and dependent variables, which indicates whether the relationship between the variables happened by mere chance (without any real relationship). In general, a *p-value* more than 0.10 (or 10%) for two-tailed test indicates that the relationship is neither significant nor valid. On the other hand lower values of *p-value* (*p-value* ≤ 0.10) indicate that the relationship is significant and quite valid.

In order to figure out which independent variables have influence on the dependent variable and also to find out the combined effect of all independent variables on the dependent variable, we have carried out a regression analysis on the variables in two steps, using Microsoft Excel (Cameron, 2009). First, we have included all the 16 independent variables in the regression analysis, and based on the regression results, we have eliminated independent variables that happen by mere chance (without any real relationship), based on the *p-value* (*p-value* ≥ 0.10). Then we proceed to the second round of the regression analysis by including only those independent variables that have real relationship with the dependent variable. In this way, we can get more accurate results about the strength of relationship between dependent and independent variables.

The regression results summary for the 16 independent variables is included in the appendix B.4 (p.112), where one can observe that in the Regression Statistics table multiple regression coefficient (Multiple R) for 16 independent variables is 0.56, where as coefficient of determination (R Square) is 0.313, which indicates that *31.30 % of variance or change in the usage of social media in office work can be explained by the 16 independent variables*. In the ANOVA table (appendix B.4

(p.112), the significance F (similar to *p-value*) of the overall regression result is 0.005% (5.44E-05), which indicates that the probability of the regression output could have been obtained by mere chance. In other words it indicates that the regression output is quite valid because of the very low *F-value* (*F-value* = 5.44E-05 ≤ 0.01).

Similarly, in the regression coefficients table for 16 independent variables (appendix B.4, p.112) the p-value indicates the probability by which the coefficients for an independent variable occur by mere chance (without any real relationship) and therefore only lower *p-values* (*p-value* ≤ 0.10) indicate that the relationship is significant and valid. In case of independent variables: *Lack of perceived usefulness*, *It enhances my contacts and networks*, *It is strongly supported by the management* and *Usage of social media in the personal life*, the *p-value* is low (*p-value* ≤ 0.1), therefore they exhibit a significant relationship on the dependent variable. On the contrary, all other variables have higher *p-value* (*p-value* > 0.1), therefore their relationship with the dependent variable occurred by mere chance (without any real relationship).

Multiple R = 0.532		
R Square = 0.283		
significance of F < 0.01 (5.71E-09)		
Independent Variables	**Regression coefficient**	**Remarks**
1. Lack of perceived usefulness	0.274	Significant at p < 0.01 level
2. It enhances my contacts and networks	0.359	Significant at p < 0.01 level
3. It is strongly supported by the management	0.412	Significant at p < 0.05 level
4. Usage of social media in the personal life	0.353	Significant at p < 0.01 level

Table 4.7: Regression Analysis Results

Based on the *p-values* in the regression coefficients table(appendix B.4, p.112), we have shortlisted the following independent variables as the four main influential factors that affect the usage of social media in office work and carried them to second round of regression analysis.

1. Lack of perceived usefulness

2. It enhances my contacts and networks

3. It is strongly supported by the management

4. Usage social media in the personal life

The summary of second round regression containing the 4 independent variables is included in the Appendix B.4 (p.112), however a brief summary of results is given in Table 4.7. One can observe that the coefficient of determination (R square) is 0.283, which indicates that 28.30% of variance in usage of social media in office work can be explained by the four independent variables listed in the Table 4.7.

It is interesting to note that the effect of all 16 independent variables together account for 31.30% of the variance in the dependent variable. Out of the total variance of 31.30%, the 4 main independent variables listed in the Table 4.7 (p.46) account for the 28.30% of variance, where as the other 12 independent variables only contribute to 3% of variance in the usage of social media. This shows that the four independent variable have a strong relationship on the dependent variable.

4.5 Opinion on promotion of Social media

Table 4.8: Factors Influencing Promotion of Social Media

Promotion of social media	Mean (μ)	CV %
1. Having a good strategy along with top management support	3.70	28.16
2. Incentives for knowledge sharing and knowledge creation	3.54	27.85
3. Assigned responsible person is important (Chief knowledge officer)	3.64	27.45
4. Creating an enabling context for knowledge sharing	3.72	25.20

Scale: Strongly disagree (1), Disagree (2), Cannot say (3), Agree (4) and Strongly agree (5)
CV = coefficient of variation = (standard deviation / mean) $\times$ 100

In the online questionnaire (Appendix B.1, p.82), question no.23 seeks the employees' opinion on the promotion of social media in their organization. On the whole, the respondents expressed a positive opinion regarding the enabling context that facilitates adoption of the social media tools by them. We have obtained the employee's opinion in respect to four different statements that facilitates adoption of the social media tools as shown in Table 4.8. The average opinion of the employees varies between 3 and 4, leaning more towards 4, which shows that respondents agree that these four variables play an important role in the adoption of social media tools. Also, the coefficient of variation is in between 25%-28%,

which indicates that the dispersion of the data over the average values is very low.

Therefore, the employees agree that having a good strategy with top management support will play a vital role in the promotion of social media tools. Furthermore, they have also expressed that incentives for contributing to social media tools would motivate employees to adopt the tools. They have also opinioned that having an assigned responsible person to look after the quality of information is important. Moreover, creating a suitable context for knowledge sharing is also important in the promotion of social media tools in the organizations.

4.6   Reliability of Data

The Cronbach's coefficient alpha is the most widely used measure to find out the internal reliability of sample data. As part of the analysis, we have calculated the Cronbach's coefficient alpha for all 16 independent variables and the one dependent variable using a template in Microsoft Excel (Appendix B.5, p.115). The calculated Cronbach's coefficient alpha value is 0.80. Usually a Cronbach's coefficient alpha value of 0.7 or more (Peterson, 1994; Schmitt, 1996) is adequate and desirable for preliminary research, therefore a Cronbach's coefficient alpha of 0.80 for dependent and independent variables shows that the sample data for the variables is highly reliable.

4.7   Summary of Results

In the online survey, we have collected data regarding the usage of social media tools from 137 respondents, primarily employees working in different software consultancy firms mostly located in India. We have categorized all the employees into two basic categories: Managers and Programmer/developers, whose representation is approximately in the ratio of 1: 3. Furthermore, we have also categorized the respondents into active and passive users based on their usage of social media in the office work and their representation is roughly about 1:2 respectively.

In order to find out which factors influence the usage of social media in the organization, we have considered 16 independent variables, which have been cat-

egorized as costs, benefits, usage of social media in personal life and managerial aspects. Correlations have been calculated to find out the causal relationship between the independent variables and the dependent variable. Later, we have carried out multiple regression analyses to find out the combined influence of the independent variables on the usage of social media in their work environment. The following are the most notable observations of the quantitative analysis.

1 On the whole, the usage of social media in personal life (Table 4.6, p.44) is much more than the usage of social media in their office work (Table 4.2, p.40). The average values for respondent's usage of social media in personal life and office work are 4.01 (i.e weekly once) and 3.02 (i.e monthly once) respectively.

2 Most importantly, the most widely used tools by respondents in their organizations are still e-mail and instant messaging, as indicated by the 90% and 80% of the respondents respectively.

3 Regarding social media tools, the respondents are mostly using blogs, wikis and social networking sites when compared to the content communities or social book marking. The usage of virtual world is non-existent.

4 According to quantitative data analysis, by combining the responses of question no.11 (*usage of social media in office work*) and no.15 (*social media as communication and collaboration tool for knowledge sharing*) of online questionnaire (Appendix B.1, p.82), we found that there are only 15 active users (11% of the total respondents) who are using internal social media for knowledge sharing as shown in Table B.2 (p.115) in Appendix B.6 (p.115). Therefore it shows that the usage of social media for knowledge sharing is very low.

5 In the benefits category, we found weak correlations between independent variables and dependent variable. It should be noticed that, in the costs category, we have not found any noticeable ($\rho \leq \pm 0.2$) correlations between independent variables and dependent variable but under managers support category, we found weak correlations between two of the five independent variables and dependent variable.

6 In the regression analysis, we found out that out of 16 independent variables, only four variables are affecting the usage of social media in office work, which are: Lack of perceived usefulness, It enhances my contacts and networks, It is strongly supported by the management and Usage social media in the personal life. These 4 variable altogether could explain 28.30% of variance in usage of social media in office work.

7 On average the respondents agreed that having a good strategy along with top management support, incentives, chief knowledge officer, enabling context for knowledge sharing play an important role in the promotion of social media within their organizations.

Qualitative Data Analysis

In this chapter, we will present the analysis of the qualitative data collected during semi-structured interviews. In the first part (Sec. 5.1, p.51), we will present essence of the 13 interviews in a tabulated form and in the second part (Sec. 5.2, p.55), we will present some of the notable findings of the analysis.

5.1   Overview of the Interviews

As part of qualitative interviews, we have conducted interviews with 13 knowledge workers working in different software consultancy firms located in India. While the detailed transcripts of the interviews have been given in the Appendix C.2 (p.118), the essence of the 13 interviews has been tabulated in Table 5.1 (p.52). To get a overview of all the interviewees, we have divided them into two different categorizations based on the opinions expressed by them. The first categorization is based on the interviewees' participation in social media in their office work. We have categorized interviewees as: *Visitor*, *Contributor* and *Neither visitor nor contributor*. The second categorization is based on the overall interviewee's attitude towards perceived usefulness/benefits of social media in their office work. The values of this category are: *positive*, *neutral* and *negative*.

The first column of table 5.1 (p.52) shows information about the type of position and company name where as the second column gives the categorized information about their participation in social media. The third column presents the categorized information based on their attitude towards perceived usefulness/benefits of social media. The fourth and fifth columns of the table presents opportunities and challenges of social media expressed by the interviewees. The sixth and seventh columns present organization's support for social media and a few notable remarks respectively.

Table 5.1: Brief summary of 13 knowledge workers' interviews

Role / company	Visitor / Contributor	Perceived usefulness	Opportunities	Challenges	Organizational support for social media	Remarks
1. Project manager ARC, Ex Dell employee (C.2.0.1, p.119)	Contributor	Positive	Platforms to share knowledge, Information passes very quickly	Waiting for replies, Lack of Time, Difficult to contribute in smaller teams	Incentives for the use of SMT	He is a blogger and shares his ideas. Doesn't like Facebook or Twitter.
2. People manager, IBM (C.2.0.2, p.120)	Visitor	Positive	Easy to use, Fast and straight penetration of information	Push factor; Reliability of the information, responsible person for quality of the information	Incentives at Manager's level only	Uses wikis for corporate/ technical information, Employees don't express their opinions publicly
3. Technical manager, ARC, Ex IBM (C.2.0.3, p.121)	Neither visitor nor contributor	Negative	The tools are good when employees are located in different locations	To have a proper strategy	There is no recognition from managers. No incentives. Lack of proper implementation of the strategy	Why do employees use the tools, when they don't feel the necessity or need of the tools? We can communicate through e-mails, face-to-face meetings or instant messaging.
4. Developer, IBM (C.2.0.4, p.122)	Visitor, seldom Contributor	Positive	Effective way to communicate with co-workers, Helps employees to learn new trends, Enhances people's connections	Quality of the information, Accuracy of the answer, waiting for the response, Lack of interest towards using the SMT	No recognition, no incentives, Managers show little interest for tools	These are open platforms therefore visibility is more, which could be the reason employees don't use them. Managers' focus is always assigning and completion of the task (conservative mind set of managers).

SMT = social media tools

Table 5.1 – *Continued from previous page*

1	2	3	4	5	6	7
5. Manager, Cap Gemini (C.2.0.5, p.123)	Visitor	Positive	Knowledge touch points will increase, Relationships grow	Until unless the employees won't realise the benefits of the tools, they won't adopt them.	No incentives, Creating awareness among managers has just started.	No social media tools will ever replace email, but only compliments by offering advantages Recognition is important to motivate employees. Success stories have to be circulated within the organization.
6. Manager Cap Gemini (C.2.0.6, p.125)	Neither visitor nor contributor	Positive	Enhances individual knowledge, Helps employees to grow in their carrier	Managers need to promote continuously	Management has recently started encouraging the use of the SMT	The usage of social media tools depends on the designation and experience. Fresher doesn't need them
7. Founder Prodigy Systems (C.2.0.7, p.126)	Introduced SMT in their organization	Positive	Everyone is on one platform	Quality of information	Very good support from Management. Linked contributions to performance measures	Productivity of employees will not diminish by introducing the SMT tools. It is a small organization tried to introduce SMT, but failed. Still he feels that SMT are quite useful.
8. Developer, Cognizant (C.2.0.8, p.128)	Visitor	Positive	SMT are facilitating information sharing and talent search	These are open platforms (visibility is high), employees hesitate to post and confused as to what information is considered relevant to post.	Management has jus started encouraging employees.	Managers are not using the tools. Employees use these platforms for corporate information and to discuss incentive planning etc.

Continued on next page

SMT = social media tools

Table 5.1 – *Continued from previous page*

1	2	3	4	5	6	7
9. Developer, Cognizant (C.2.0.9, p.129)	Visitor	Positive	Useful to find about corporate information	Due to security issues, employees hesitate to post information. Lack of time	Top management communicates through blogs.	I will prefer to contribute to knowledge databases
10. Developer, Wipro (C.2.0.10, p.130)	Neither Visitor nor Contributor	Negative		Employee productivity might diminish because of SMT. Lack of user-friendliness, Lack of time	No support from management, No recognition and incentives,	Managers control the visibility of the content (conservative mind-set of managers), Employees might misuse incentives
11. Developer, TCS (C.2.0.11, p.132)	Neither visitor nor contributor	Negative		Lack of time, No usage in daily work	No support from top management, no incentives	They introduced the tools just for namesake. Why should I waste my time when there are no benefits?
12. Senior architect, Ericsson global India services (C.2.0.12, p.132)	Neither visitor nor contributor	Neutral		Day to day work pressures, Lack of time	No incentive system, No top management support	If I contribute to SMT, receiving responses is important for my motivation
13. Developer, Ericsson global India services (C.2.0.13, p.133)	Neither visitor nor contributor	Neutral	Quick to communicate, to discussions, publish ideas		No top management support, No monetary benefit	

In the first categorization, out of 13 interviewees, we found that only two interviewees are contributors to social media (even out of two, one interviewee is a seldom contributor, but most of the time a visitor) and moreover five interviewees are only visitors (or lurkers according to Muller (2012)) and the remaining six interviewees are neither contributor nor visitor to the social media in their work environment. Furthermore, categorization belongs to the attitude towards perceived usefulness / benefits, we found that eight interviewees are positive, three interviewees are negative and two interviewees are neutral as shown in Table 5.1 (p.52).

5.2 Findings of the Interviews

Based on the opinions expressed by the interviewees, we have extracted the following findings.

5.2.1 Perceived usefulness of the social media

In the first finding, the general opinion of interviewees regarding the social media tools deployed in their organization is analysed. The interviewees are divided into three categories (*positive, negative* and *neutral*) based on the interviewee's attitude towards perceived usefulness/benefits of social media (column 3 of Table 5.1, p.52). However, we have not considered the opinions of the interviewees who came under neutral category. The opinions expressed by the interviewees who came under positive and negative categories are given below respectively.

5.2.1.1 Positive Opinion of the Interviewees

In general all the interviewees in this category perceived that the social media tools are useful for communication, sharing/gathering of information and/or to gain knowledge. Furthermore, the interviewees felt that these tools are not for collaborative work. Out of all the interviewees, only one interviewee is an active contributor to the social media tools.

+P1 "I like blogs and I use blogs to share my knowledge related to technical issues and sometimes general topics."

+P2   "I visit our internal wikis to know about the corporate and technical information. They are very easy to use, but I never shared anything."

+P3   "In my organization most of the top managers are communicating through blogs. Blogs are widely used by the management people. I can watch the video of my C.E.O. Easy to find other employees and their profiles. I never shared anything. I visit the blogs or wikis to know about the strategic plan of organization or organizational updates or information related to promotions or to read funny topics."

+P4   "Relationships will increase, personal knowledge will increase, knowledge touch points will increase. Social media tools connects you with the bigger universe of the organization, rest of the tools connects you to the smaller universe of the organization"

5.2.1.2   Negative Opinion of the Interviewees

The Interviewees in this category opinioned that they don't see any perceived usefulness of these tools as part of their daily work. Most of these Interviewees felt that contributing to the social media tools is extra work on top of their daily activities. Furthermore, they do not perceive the necessity and/or the need of the tools and they believe that the tools are not necessarily important for each and every employee.

-N1   "Why do we need the social media tools? We already have K.M portals and forums. To communicate and exchange information, we have e-mails, instant chatting. I used wikis once when working with onsite employees. They are useful when employees are remotely located. When employees are working in the same place, they can have face to face meetings or can call or e-mail. The social media tools might be useful to only 50% of employees."

-N2   "Employees are not interested in using them".

-N3   "Why should I use them?"

5.2.2   Top management support and strategy

Having a good strategy and top management support play an important role in encouraging employees whenever a new system/technology is introduced within the organization. As shown in Table 5.1 (p.52), most of the interviewees expressed that they don't have a top management support/strategy regarding usage of social media. However, a few respondents expressed that they do have a strategy and the

top management support in the organization, but it is only limited to the manager's level.

S1 "We have a good top management support and strategy, managers are having goals for using social media, we have incentive programs up to manager level only. No promotional activities or incentives for employees."

S2 "Top management has a strategy, promotional ideas, and want to encourage- that is not implemented"

S3 "No top management support"

S4 "Initiatives for promoting social media have just started. Knowledge management (KM) teams are sending mails to managers, conducting road shows. Involving managers to drive the force."

5.2.3 Role of incentives for contribution to social media

As shown in Table 5.1 (p.52), all the interviewees expressed that they don't have any incentives for their contribution to social media in their organizations. Almost all interviewees have positive opinions towards having incentives for contributing to social media tools. Moreover, the interviewees think that their contributions to these platforms should be recognized and acknowledged. They are expecting tangible benefits as well as soft rewards such as recognition and appreciation. On the whole, they are expecting some sort of encouragement in one-way or the other. Some of the opinions expressed by the interviewees regarding incentives are listed below.

I1 "Employees will do wonders when there is an incentive plan, especially monetary benefits."

I2 "Encouragement and recognition are important when I post a topic in the blog. When I don't get any feedback or comments, I will be demotivated and stop writing."

I3 "Recognition is important, if somebody post a perfect answer, he should be awarded or should be given points which are linked to promotion or linked to a bonus."

I4 "In our organization we don't have incentive plan for employees but managers do have till last two years. Later, management changed the billing system (payment policy) so managers are not showing interest to promote social media"

I5 "The name itself representing the social nature of the tools means recognition among the community stands first later come the monetary benefits or awards. However, a combination of recognition and monetary rewards would be even better."

5.2.4 Trust regarding information (Quality of information)

Many interviewees expressed their concern about quality and correctness of content that's being contributed by the employees of the organization. Even though the quality of the content in the blogs and wikis is user-driven, it is quite important to make sure that the content contributed by the employees is useful and conforms to the standards laid down by the organizations. They also expressed that in order to enhance the trust in the information provided by the employees, a responsible person or a dedicated team of people to monitor the quality issues is important. The following are some of the statements of the interviewees

T1 "Quality and reliability of the information are some of the challenges in social media. There is no responsible person to control and validate the content."

T2 "We work on different technologies. We need a big quality assessment team, which is a huge investment for the company. So definitely organization will do cost benefit analysis."

T3 "Responses to questions in blogs may not be accurate and quality of information may not be good as well"

T4 "When we push employees to contribute to blogs, 70% of the employees' blogs are ended-up with less quality. Since ours is a small organization, we could not afford a quality manager."

5.2.5 Lack of time

Some of the interviewees expressed their concerns about lack of time. They stated that they are already burdened with daily work routines and deadlines therefore they could not find time to use/contribute to the social media platforms. The following statements imply that, contributing to social media is not part of their daily work routines.

Ti1 "Busy with deadlines, not much time to use"

Ti2 "In India we have a lot of work load, always busy with day to day work"

Ti3 "Busy with day-to-day company work, won't get time"

Ti4 "Order of priority changes, due to lack of time going back to original system"

5.2.6 Motivation of employees towards social media

In the interviews, we have explicitly asked the interviewees about the motivation of their managers/subordinates towards social media. To be more specific, we have asked the interviewees, who are managers, about the motivation of the employees working under them. Similarly we asked the interviewees who are employees about their manager's support. Both managers and employees have expressed some contradictory opinions as listed below.

5.2.6.1 Employee's opinion on their manager's motivation

The employees believe that their managers are not putting enough effort in promoting the usage of social media tools. Most of the opinions expressed by the employees are negative towards their managers. They expressed that their managers are not motivated towards encouraging employees to adopt the tools. Some of the opinions expressed by the employees are given below.

E1 "Conservative mindset (of managers), they are only concerned about assigning and completion of the tasks."

E2 "If people manager is encouraging then social media tools goes to the bottom level"

E3 "Managers are not using them either"

E4 "They (managers) don't use and always busy in jumping for business"

5.2.6.2 Manager's opinion on their employees's motivation

The interviewees (who are managers) expressed that, they always need to push the employee to contribute to the tools. In general, they feel that the employees lack curiosity to learn and therefore it is difficult to align them to the vision of the organization. Most of the managers expressed that employees are not realizing the benefits of social media.

M1 "We introduced Hyderabad wikis, a separate technology forum for project update, monthly update. Encouraged employees by publishing awards, implementation was also good. Initially it was good, but it is not running as expected. (Always employees need follow-up)".

M2 "Employees having experience between 1-5 years, for them coming to work and do coding itself they feel burden. They have to realize the benefits of the tools."

M3 "For freshers and new employees, in their training they will be given a hand book, software question and answer tools, coding Standards, information related to wiki forums and others. However, 90% of employees don't read and always approach immediate manager for information. Employees lack curiosity."

M4 "Push factor: You always need to push employees to use the tools."

5.3 Summary

Based on the analysis of the interviews, we found that out of 13 interviewees, only two interviewees are active contributors and few more interviewees are visitors. Therefore it indicates that knowledge sharing on these tools is very low. Furthermore, out of 13 interviewees, six interviewees are neither visitors nor contributors and five interviewees are just visitors (or lurkers according to Muller (2012)), which shows that the over all adoption of the social media tools is considerably low.

Another notable finding of the analysis is that most of the interviewees have positive opinion towards perceived usefulness of the tools, even though they are not using the social media tools in their office work. However, all most all interviewees have experience with social media tools in their personal life. which could be the reason for them to have positive opinion.

Finally, based on the analysis, the most notable factors affecting the adoption of social media tools are: *perceived usefulness*, *top management support and strategy*, *incentives*, *trust regarding information*, *lack of time* and *motivation of employees*.

Discussion and Conclusion

The aim of this thesis is to investigate how well social software tools, are adopted by the employees in Indian based organizations as knowledge management initiatives. It also explores the factors affecting the adoption of the social software tools by employees working in different software companies located in India.

6.1 Social software as Knowledge Management Initiative

The primary focus of the thesis is to investigate adoption of social software in software consultancy firms which are mainly located in India, whether the companies are Indian based or Multinational companies having their branches in India.

According to Hofstede frame work (Bloisi et al., 2006, p.776-779), India comes under a centralized power society, where an autocratic leadership style exists. Therefore organizations located in India might also have power distance and hierarchal structures. According to Bughin (2008), Chinese and Indian companies are equal to U.S companies in aspects of investing and deploying social software tools. Furthermore software companies or IT businesses are early adopters of knowledge management 2.0 (Kirchner et al., 2009).

In knowledge intensive firms (ex. software companies) a major part of the employe's work is to create knowledge or use and combine existing knowledge in new ways. Technically, knowledge acts in three ways: as input to the work, as a means to achieve the work and as a major output (Newell et al., 2009, p.24). Therefore knowledge is an important resource for these companies' competitive advantage. Hence it is important for organizations to implement knowledge management initiatives such as strategies, tools, practices etc and at the same time

provide a suitable context for their employees. Thus knowledge management initiatives are vital for these software consultancy firms.

In order to reach out to many software companies in India and their numerous employees an online survey was conducted to look at the adoption of social software tools and to find out causal relationships between various factors in organizations. In addition to an online survey, semi-structured interviews were also conducted in an attempt to gain first-hand information regarding the real conditions in the organizations.

The results from quantitative analysis (Figure 4.1, p.37; Figure 4.3, p.38) and qualitative interviews (Appendix C.2, p.118) indicate that the respondents' and interviewees' organizations have knowledge management portals, traditional communication tools and web 2.0 tools. This shows that the organizations are currently in the second phase of knowledge management (Kirchner et al., 2009). Therefore the respective organizations wanted to reap the benefits of the social dimensions of web 2.0 tools (Kirchner et al., 2009) and/or to make employees' work practices more visible (McAfee, 2006) and/or to increase the strong ties or weak ties (McAfee, 2009, p.92-101) in their organizations. Social dimension is evidently an important aspect of the whole knowledge creation process (Nonaka and Takeuchi, 1995 cited in Kirchner et al., 2009). Hence, the social dimensions of web2.0 tools help the organization's members to convert their tacit knowledge in to explicit knowledge. Different web 2.0 tools might help in different modes of knowledge creating processes (Nonaka and Konno, 1998; Nonaka et al., 2000).

Even though the motive behind the deployment of tools as knowledge management initiatives is to benefit the organization, its success depends on how well the employees are willing and motivated to adopt the tools. Employees shape the way technologies are actually used in their daily work activities (Orlikowski, 2000 cited in Newell et al., 2009, p.58) and there are many other factors (barriers) which affect the employee's knowledge sharing, such as personal, organizational and technical factors (Riege, 2005).

6.2 Summarizing Qualitative and Quantitative Results

As indicated in observation 4 (p.49) of the quantitative analysis, out of the 137 respondents, only 11% of the respondents use social software as collaboration and communication tools for knowledge sharing. Moreover, in the qualitative analysis, we have observed that among 13 interviewees, only 2 interviewees are active contributors to social software platforms (Table 5.1, p.52). Furthermore as mentioned in observation 2 (p.49) of quantitative analysis, the most widely used tools in the organizations are still e-mail and instant messaging. Even in the interviews (Appendix C.2, p.118), we noticed a similar trend i.e. email is the dominant tool.

While on one hand the usage of social software tools by the respondents is very low, on the other hand e-mail and instant messaging are the quite dominant tools. The reason could be that employees in these organizations are more comfortable in using existing tools such as e-mail and instant messaging. As stated by Paroutis and Al Saleh (2009) "history or the old/established way of doing things appeared to be one of the main barriers to knowledge sharing and collaboration using web 2.0 technologies".

Furthermore McAfee (2006 cited in Paroutis and Al Saleh, 2009) expressed that in general, individuals underestimate the benefits of blogs and wikis and overestimate the things which they are asked to give up by not using the existing technologies such as e-mail and instant messaging. Moreover, McAfee also expressed that the new tools are not direct replacements of email, but they're meant to provide capabilities that emails can't accomplish.

It is the responsibility of the organization's management to make their employees understand the benefits/usefulness of the tools. Interestingly, one of the interviewees has expressed an opinion reflecting the barrier explained above by the author (McAfee, 2006 cited in Paroutis and Al Saleh, 2009). The opinion expressed by the interviewee is as follows, which also conveys the current mind-set of the employees:

"No social media tools ever replace the conventional communication channels or

knowledge management channels."

This overall discussion shows that employees are still used to the old established ways of doing things in order to accomplish tasks in their day-to-day work activities.

6.2.1   Factor affecting usage of social software

In the quantitative analysis, in order to find out reasons for using/not using the tools, the statements of the question numbers: 18, 19 and 20 (Appendix B.1, p.82) are taken as independent variables and the question no.11 (Appendix B.1, p.82) is the dependent variable. The independent variables have been divided into sub categories such as costs (reason for not using the tools), benefits (reason for using the tools), and managerial support to see the correlation with the dependent variable, that is the usage of social media in their office work. Furthermore, to find out about the combined influence of independent variables over the dependent variables, we have also carried out a regression analysis between the dependent and independent variables (Section 4.4, p.44). The discussion over factors affecting the usage of social media is divided into personal factors and organizational factors as shown below.

6.2.2   Personal Factors

As shown in Table 4.3 (p.41) of the quantitative analysis, it should be noticed that there exists weak positive correlations between dependent and the five independent variables individually (which are: *to increase my personal knowledge, I like sharing my knowledge, It helps in my promotion and further carrier growth, it enhances my contacts and networks*). Furthermore, in the regression analysis (Table 4.7, p.44), we have also identified that the independent variable *It enhances my contacts and networks* is one of the influential factors (with regression coefficient of 0.359) affecting the usage of social software tools in organizations. More or less similar opinions have been expressed by the interviewees (Table 5.1, p.52) during the interviews. All these results indicate that more the employees perceive the benefits of the tools, more will be the usage of social software in their office work.

When it comes to the costs, (Table 4.4, p.42), in the quantitative analysis, we have not found any notable correlations between usage of social media in office work and the five independent variables individually (*lack of time, lack of motivation, lack of perceived usefulness, lack of trust regarding information, knowledge is power, I don't want to share it, lack of expertise and training*). On the other hand, in the regression analysis (Table 4.7, p.44), we have identified that the independent variable *Lack of perceived usefulness* is one of the influential factors for not using the social software tools. However, in the interviews, we have noticed four important observations for not using the social software: perceived usefulness (Section 5.2.1, p.55), lack of trust regarding information (Section 5.2.4, p.58), lack of time (Section 5.2.5, p.58) and lack of motivation (Section 5.2.6, p.59).

Also, most of the interviewees expressed that the lack of time (Section 5.2.5, p.58) and lack of trust regarding the information (quality of information) (Section 5.2.4, p.58), are some of their major concerns in using social media. The opinions about lack of time indicate that the employees are considering the task of contributing to social software tools as an additional work on top of their daily work. It might be the reason that contributing to social software tools has not been integrated into and made part of their daily work routines. Furthermore, accuracy and quality of content contributed by the employees is quite important in building the trust associated with these platforms. In order to achieve that, organizations need to have a dedicated team or an assigned responsible person to look after the quality of the information.

Another important issue to notice here is the perceived usefulness of the social software tools. In the regression analysis (Table 4.7, p.46), we have noticed that the lack of perceived usefulness is one of the main factor for not using the social software tools in the office work. This shows that if employees perceive the usefulness of social software tools, they will use them in their organizations. However, in qualitative analysis (interviews), we have categorized the interviewees in column 3 of Table 5.1 (p.52) as *positive, negative* and *neutral* based on opinions towards the perceived usefulness/benefits towards social media. However as shown in the column 3 of Table 5.1 (p.52), most of the interviewees have a positive attitude towards the perceived usefulness of the tools. But at the same

time, it is interesting to notice that we have very few contributors and fewer more visitors in the interviewees, as shown in the Table 5.1 (p.52).

In the regression analysis (Table 4.7, p.46), we have also noticed that usage of social media in personal life also contributes to the usage of social media tools in office work. Furthermore, we can imply from the observation 1 (p.49) of quantitative analysis, that the usage of social media in personal life of the respondents is much more than the usage of social media in their office work. Having experience with the social media tools in their personal life could be the reason for having more interviewees with positive attitude towards perceived usefulness of the tools, even though they are not active contributors.

Hence, we can conclude that most of the interviewees in general are aware of the perceived usefulness of the tools because of their usage in their personal life. However, realising the perceived usefulness of the tools and to use them in their day to day work activities is another important aspect, which might be lacking in the organizations. This could be due to the lack of clear strategy and support from the top management in educating their employees to use them in their daily work activities.

Another important aspect that was noticed in the qualitative analysis is to what extent are managers motivated to encourage the adoption of social media tools and also to what extent are employees (who are subordinated of managers) motivated to use the tools. The interviewees are categorized as managers and employees based on their designations. The opinions expressed in Section 5.2.6 (p.59) of qualitative analysis shows the lack of motivation of employees. The employees'/managers' motivation is an important aspect for usage of social software tools in their office work. However, one of the ways for the top management to encourage/motivate/support employees/mangers is by introducing incentives for contributions to the software platforms.

Furthermore according to quantitative observation 4 (p.49) the usage of the tools for knowledge sharing is very low and moreover there are only two active contributor amongst 13 interviewees. This indicates that the knowledge sharing is very low on these platforms and the reason could be that employees' perceived costs are more than perceived benefits in sharing their knowledge. Finally, the role of costs and benefits can be related to the theory of social dilemma.

Until and unless benefits perceived by the employees in using social software tools exceed the costs associated with it, employees will not adopt the tools and share their knowledge on social software platforms. On the whole we have noticed that *lack of perceived usefulness of the tools in the daily work activities*, *lack of trust regarding information*, *lack of time*, *lack of motivation* are the observed personal factors which are hindering the adoption of social software tools by the employees.

6.2.3 Organizational Factors

The management's role is quite important in order to make employees realize the benefits of using these tools in their work activities, and to motivate them to share their knowledge in social software platforms (Paroutis and Al Saleh, 2009). A good strategy and top management support play a vital role in encouraging employees to adopt a newly introduced system/technology.

According to Table 4.5 (p.43) in quantitative analysis for managerial support, among the five independent variables (*My closest manager contributes, My manager always encourages and gives me feed back, My manager recognizes and value my contributions, My manager allows some of my time to contribute and It is strongly supported by the management*), we have found weak positive correlations for only two independent variables (*My closest manager contributes, It is strongly supported by the management*) and dependent variable (*usage of social media in their office work*). Moreover, according to regression analysis results (Table 4.7, p.46), *it is strongly supported by the management* is one of the influential factors that affect the usage of social media in the office work. Furthermore, regarding the respondents' opinion on promotion of social media (Table 4.8, p.47), the average opinion of the respondents agree that top management support is necessary in order to promote social media in their respective organizations. This shows the necessity of having a good strategy and support from the management in adopting the social software tools by the employees.

According to the qualitative analysis (Table 5.1, p.52), it is very clear that the organizations, which the interviewees represent, don't have a proper strategy, or top management support for social software tools. However, as stated by some

of the interviewees in the section 5.2.2 (p.56) of our qualitative analysis, the top management support in their organizations is limited only till the managerial level. On the whole, we can conclude that top management support has not yet reached till the bottom level of the organizations.

According to Table 4.8 (p.47) in the quantitative analysis, it can be seen from the average opinion of respondents, that having incentives for knowledge sharing and creation is important in order to promote social media in their organizations. A similar opinion was also expressed by the interviewees regarding incentives for their contributions to the social software tools as per the qualitative analysis in section 5.2.3 (p. 57). Furthermore from (Table 5.1, p.52) of the qualitative analysis, it is clear that interviewees lack incentives in their organizations. This clearly shows that the lack of incentives in their respective organizations for their contributions could be one of the vital aspects for not using the social software tools in their office work. Most importantly, incentives act as motivators to employees. Finally, we can conclude that *lack of strategy*, *lack of top management support* and *lack of incentives* are the organizational factors which are hindering the adoption of social software tools by the employees.

6.2.4   Relation between Motivation and Incentives

The self-determination theory (SDT) (Ryan and Deci, 2000 reprinted in Porter et al., 2002, p.49-58) explains both intrinsic and extrinsic motivations of individuals. The motivation at employee level is important for his/her contributions to the organization. According to Ryan and Deci (2000), in general individuals perform certain activities because: they value those activities and have a sense of personal commitment (intrinsic motivation) or they perform those activities because of a strong external demand (extrinsic motivation). Employees come to work with different work motivations and not all employees in the organization are intrinsically motivated to adopt the tools right away after they are deployed in their organizations. Accordingly motivation of employees towards social media in section 5.2.6 (p.59) of the qualitative analysis, shows that employees' motivation is lacking to adopt the social media tools. Furthermore, as per the Table 5.1 (p.52) of the qualitative analysis, we noticed that there are two contributors and five visitors out of

13 interviewees and the rest are neither contributors nor visitors. These results indicate that there are at least a few interviewees who are intrinsically motivated to visit the sites.

Hence, according to cognitive evaluation theory (CET) (Ryan and Deci, 2000 reprinted in Porter et al., 2002, p.52), feedback and recognition increase the intrinsic motivation of individuals. Furthermore, social and environmental factors have an impact on increase or decrease of an individual's intrinsic motivation / self-determined behaviour. Therefore, it is important for organizations to provide suitable conditions that will enhance the employee's intrinsic motivation.

According to observation 7 (p.50) of the quantitative analysis, the average opinion of respondents demonstrates that incentives are important for promoting social software in their organizations. Furthermore, section 5.2.3 (p.57) of the qualitative analysis indicates that the interviewees are expecting both recognition and monetary benefits for their contributions towards the usage of social software tools in their organizations. It is important for organizations to introduce incentives because employees are predicting favourable outcomes or in other words outcome expectations (Paroutis and Al Saleh, 2009). Hence in order to motivate employees introducing incentives in the organizations is important. Furthermore employee behaviour can be changed by introducing incentives in the organizations. The rewards or incentives act as extrinsic motivators (motivation) because of which employee perform the task to attain the reward which in-turn leads to satisfaction. According to organismic integration theory (OIT) (Ryan and Deci, 2000 reprinted in Porter et al., 2002, p.54) individuals get motivated and perform an activity: to satisfy an external demand / to achieve a reward. However, over a period of time employees would internalize the behaviour in such a way that it will finally lead to the intrinsic motivation or self-determined behaviour.

6.3 Conclusion

On the whole, the discussion on the results in the previous section explains that organizations have moved from the first phase of knowledge management to the second phase of knowledge management. Organizations wanted to exploit the benefits of the social dimension of social software platforms by deploying tools,

but adoption of these tools by employees is very low. Employees are still performing their day to day work activities with their established way of doing things by mostly using e-mail and instant messaging. According to Stenmark (2008) there are four future scenarios of management perspective as shown in Table 2.1 (p.23). As per the scenario #1: *"management is unaware of or uninterested in the use of Web 2.0 applications and has no strategy for organizational use. Use is implicitly allowed but not actively encouraged"*. Therefore, based on the discussion in the previous section on the role of the management, we can conclude that managers are passively supportive regarding web 2.0 tools in their respective organizations.

Moreover according to Kirchner et al. (2009), for success of knowledge management 2.0 in the organizations, certain critical success factors are necessary, which are; individual/personal (motivation, perceived usefulness, trust, and training), technical, organizational context and management (some of the factors: strategy, support from top management, assigned responsible person, incentives etc.). We can perceive that the reasons for *not* adopting the tools by the employees are lack of some of the critical success factors such as perceived usefulness, motivation, trust (regarding quality of information), strategy, top management support and incentives.

Simply deploying the tools in the organizations without a proper strategy and expecting the employees to adopt them is not a constructive move for the organizations. Organizations should never under estimate the personal and organizational barriers on the successful implementation of social software tools. The adoption of these tools by employees is low because *"the management failed to provide a safe environment for open conversations"* (Denyer et al., 2011). Organizations should create a suitable context for employees to share their knowledge in these tools (McAfee, 2009, p.74). Management should come up with a good strategy that can reach out till the bottom level of employees. These tools should be embedded in their work practices, and then only will employees start using them. When immediate managers start using tools in their daily activities, then it will motivate their employee to become active (Brzozowski et al., 2009). Leaders should not only encourage the employees to participate in these tools but they should also actively participate in them (Denyer et al., 2011).

The Top management could play an important role in removing some of the

personal factors that hinder the adoption of these tools. Providing training sessions and educating employees regarding the benefits of these tools in their daily work activities can enhance the perceived usefulness of these tools by employees. Management should encourage employees by introducing incentives. Introducing incentives will motivate employees to share their knowledge to these platforms. When employees perceive the fairness of rewards then it will help in the development of trust between employee and the organization (Bartol and Srivastava, 2002). When an assigned responsible person is appointed to look into the quality of information, this will not only build trust in employees regarding information, but also the quality of content will be enhanced.

Finally, the results from both the qualitative and quantitative analysis have revealed the facts that *perceived usefulness*, *motivation*, *trust regarding information*, *lack of time*, *strategy and top management support*, *incentives* are the observed factors affecting the adoption of social software tools by employees. Furthermore, according to theoretical and empirical concepts, the above said factors can be categorized into personal and organizational factors. The observed personal factors are: *perceived usefulness*, *motivation*, *trust*, and *time*, whereas *strategy*, *top management support* and *incentives* can be categorized under organizational factors.

The aim of this thesis is to find out till what extent these tools are adopted by knowledge workers and also the factors affecting the adoption of these tools by knowledge workers. Based on the analysis of the data (chapter 4, p.35; chapter 5, p.51;) and discussion in the previous section, we can conclude that even though organizations are good at deploying tools, the adoption of these tools by knowledge workers is low. Moreover, the usage of these tools for knowledge sharing is also low. We have also noticed that lack of certain personal and organizational factors hindering the adoption of tools. The observed personal factors are: *perceived usefulness in their daily work activities, time, motivation and trust regarding information*. The observed organizational factor are: *strategy, top management support and incentives*. Lack of both personal and organizational factors is hindering the adoption of social software tools by employees according to this thesis.

6.4 Limitations

The limitations in this thesis are as listed below:

Sampling we have used *snowball sampling* for both quantitative and qualitative data collection methods, as it is difficult to identify members of the target population (knowledge workers in Indian based organizations). *Snowball sampling* is a non-probability sampling, it is not possible to construct a sampling frame, there by the chance that the samples may not truly represent the target population is more. Moreover, *snowball sampling* has the drawback of being homogeneous (Saunders et al., 2009, p.240). We can observe the same effect in the profile of respondents of the online questionnaire (Table 4.1, p.36), where more than 60% of respondents belong to same age group (25-34 years) and approximately 90% of the respondents are male. Therefore, in view of these limitations the results of this thesis can not be generalized towards the target population.

Mixed-method approach In this thesis, we have used both quantitative and qualitative data collection methods as part of mixed-method approach. In a mixed-method approach, it is advisable to use different data collection methods in sequence (e.g. quantitative method followed by qualitative method) to get optimal results. Due to time constraints, we have carried out quantitative and qualitative data collection simultaneously.

Technical factors In both the data collection methods, the questions mainly focused on personal and organizational factors relating to usage of social software in their work environment, keeping in mind deployment of the tools as knowledge management initiatives. Therefor this thesis did not cover technical factors of the tools such as *infrastructure, functionality* and *ease of use*.

Validity In spite of making the online questionnaire more clear by providing suitable explanations and using closed-ended questions, we received ambiguous and vague responses for questions (question no.22 in Appendix B.1, p.82) related to organizational work culture. For example, we intended

to gather information about respondents organizational culture to deduce whether it is hierarchical or egalitarian. Therefore, we provided two individual statements representing each culture as part of the question (also with a motivation to check the consistency of the responses) and asked the respondents to agree or disagree with them. But the responses were ambiguous and contradictory. Probably, we could have used more detailed questions with suitable explanations to extract responses for organizational work culture.

6.5 Future Work

Apart from the technical and organizational culture view point, another important aspect is the role of national cultures which will have an impact on the organizations and individuals. Managers in different countries behave differently when they face the same challenge. Recognizing this fact is important for understanding the management practices in different countries (Sanchez-Runde and Steers, 2003, p.357-374). The thesis is focused mainly on Indians and Indian based software companies (Indian / MNCs having their branches). According to Hofstede framework (Bloisi et al., 2006, p.776-779), India comes under a centralised power society where inequalities exist in the society with regard to distribution of power and wealth.

In centralised power societies, an autocratic leadership style is promoted. According to the approximate dimension index score (0-100), the power distance, index score for India is 80. The score explains that power distance is very large in the Indian society. We can assume that the same power distance also exists in the organizations because *"management is not a phenomenon that can be isolated from other processes taking place in a society"* (Hofstede, 1993 reprinted in Porter et al., 2002, p.352). According to Lai and Lee (2007) *"authority culture may act as an inhibitor on achievement of knowledge sharing"*. Therefore, it would be interesting to study adoption of new technology and knowledge sharing behavior of employees, from a national culture point of view.

In order to investigate further into national culture point of view, one could study a cross-case analysis between different organizational units located in dif-

ferent countries of a multinational company, to compare and contract effect of national culture on adoption of the tools. For example, one could investigate a cross-case analysis between the IBM Denmark and IBM India in relation to national culture effect on adoption of tools and knowledge sharing behavior of employees. In that respect, one could employ different sampling strategies such as case studies and ethnography studies.

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Theory and Research Methodolgy

A.1 Critical success factors for KM in Companies
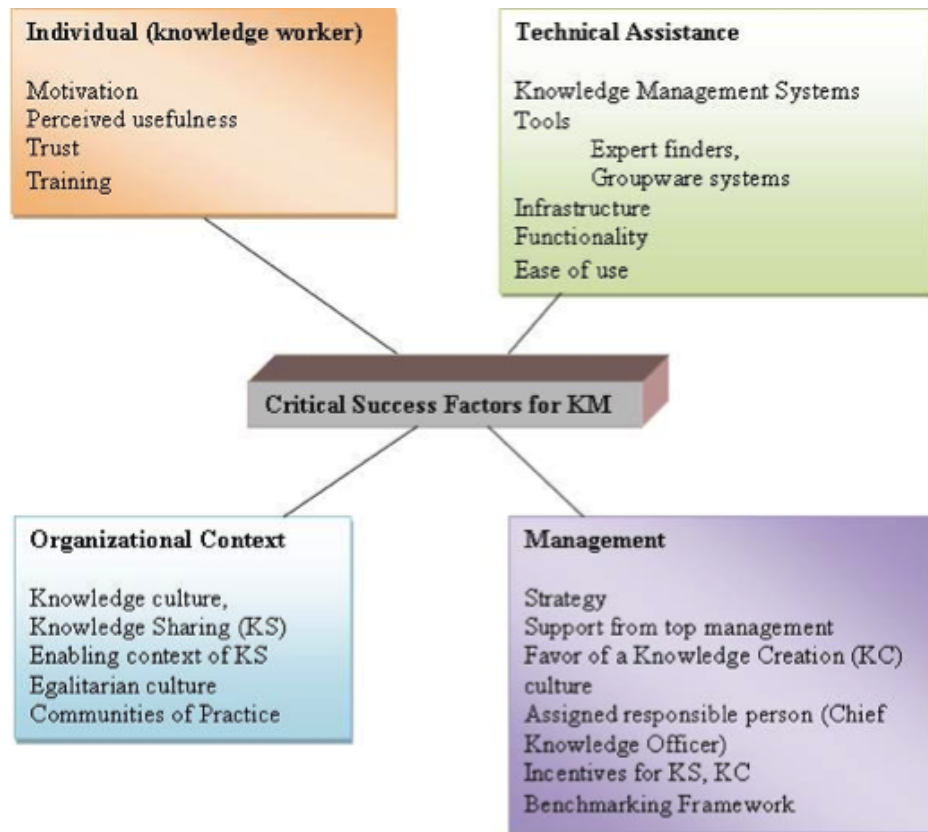
Figure A.1: Critical success factors for KM in Companies (Kirchner et al., 2009)

A.2 The research 'onion'
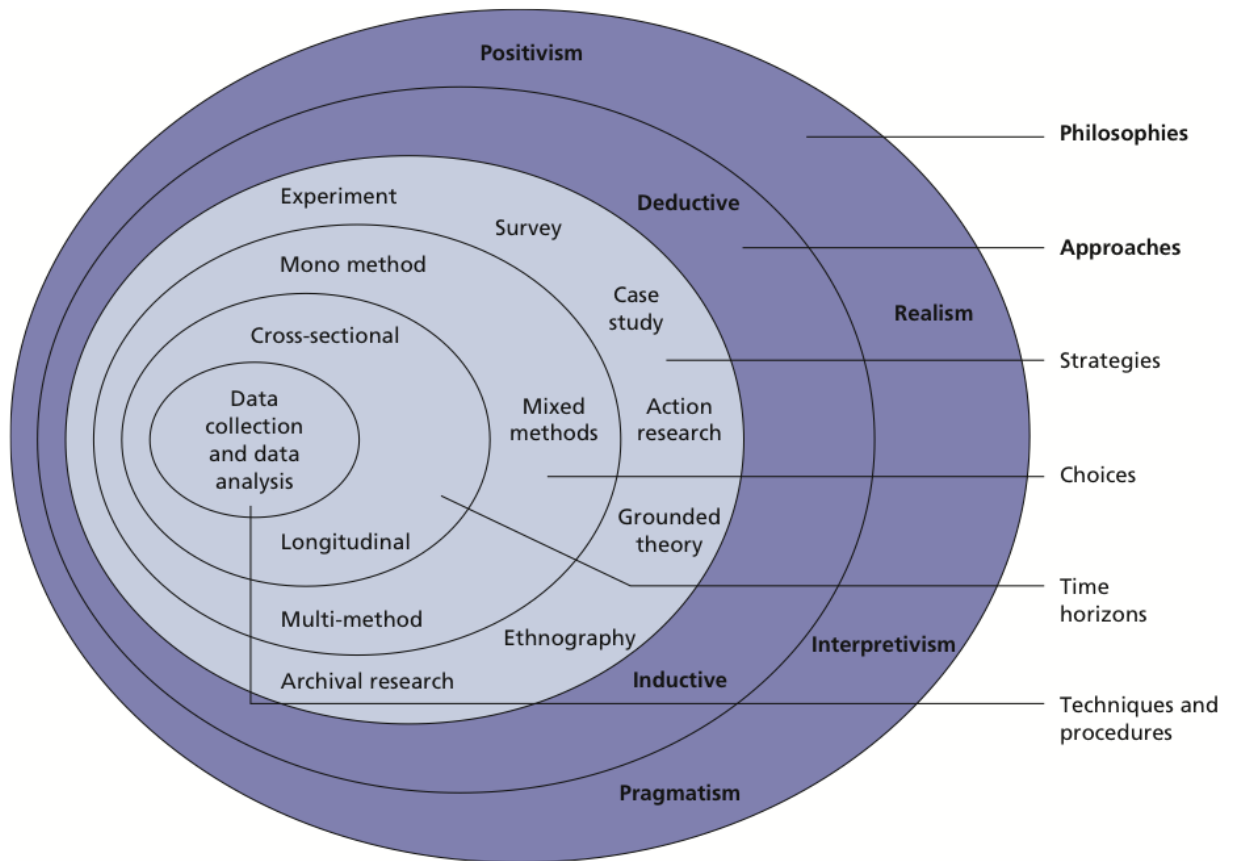
Figure A.2: The research 'onion' (source: Saunders et al. (2009, p.108))

Quantitative Data Analysis

B.1   Online Questionnaire

Online survey on usage of social media by employees in organizations

I am Alivelu, doing full-time M.S in Service Management at Copenhagen Business School (http://www.cbs.dk/en/), Denmark. As part of my Master's thesis, I am working on 'Knowledge sharing via social software in organizations' and therefore, I am collecting data about the usage of social media (such as blogs, wikis, Facebook) by employees in the organizations.

The data collected in the survey will only be used for academic purposes. Furthermore, the data collected in the survey will be anonymous, in the sense that, we don't ask for your name or any other kind of your identity in the survey, but we ask about your organization's name(which will not be revealed) and few more questions about your experience, type of your work and about your organization, to categorize the data into different segments for analysis.

The survey will approximately takes 5-8 minutes to complete.

Thank you for your cooperation.
regards,
- Alivelu
*Påkrævet

About yourself and your company

if you have chosen the option "Other", please indicate the answer in the space provided besides the option.

1. Please indicate your gender. *

Female

Male

83

2. Please indicate your age. *

< 25 years

25 - 34 years

35 - 44 years

45 - 54 years

55 years and above

3. Please indicate number of years of experience. *

	< 1 year	1 - 4 years	5 - 10 years	10 - 20 years	> 20 years
Total years of your experience					
Experience in the present company					

4. Please indicate name of your company . *

Medical Insight A/S

Tata Consultancy Services

Capgemini

Sony Ericsson

Wipro

Cisco Systems

IBM

Andet:

5. Please indicate the country where you are located

Denmark

India

Singapore

U.S.A

Andet:

6. Please indicate your type of position. *

Programmer/Developer/Tester

Manager

Senior Manager

Andet:

Usage of Social Media in your PERSONAL LIFE

Social Media: Wikis, Blogs, social networking sites like Facebook, RSS feeds, Mash-ups, Social bookmarking, Content Communities (such as YouTube, Flickr, and SlideShare), Virtual World.

7. How often do you use social media in your personal life? *

          1   2   3   4   5

Never   Almost daily

8. Which social media do you use the most? *

Wikis

Blogs

Social networking sites (Facebook etc.)

Social bookmarking

Content Communities

Virtual World

I do not use

Andet:

9. In general, Social media tools facilitate communication, collaboration and social interaction. *

          0   1   2   3   4   5

Strongly disagree   Strongly agree

Usage of your corporate Social Media in your WORK ENVIRONMENT

Corporate Social Media: Wikis, Blogs, social networking sites (like Facebook), RSS feeds, Social bookmarking, Content Communities (such as YouTube, Flickr, and SlideShare), Virtual World, Mash-ups within the firewalls of the company, to facilitate knowledge sharing and collaboration by the employees.

10. How social media is introduced in your company?

By management (top down approach)

Introduced by employees and later on adopted by the management (bottom up approach)

11. How often do you use your internal social media in your office work? *

          1   2   3   4   5

Never   Almost daily

12. Which internal social media do you use the most with in your organization? *

Wikis

Blogs

Internal Social networking sites (like Facebook etc.)

Content communities

Social bookmarking

I do not use (if you choose this option, please choose NONE in the next question)

85

Andet:

13. For what purposes are you using social media?

Communication

Collaboration

Knowledge sharing

Learning

None

Andet:

14. Social media in your organization is facilitating communication, knowledge sharing and collaboration among colleagues. *

	1	2	3	4	5	
Strongly disagree						Strongly agree

15. Which communication and collaboration tools do you use for knowledge/information sharing among the colleagues? *

Email

Internal instant messaging/chat (like yahoo messenger etc.)

Corporate discussion forums

Corporate Information sharing portals (like Share Point)

Internal Social media

Andet:

Motivation for using corporate social media

Corporate Social Media: Wikis, Blogs, social networking sites like Facebook etc., RSS feeds, Social bookmarking, Content Communities (such as YouTube, Flickr, and SlideShare), Virtual World, Mash-ups within the firewalls of the company, to facilitate knowledge sharing and collaboration by the employees.

16. Do you see any personal benefit by contributing to corporate social media? *

Not at all useful

perhaps useful

Very useful

can not say

17. Do you use your corporate social media for collaboration and sharing knowledge with your colleagues as part of your work? *

Never

Perhaps sometimes

Frequently

Can not say

18.Please indicate the reasons why you prefer to use social media. *

86

Basically, what encourages you in using social media for knowledge sharing and collaboration?

	Strongly disagree	Disagree	Can not say	Agree	Strongly agree
To increase my personal knowledge					
I like sharing my knowledge					
It helps in my promotion and further career growth					
It is strongly supported by the management					
It enhances my contacts and networks					

19. Please indicate the reasons why you DO NOT prefer to use social media. *

Basically, what prevents you from using social media for knowledge sharing and collaboration?

	Strongly disagree	Disagree	Can not say	Agree	Strongly Agree
Lack of time					
Lack of motivation					
Lack of perceived usefulness					
Lack of trust regarding information provided by others (quality of information)					
Knowledge is power and I don't want to share it.					
Lack of expertise and training.					

20. How is the management's support for using the corporate social media as part of your work for knowledge sharing, communication and collaboration? *

	Strongly disagree	Disagree	Can not say	Agree	Strongly agree
My closest manager contributes					
My manager always encourages and gives me feed back					
My manager recognizes and					

value my contributions

My manager allows some of
my time to contribute

21. What do you think about your management's attitude towards the usage of social media in daily work?

Management is passively supportive

Management is actively supportive

Management is passively obstructive

Management is strongly obstructive

22. How is the work culture in your organization? *

	Strongly disagree	Disagree	Can not say	Agree	Strongly Agree
I can reach my senior managers very easily.					
Our organization is having hierarchial structure (followed by strict rules, procedures and policies					
Our organization is having an egalitarian work culture (Flat structure).					
My company acknowledges my contribution to corporate social media platforms and encourages me/provides me with incentives.					
Knowledge sharing is part of our working culture					
My colleagues share knowledge and give positive feedback for contribution.					
Employees working in a project/department cooperate with each other.					

23. In your opinion, in order to promote social media , what measures should the management take?

	Strongly agree	Agree	Can not say	Disagree	Strongly disagree
Having a good strategy along with top management					

88

https://docs.google.com/spreadsheet/viewform?formkey=dGRYTkVnb1JZVXpwZld4bHQxN2FMaGc6MA[8/3/2012 3:37:35 PM]

support
Incentives for knowledge sharing and knowledge creation
Assigned responsible person is important(Chief knowledge officer)
Creating an enabling context for knowledge sharing

24. Does your organization use social media to communicate with your clients/customers/partners?

Yes

No

Can not say

Leveret af Google Dokumenter

Rapporter misbrug - Servicevilkår - Yderligere vilkår

89

B.2   Summary of Total responses of Online Questionnaire

137 <u>responses</u>

Summary <u>See complete responses</u>

About yourself and your company

if you have chosen the option "Other", please indicate the answer in the space provided besides the option.

1. Please indicate your gender.
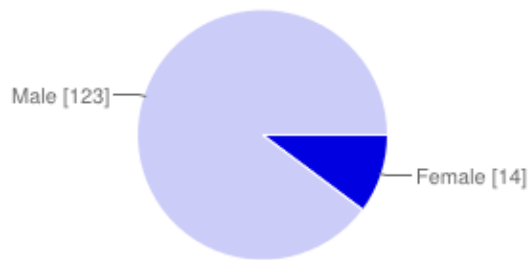
Female	**14**	10%
Male	**123**	90%

2. Please indicate your age.
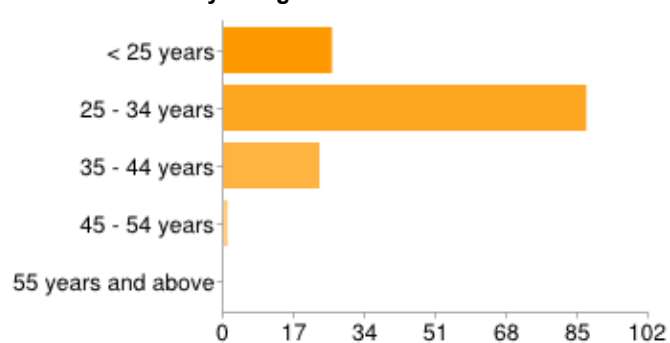
< 25 years	**26**	19%
25 - 34 years	**87**	64%
35 - 44 years	**23**	17%
45 - 54 years	**1**	1%
55 years and above	**0**	0%

3. Please indicate number of years of experience. - Total years of your experience
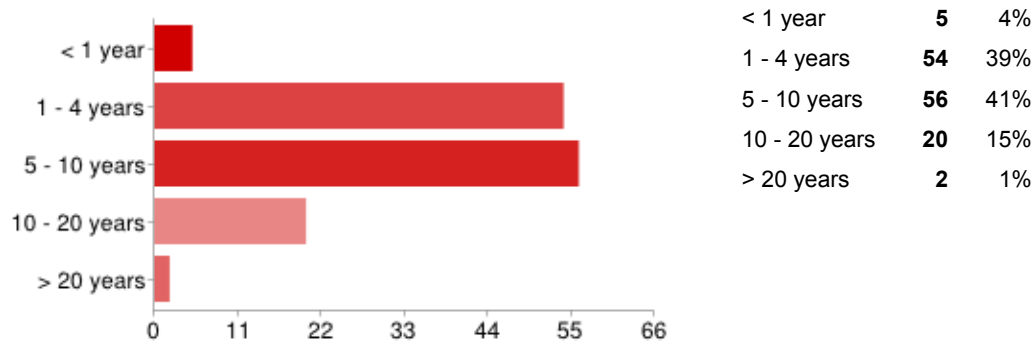
91

< 1 year	**5**	4%
1 - 4 years	**54**	39%
5 - 10 years	**56**	41%
10 - 20 years	**20**	15%
> 20 years	**2**	1%

3. Please indicate number of years of experience. - Experience in the present company

< 1 year	**42**	31%
1 - 4 years	**65**	47%
5 - 10 years	**25**	18%
10 - 20 years	**5**	4%
> 20 years	**0**	0%

4. Please indicate name of your company .

Medical Insight A/S	**2**	1%
Tata Consultancy Services	**13**	9%
Capgemini	**6**	4%
Sony Ericsson	**0**	0%
Wipro	**16**	12%
Cisco Systems	**0**	0%
IBM	**9**	7%
Other	**91**	66%

5. Please indicate the country where you are located

92
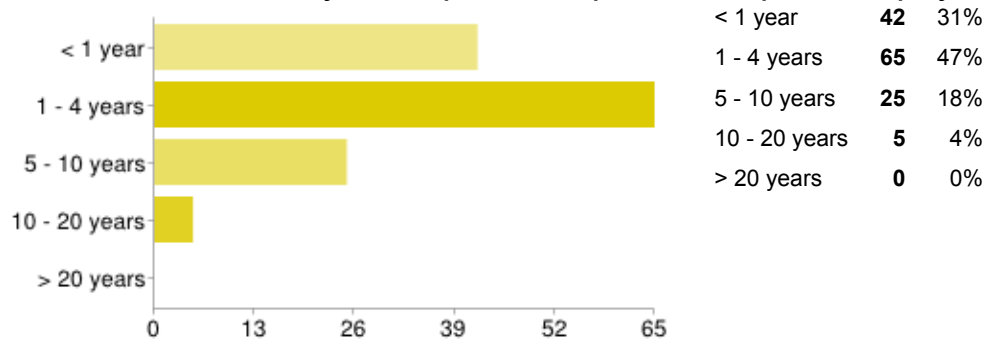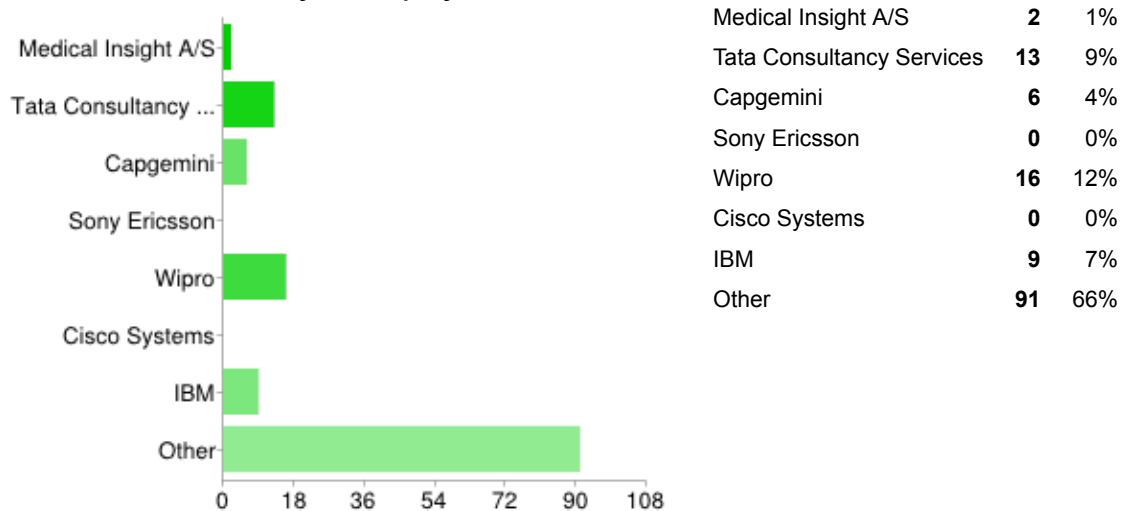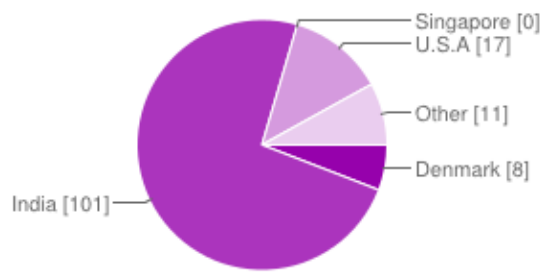
Denmark	8	6%
India	101	74%
Singapore	0	0%
U.S.A	17	12%
Other	11	8%

6. Please indicate your type of position.
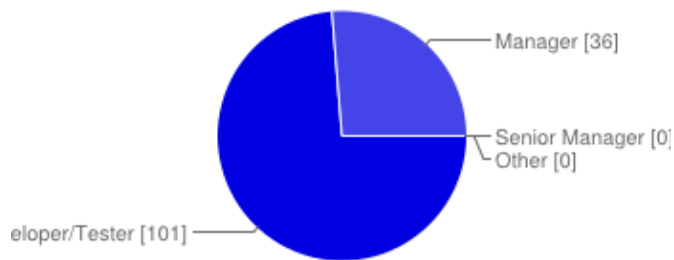
Programmer/Developer/Tester	101	74%
Manager	36	26%
Senior Manager	0	0%
Other	0	0%

Usage of Social Media in your PERSONAL LIFE

Social Media: Wikis, Blogs, social networking sites like Facebook, RSS feeds, Mash-ups, Social bookmarking, Content Communities (such as YouTube, Flickr, and SlideShare), Virtual World.

7. How often do you use social media in your personal life?
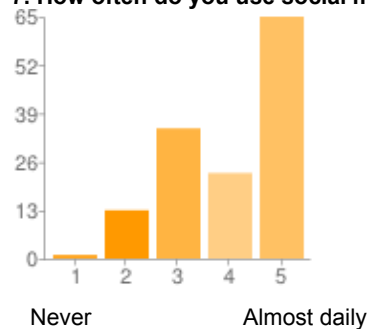
Never   Almost daily

1 -Never	1	1%
2	13	9%
3	35	26%
4	23	17%
5 -Almost daily	65	47%

8. Which social media do you use the most?

93

Wikis	**79**
Blogs	**67**
Social networking sites (Facebook etc.)	**120**
Social bookmarking	**14**
Content Communities	**28**
Virtual World	**3**
I do not use	**2**
Other	**10**

94

9. In general, Social media tools facilitate communication, collaboration and social interaction.

0 -Strongly disagree	**0**	0%
1	**3**	2%
2	**6**	4%
3	**34**	25%
4	**35**	26%
5 -Strongly agree	**59**	43%

Strongly disagree　　　　Strongly agree

Usage of your corporate Social Media in your WORK ENVIRONMENT

Corporate Social Media: Wikis, Blogs, social networking sites (like Facebook), RSS feeds, Social bookmarking, Content Communities (such as YouTube, Flickr, and SlideShare), Virtual World, Mash-ups within the firewalls of the company, to facilitate knowledge sharing and collaboration by the employees.

10. How social media is introduced in your company?

Introduced by emp

By management (top down approach)

Introduced by employees and later on adopted

own approach) [65]
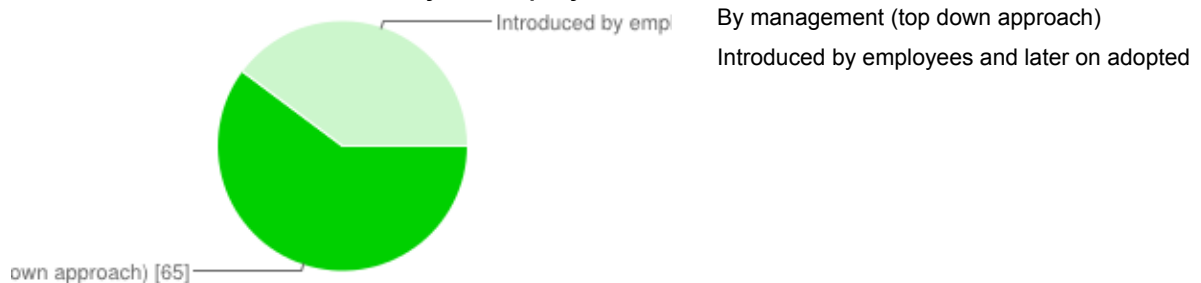
11. How often do you use your internal social media in your office work?
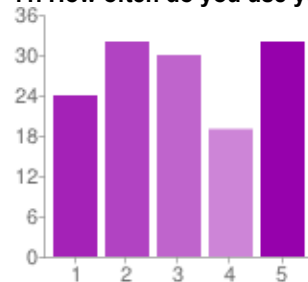
1 -Never	**24**	18%
2	**32**	23%
3	**30**	22%
4	**19**	14%
5 -Almost daily	**32**	23%

95

Never　　　　Almost daily

12. Which internal social media do you use the most with in your organization?

Wikis

Blogs

Internal Social networking sites (like Facebook

Content communities

Social bookmarking

I do not use (if you choose this option, please c

Other

People may select more than one checkbox, sc

13. For what purposes are you using social media?

Communication	**85**	68%
Collaboration	**51**	41%
Knowledge sharing	**95**	76%
Learning	**80**	64%
None	**12**	10%
Other	**2**	2%

People may select more than
one checkbox, so percentages
may add up to more than 100%.

14. Social media in your organization is facilitating communication, knowledge sharing and collaboration among colleagues.

1 -Strongly disagree	**7**	5%
2	**15**	11%
3	**41**	30%
4	**33**	24%
5 -Strongly agree	**41**	30%

Strongly disagree Strongly agree

15. Which communication and collaboration tools do you use for knowledge/information sharing among the

96

Email

Internal instant messaging/chat (like yahoo mes

Corporate discussion forums

Corporate Information sharing portals (like Shar

Internal Social media

Other

People may select more than one checkbox, so
to more than 100%.
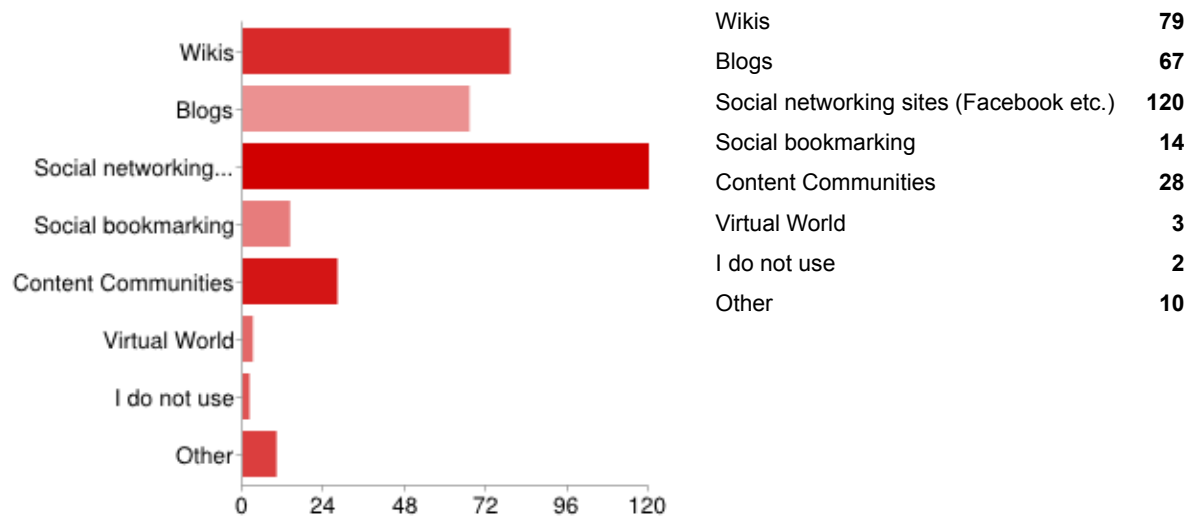
Motivation for using corporate social media

Corporate Social Media: Wikis, Blogs, social networking sites like Facebook
etc., RSS feeds, Social bookmarking, Content Communities (such as YouTube,
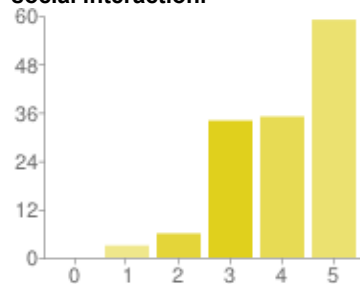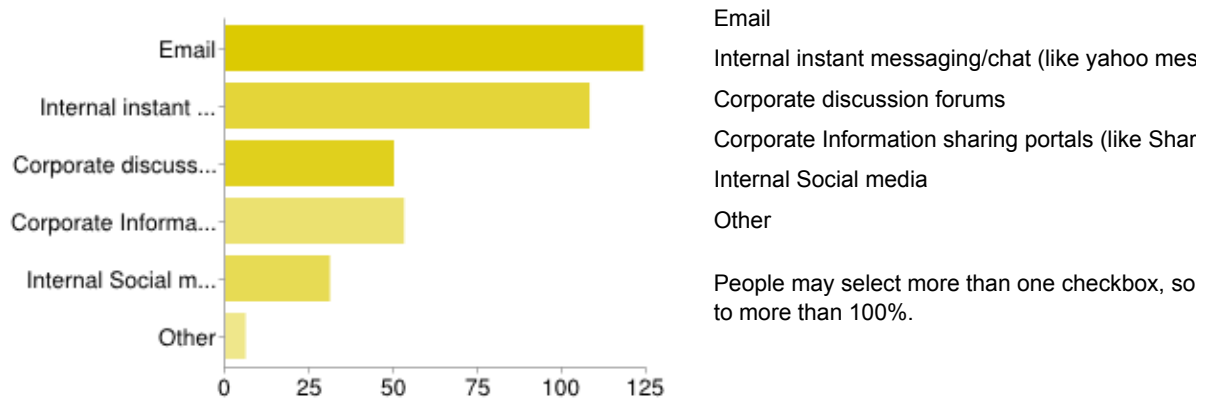Flickr, and SlideShare), Virtual World, Mash-ups within the firewalls of the
company, to facilitate knowledge sharing and collaboration by the employees.

16. Do you see any personal benefit by contributing to corporate social media?

Not at all useful	**4**	3%
perhaps useful	**61**	45%
Very useful	**62**	45%
can not say	**10**	7%

17. Do you use your corporate social media for collaboration and sharing knowledge with your colleagues as part of your work?

Never	**16**	12%
Perhaps sometimes	**61**	45%
Frequently	**55**	40%
Can not say	**5**	4%

97

18.Please indicate the reasons why you prefer to use social media. - To increase my personal
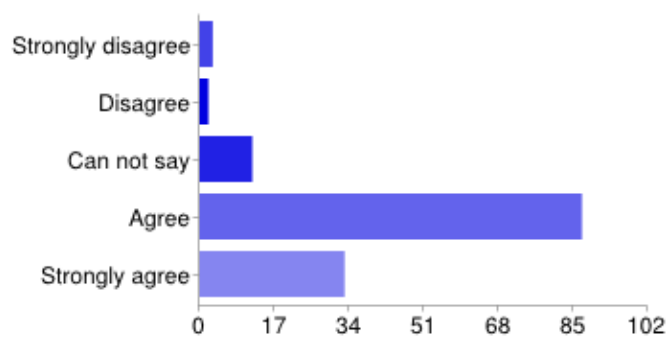
knowledge

Strongly disagree	3	2%
Disagree	2	1%
Can not say	12	9%
Agree	87	64%
Strongly agree	33	24%

18.Please indicate the reasons why you prefer to use social media. - I like sharing my knowledge
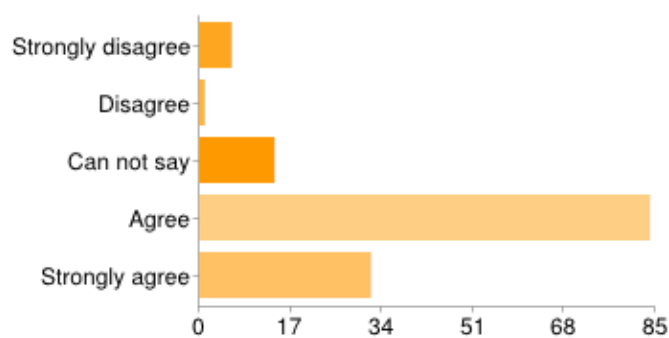
Strongly disagree	6	4%
Disagree	1	1%
Can not say	14	10%
Agree	84	61%
Strongly agree	32	23%

18.Please indicate the reasons why you prefer to use social media. - It helps in my promotion and further career growth
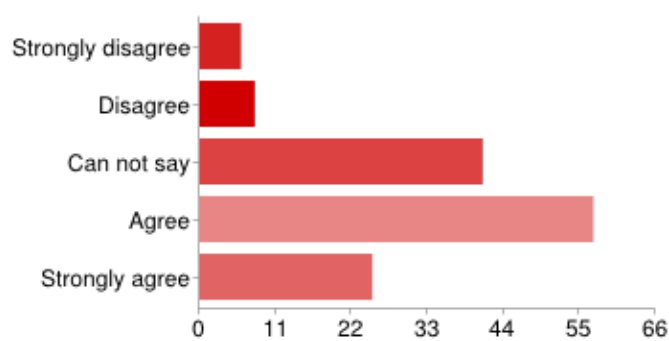
Strongly disagree	6	4%
Disagree	8	6%
Can not say	41	30%
Agree	57	42%
Strongly agree	25	18%

18.Please indicate the reasons why you prefer to use social media. - It is strongly supported by the management

98

Strongly disagree	**9**	7%
Disagree	**19**	14%
Can not say	**54**	39%
Agree	**42**	31%
Strongly agree	**13**	9%

99

18.Please indicate the reasons why you prefer to use social media. - It enhances my contacts and networks
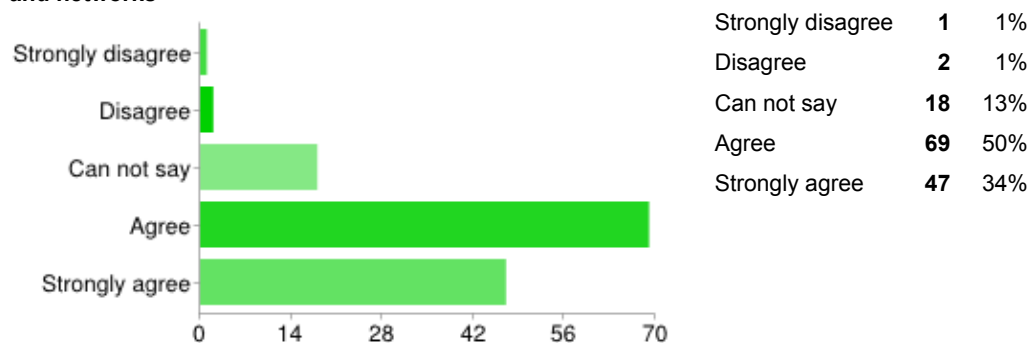
Strongly disagree	**1**	1%
Disagree	**2**	1%
Can not say	**18**	13%
Agree	**69**	50%
Strongly agree	**47**	34%

19. Please indicate the reasons why you DO NOT prefer to use social media. - Lack of time

Strongly disagree	**10**	7%
Disagree	**31**	23%
Can not say	**26**	19%
Agree	**56**	41%
Strongly Agree	**14**	10%
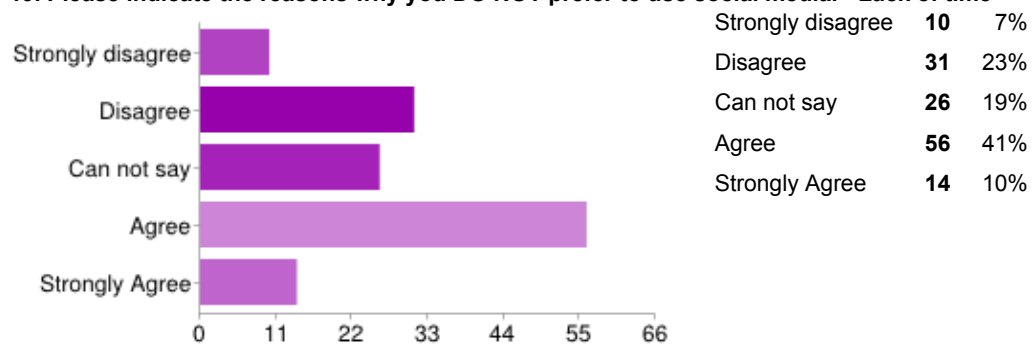
19. Please indicate the reasons why you DO NOT prefer to use social media. - Lack of motivation
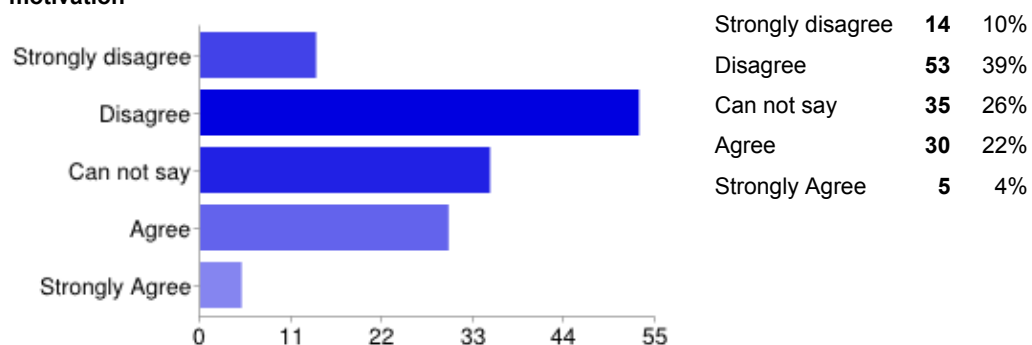
Strongly disagree	**14**	10%
Disagree	**53**	39%
Can not say	**35**	26%
Agree	**30**	22%
Strongly Agree	**5**	4%

100

19. Please indicate the reasons why you DO NOT prefer to use social media. - Lack of

perceived usefulness

Strongly disagree	**16**	12%
Disagree	**48**	35%
Can not say	**46**	34%
Agree	**22**	16%
Strongly Agree	**5**	4%
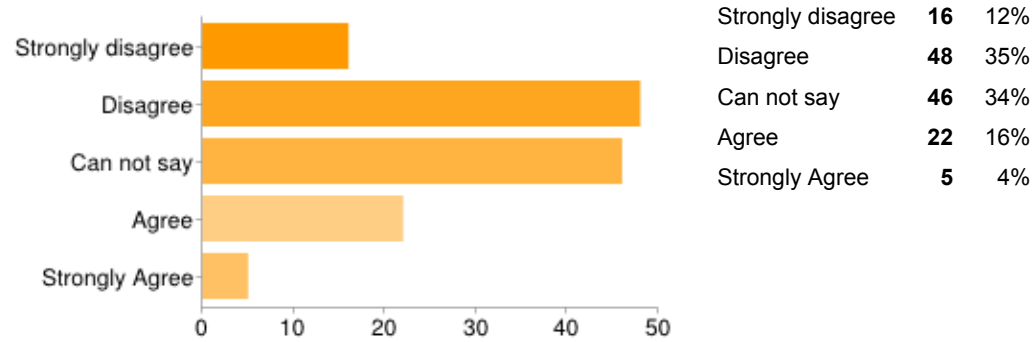
19. Please indicate the reasons why you DO NOT prefer to use social media. - Lack of trust regarding information provided by others (quality of information)

Strongly disagree	**12**	9%
Disagree	**43**	31%
Can not say	**45**	33%
Agree	**30**	22%
Strongly Agree	**7**	5%
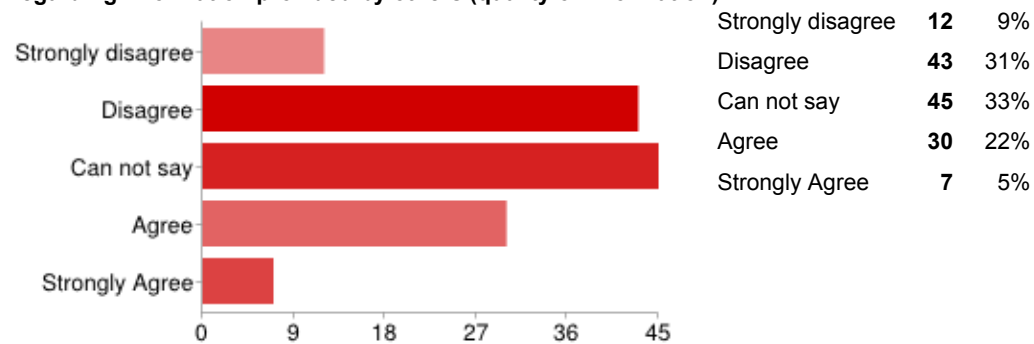
19. Please indicate the reasons why you DO NOT prefer to use social media. - Knowledge is power and I don't want to share it.

Strongly disagree	**55**	40%
Disagree	**61**	45%
Can not say	**15**	11%
Agree	**5**	4%
Strongly Agree	**1**	1%

19. Please indicate the reasons why you DO NOT prefer to use social media. - Lack of expertise and training.

101

Strongly disagree	**25**	18%
Disagree	**64**	47%
Can not say	**32**	23%
Agree	**15**	11%
Strongly Agree	**1**	1%

102

20. How is the management's support for using the corporate social media as part of your work for knowledge sharing, communication and collaboration? - My closest manager contributes

Strongly disagree	**8**	6%
Disagree	**24**	18%
Can not say	**45**	33%
Agree	**51**	37%
Strongly agree	**9**	7%

20. How is the management's support for using the corporate social media as part of your work for knowledge sharing, communication and collaboration? - My manager always encourages and gives me feed back

Strongly disagree	**6**	4%
Disagree	**29**	21%
Can not say	**44**	32%
Agree	**48**	35%
Strongly agree	**10**	7%

20. How is the management's support for using the corporate social media as part of your work for knowledge sharing, communication and collaboration? - My manager recognizes and value my contributions

Strongly disagree	**7**	5%
Disagree	**25**	18%
Can not say	**40**	29%
Agree	**53**	39%
Strongly agree	**12**	9%

103

20. How is the management's support for using the corporate social media as part of your work for knowledge sharing, communication and collaboration? - My manager allows some of my time to contribute

Strongly disagree	**7**	5%
Disagree	**24**	18%
Can not say	**44**	32%
Agree	**52**	38%
Strongly agree	**10**	7%

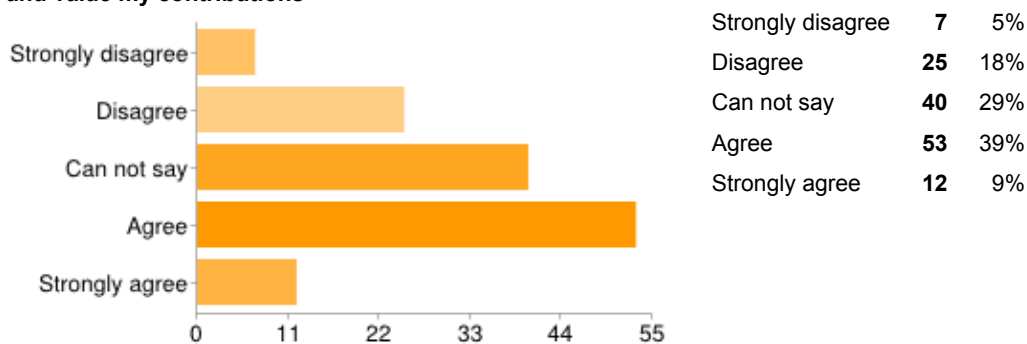**21. What do you think about your management's attitude towards the usage of social media in daily work?**

Management is passively supportive	**51**	37%
Management is actively supportive	**36**	26%
Management is passively obstructive	**22**	16%
Management is strongly obstructive	**9**	7%
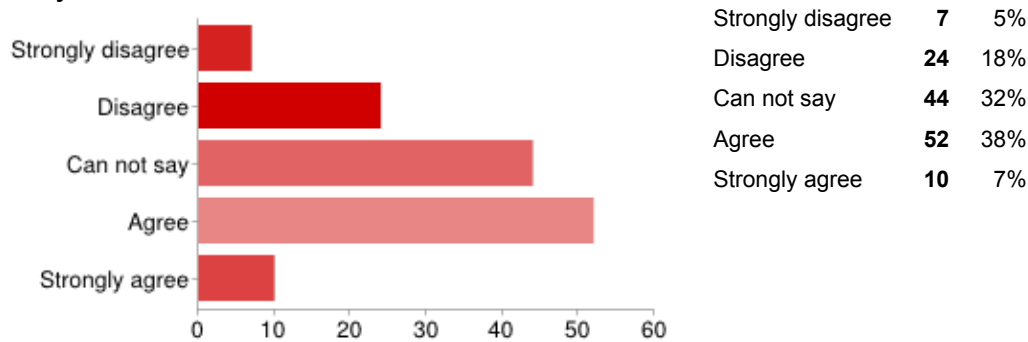
22. How is the work culture in your organization? - I can reach my senior managers very easily.

Strongly disagree	**3**	2%
Disagree	**16**	12%
Can not say	**12**	9%
Agree	**75**	55%
Strongly Agree	**31**	23%

22. How is the work culture in your organization? - Our organization is having hierarchial structure (followed by strict rules, procedures and policies

104

Strongly disagree	**7**	5%
Disagree	**23**	17%
Can not say	**25**	18%
Agree	**66**	48%
Strongly Agree	**16**	12%

105

22. How is the work culture in your organization? - Our organization is having an egalitarian work culture (Flat structure).

Strongly disagree	**5**	4%
Disagree	**20**	15%
Can not say	**51**	37%
Agree	**51**	37%
Strongly Agree	**10**	7%

22. How is the work culture in your organization? - My company acknowledges my contribution to corporate social media platforms and encourages me/provides me with incentives.

Strongly disagree	**8**	6%
Disagree	**30**	22%
Can not say	**58**	42%
Agree	**35**	26%
Strongly Agree	**6**	4%

22. How is the work culture in your organization? - Knowledge sharing is part of our working culture

Strongly disagree	**3**	2%
Disagree	**7**	5%
Can not say	**20**	15%
Agree	**80**	58%
Strongly Agree	**27**	20%

106

22. How is the work culture in your organization? - My colleagues share knowledge and give positive feedback for contribution.

Strongly disagree	**4**	3%
Disagree	**5**	4%
Can not say	**26**	19%
Agree	**80**	58%
Strongly Agree	**22**	16%

22. How is the work culture in your organization? - Employees working in a project/department cooperate with each other.
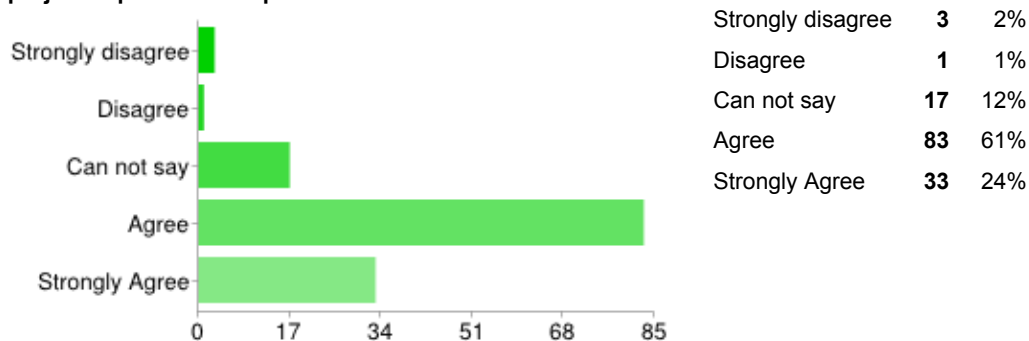
Strongly disagree	**3**	2%
Disagree	**1**	1%
Can not say	**17**	12%
Agree	**83**	61%
Strongly Agree	**33**	24%

23. In your opinion, in order to promote social media , what measures should the management take? - Having a good strategy along with top management support

Strongly agree	**22**	16%
Agree	**61**	45%
Can not say	**25**	18%
Disagree	**3**	2%
Strongly disagree	**9**	7%

23. In your opinion, in order to promote social media , what measures should the management take? - Incentives for knowledge sharing and knowledge creation

107

Strongly agree	**20**	15%
Agree	**45**	33%
Can not say	**38**	28%
Disagree	**14**	10%
Strongly disagree	**3**	2%

108

23. In your opinion, in order to promote social media , what measures should the management take? - Assigned responsible person is important(Chief knowledge officer)

Strongly agree	**21**	15%
Agree	**54**	39%
Can not say	**27**	20%
Disagree	**12**	9%
Strongly disagree	**4**	3%

23. In your opinion, in order to promote social media , what measures should the management take? - Creating an enabling context for knowledge sharing

Strongly agree	**19**	14%
Agree	**65**	47%
Can not say	**23**	17%
Disagree	**9**	7%
Strongly disagree	**4**	3%

24. Does your organization use social media to communicate with your clients/customers/partners?

Yes	**47**	34%
No	**46**	34%
Can not say	**33**	24%
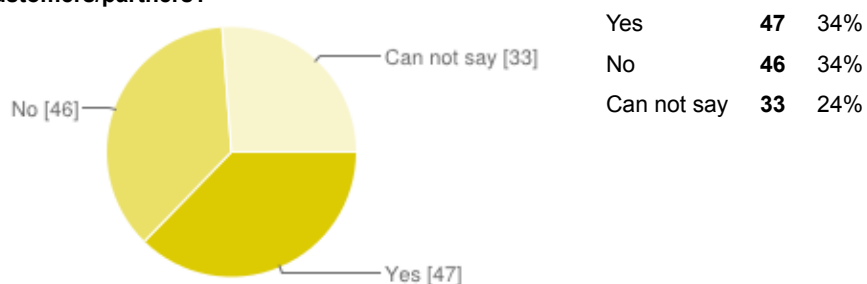
Number of daily responses   109

110
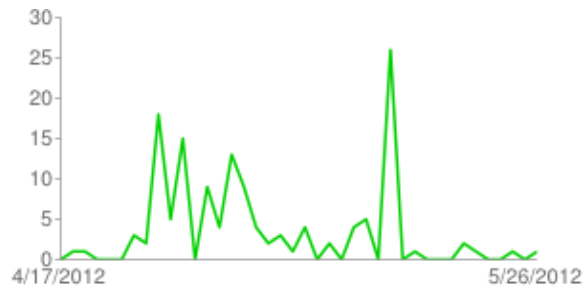
B.3 Dependent and Independent Variables

Dependent Variable
Usage of social media in office work

Independent Variables
Benefits
1. To increase my personal knowledge
2. I like sharing my knowledge
3. It helps in my promotion and further career growth
4. It enhances my contacts and networks
Costs
5. Lack of time
6. Lack of motivation
7. Lack of perceived usefulness
8. Lack of trust regarding information
9. Knowledge is power and I donÕt want to share it
10. Lack of expertise and training
Managerial Support
11. My closest manager contributes
12. My manager always encourages and gives me feed back
13. My manager recognizes and value my contributions
14. My manager allows some of my time to contribute
15. It is strongly supported by the management
Usage in personal life
16.Usage of social media in personal life

Table B.1: List of dependent and 16 independent variables

B.4   Regression Analysis Results

Regression Summary Output for 16 independent variables								
Regression Statistics								
Multiple R	0.560							
R Square	0.313							
Adjusted R Square	0.222							
Standard Error	1.254							
Observations	137							
ANOVA								
	df	SS	MS	F	Significance F			
Regression	16	86.145	5.384	3.422	5.44E-05			
Residual	120	188.789	1.573					
Total	136	274.934						
Regression coefficients								
	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	-2.149	1.003	-2.142	0.034	-4.135	-0.162	-4.135	-0.162
Lack of time	-0.136	0.117	-1.157	0.250	-0.369	0.097	-0.369	0.097
Lack of motivation	0.009	0.146	0.064	0.949	-0.279	0.298	-0.279	0.298
Lack of perceived usefulness	0.387	0.156	2.479	0.015	0.078	0.696	0.078	0.696
Lack of trust	-0.022	0.133	-0.166	0.869	-0.285	0.241	-0.285	0.241
I don't want to share it	0.057	0.151	0.377	0.707	-0.242	0.355	-0.242	0.355
Lack of expertise	-0.053	0.144	-0.371	0.712	-0.338	0.231	-0.338	0.231
To increase my personal knowledge	0.043	0.180	0.239	0.811	-0.313	0.399	-0.313	0.399
I like sharing my knowledge	0.040	0.159	0.251	0.802	-0.275	0.355	-0.275	0.355
It helps in my promotion	0.083	0.151	0.551	0.583	-0.215	0.381	-0.215	0.381
It enhances my contacts and networks	0.285	0.173	1.648	0.102	-0.057	0.626	-0.057	0.626
My closest manager contributes	0.151	0.164	0.924	0.357	-0.173	0.476	-0.173	0.476
My manager always encourages	-0.249	0.237	-1.050	0.296	-0.719	0.221	-0.719	0.221
My manager recognizes	0.067	0.233	0.289	0.773	-0.395	0.529	-0.395	0.529
My manager allows some of my tim	0.134	0.203	0.660	0.510	-0.267	0.535	-0.267	0.535
It is strongly supported by the management	0.330	0.150	2.208	0.029	0.034	0.627	0.034	0.627
Usage social media in your personal life	0.353	0.106	3.336	0.001	0.143	0.562	0.143	0.562

Final Regression Summary Output for 4 independent variables								
	Regression Statistics							
Multiple R	0.532							
R Square	0.283							
Adjusted R Square	0.261							
Standard Error	1.22							
Observations	137							
	ANOVA							
	df	**SS**	**MS**	**F**	**Significance F**			
Regression	4	77.820	19.455	13.028	5.71E-09			
Residual	132	197.11	1.4933					
Total	136	274.93						
	Regression coefficients							
	Coefficients	**Standard Error**	**t Stat**	**P-value**	**Lower 95%**	**Upper 95%**	**Lower 95.0%**	**Upper 95.0%**
Intercept	-1.941	0.748	-2.60	0.011	-3.421	-0.461	-3.421	-0.461
Lack of perceived usefulness	0.274	0.105	2.615	0.010	0.067	0.481	0.067	0.481
It enhances my contacts and networks	0.359	0.148	2.430	0.016	0.067	0.652	0.067	0.652
It is strongly supported by the management	0.412	0.109	3.786	0.000	0.197	0.627	0.197	0.627
Usage of social media in your personal life	0.353	0.097	3.629	0.000	0.16	0.545	0.16	0.545

B.5 Reliability of Data - Cronbach's coefficient alpha

The Cronbach's coefficient alpha value has been calculated using a template based Microsoft Excel for all the responses of both independent and dependent variables as listed in Table B.1 (p.111). The Cronbach's coefficient alpha value is 0.796045476. The Microsoft Excel sheet that was used to calculate Cronbach's coefficient alpha is enclosed in the CD accompanying the thesis as shown in the table D.1 (p.134).

B.6 Usage of social media by active users for knowledge sharing

The usage of social media for knowledge sharing for active users is calculated by combining the responses of question no.11 (usage of social media in office work) and no.15 (communication and collaboration tool for knowledge sharing) of on-line questionnaire (Appendix B.1, p.82). The detailed calculations (filename: *06-Active-users-tools-usage.xls*) have been enclosed to the CD as shown in table D.1 (p.134).

Table B.2: Communication and collaboration tools for knowledge sharing - Active users

Communication and collaboration tools	**number of active respondents**
Email	46
Internal instant messaging	41
Corporate discussion forums	21
Corporate Information sharing portals	17
Internal Social media	15

 Scale: Never (1), perhaps some times (2), monthly (3), weekly (4) and almost daily (5)
Active user: weekly (4) and almost daily (5)

Quantitative Data Analysis

C.1 Interview Guide for Semi-structured interviews

1. What are the communication and collaboration tools in your organization?

2. Do you have knowledge portals in your organization?

3. How often do you visit your knowledge bases?

4. Do you have social media tools deployed in your company?

5. Did social media tools spread in your company? How many employees are using social media tools?

6. Do you use social media tools on a daily basis?

7. Do you share knowledge on social media?

8. To what extent are social media tools facilitating communication, collaboration and knowledge sharing?

9. How are employees motivated to adopt the social media tools in their daily activities?

10. Are there any incentives for employees using social media tools in your organization?

11. Do you have any employee responsible for assessing the quality of information provided in the social media tools?

12. What is the attitude of the employees towards the social media tools?

13. What are the managers' attitudes and their support towards the social media tools?

14. Are there any strategies introduced by the top management for the usage of social media tools? Is the top management supportive?

15. What are the advantages and disadvantages of using social media tools in your opinion?

C.2   13 Interview Transcripts (p.119 - p.133)

The following is the list of interviews conducted as part of qualitative data collection. The interview transcripts are enclosed in the same order as mentioned in the Table 5.1 (p.52).

1. Interviewee-01, Project Manager, ARC, Kolkata, India. (C.2.0.1, p.119)

2. Interviewee-02, People Manager, IBM, Hyderabad, India. (C.2.0.2, p.120)

3. Interviewee-03, Technical Manager, ARC, Kolkata, India. (ex-IBM) (C.2.0.3, p.121)

4. Interviewee-04, Developer, IBM, Hyderabad, India. (C.2.0.4, p.122)

5. Interviewee-05, Manager, Capgemini, Hyderabad, India. (C.2.0.5, p.123)

6. Interviewee-06, Manager, Capgemini, Hyderabad, India. (C.2.0.6, p.125)

7. Interviewee-07, Manager and Founder, Prodigy systems, Hyderabad, India. (C.2.0.7, p.126)

8. Interviewee-08, Developer, Cognizant, Chennai, India. (C.2.0.8, p.128)

9. Interviewee-09, Developer, Cognizant, Kolkata, India. (C.2.0.9, p.129)

10. Interviewee-10, Developer, Wipro, India, currently located in USA. (C.2.0.10, p.130)

11. Interviewee-11, Developer, TCS, Kolkata, India. (C.2.0.11, p.132)

12. Interviewee-12, Senior architect, Ericsson global India services, Kolkata, India (C.2.0.12, p.132)

13. Interviewee-13, Developer, Ericsson global India services, Kolkata, India (C.2.0.13, p.133)

C.2.0.1 Interviewee-01, Project Manager, ARC, Kolkata

The interviewee-01 is an Ex Dell employee who is currently working for American reprographics company. He opinioned that, in the service industry, no one knows when and how pressures build up suddenly, therefore the knowledge management bases are very useful. In these situations one needs the information and so the information portals are important. In dell, most of the employees are using social media tools because it is strongly supported by the top management. However e-mail is the most used tool.

They have an incentive system for the use of social media tools for example; if they don't use the tools then their appraisal will be affected. In his opinion the role of the managers is also important. They need to drag the best of the employee. Employees also perform very well if done so. For example: once he made the most junior employee a knowledge champion, and she went on to do a great job.

He expressed that the social media tools are very useful. These are the platforms where everyone can share the knowledge. Information passes very quickly through these platforms. He said that he shares his ideas through blogs, whether the information is technical or related to entertainment. The problem is if you post a question or ask for any information you have to wait for at least 2 days. Slowly you will receive replies from people, either you relay the information based on your knowledge or by trying one after the other (trial and error method).

He doesn't support Facebook or twitter because in those networking sites, only 10% of the information is useful and rest of the information is not at all useful. What should we do or why should we know about other peoples' activities? In a work environment, LinkedIn is preferable.

However he expressed that if an employee is working in a large team then he/she will have time to contribute and/or use the tools, where as it is very difficult to use tools when working in small teams because of the lack of time and also due to work pressure. Within given time focusing on work as well as using these tools would be difficult. He said if managers allot extra time for employees for the usage of social media then among 10 employees only 2 employees use the extra time properly and the rest will miss use it. Any responsible employee will not hesitate to share the knowledge. He encourages knowledge sharing.

C.2.0.2 Interviewee-02, People Manager, IBM, Hyderabad

The interviewee-02 is a people manager as well as a project manager in quality services. Functional managers (project manager) who have emotional abilities and skills of managing people are recruited as people manager. Being a people manager he has the responsibility of understanding, motivating and taking care, hiring and firing of employees.

In his opinion social media was introduced in IBM long time ago. He has worked in USA for a short period and is currently working in Hyderabad, IBM. Employees mostly use e-mail, Intranet messenger, and lotus same time, for communication, collaboration. In his opinion Knowledge management is important because IBM has to deal with different clients and in different domains. A separate department is established in order to maintain the Knowledge. For example: telecom, insurance.

Furthermore, he explained that wikis are being used in the organization for posting different corporate information. Before taking up the position, he was given training in which he played games in virtual world to build the necessary leadership qualities. However he expressed that social media is successful in western countries than in India, because of employee's attitude and culture in which IBM is operating. Even though social media is in the organization but employees are not using it.

As a manager he is promoting it and included it in one of his goals to achieve because his top manager expects him to promote the social media. He said that the top management support is good at IBM. Mangers are also supportive and are encouraging it. Incentive programs are only for managers. He uses wikis for knowledge acquisition, but he has not shared anything yet. He expressed that these tools are very easy to use and the information penetrates very fast. On top of that he said quality and reliability of the information are some of the challenges in social media.

Furthermore he also mentioned that there is no responsible person to control and validate the content. He is very well aware of all the tools which are in IBM but is not using all the tools. He prefer wikis for knowledge acquisition and said that they will be given a hand book and different tools on the first day of joining

the organization, which will contain all the information of IBM, but only a few will actually look go through that book. They lack the curiosity, for any necessary information, they run to their immediate manager.

Difference between western countries and India is, according to him, in India if a new system is introduced in the organization, the management needs to push it a lot. It is always a push factor (For example, we introduced Hyderabad wikis and promoted and implemented the strategy. Initial response was good but later on employees did not use that much). It will not be accepted and immediately adopted by the employees. Employees prefer to be closed and do not want to open up with their ideas because they are not used to express their opinions publicly. Furthermore he expressed that as order of priorities changes and due to lack of time employees will go back to their original system. He expressed that only a few employees might be using the tools in India. According to him organizational culture is good at IBM because IBM gives more weight to his employees. For example, introducing a people manager is a different concept which will prevent the misuse of power by managers. No incentive planning or recognition for the employees for their contribution to social media tools. Employees will do wonders when there is an incentive plan, especially monetary benefits.

C.2.0.3 Interviewee-03, Technical Manager, ARC, Kolkata (ex-IBM)

The interviewee-03 is an Ex IBM employee currently working for American Reprographics Company. He is a technical manager. According to his opinion already they have different type of tools on intranet to communicate or contact each other. They also have knowledge bases and portals. Email and instant messaging are used mostly by knowledge workers. He is not sure what percentages of the employees are using the social media tools. He raised the question of why the employees use those tools, when they don't feel the necessity or need of them. He expressed that he used wikis when he was to work with other employees who are abroad. They are good when employees are in different locations.

Furthermore he said that when the employees are working in the same location, why should they use them? We can communicate through E-mails or have face to face meeting or use instant messaging. If an employee wants to promote

himself or get recognition in the community then he/she can use the tools. In IBM an employees' promotion is linked to the number of people who recognize you, which means you have the support from community. They don't have incentives for their contributions to these platforms. In his opinion, there is no recognition from the manager's point of view. These tools are useful for only half of the managers, rest of them don't need it.

People manager plays an important role in promotions and in salary hikes. If they encourage the social media tools then the adoption of social media tools reaches the bottom level of the organization. They have certain pressures. For example, nearly 40 employees report to the people manager. They will get paid by or they have billing hours to manage these employees. 2-3 years back they changed the billing system. They used to receive specific number of hours where they were paid to develop the employees' organizational activities in general.

The top management has a strategy, promotional ideas and wants to encourage the adoption of social media in the organization by employees but they haven't implemented the strategy properly. He said that age and job position doesn't matter. If employees have time and if get advice from the managers, then the employees will use it. Sharing knowledge is good and you will get recognition in the community.

C.2.0.4   Interviewee-04, Developer, IBM, Hyderabad

The interviewee-04 is working as a developer at IBM. They have a very good culture at IBM. In his view only a few are using social media tools. Most of the employee communication happens through e-mails and other channels. Social media is a very effective way to communicate with co workers for example through blogs; one can get the information for questions.

The mind set of knowledge workers matter a lot. These are open platforms and visibility for the employee is more. That is the reason employees don't use them often. At the same time, he raised doubts on trust on the information, accuracy of the answer, quality of the information and said he has to wait for the response. And expressed that they are increasing the people connections.

Regarding the quality of the information, if it comes from the known source,

or if they know about the profile of the employee then there is no doubt regarding the information. Social networking sites helps in this regard. There is a lack of incentive system towards the social media. He thinks that the managers have a very conservative mind set. According to him, the managers are mainly focused on assigning and completion of the tasks. This is very important for them.

However the Managers are a little interested in social media tools and they are trying to support it. It takes time for the trend to change. It also takes time to adopt the new technology. The most important issue is the lack of interest towards using the social media tools. IBM is not having any incentive plans for the contribution to social media tools. There is no recognition for the contribution and no rewards or any monetary benefits for the employees. In his opinion if there is an incentive system, response from the employees would be more and they will get a good encouragement through this.

He is interested in blogs and wikis. He uses them for knowledge acquisition and sometimes for sharing knowledge. The problem is, getting the answer or required information through a blog takes time. Social media tools are deployed in the organizations but the usage of it is low. Age and type of job really matters because knowledge comes with experience.

Social media tools connect employees, helps them to learn recent trends and they'll get to know the latest opportunities. Sharing knowledge is good but some employees don't wish to do that, but they should do it because it is mandatory. Before moving to another job, an employee has a notice period of 90 days, so within this period they have to share the knowledge.

C.2.0.5 Interviewee-05, Manager, Capgemini, Hyderabad

The interviewee-05 is a manager in Capgemini, center of excellence. According to him, they use e-mail, telephone, chat communicators, face to face meetings, teleconference, videoconference for communication and collaboration. The majority of the work related issues which are discussed through any mode of communication, those key understandings, and action items should be communicated through e-mails.

They have intranet portals and knowledge management portals. They do have

social media tools but are in early stages of adaptation. It is not widely used by the employees because until unless employees won't realize the benefits of the social media tools they won't adopt them. He expressed that as the value realization of employees regarding social media tools increases then the usage will also increase.

Top management is taking initiatives to promote the tools by sending e-mails to managers, especially knowledge management teams are sending e-mails to managers, having physical contacts by face to face programs, conducting road shows explaining the benefits of the social media tools.

Furthermore the organization is involving managers to drive the force. As of now they don't have any incentive plans for the promotion of social media tools. He said that financial benefits will not increase the adoption of social media tools by the employees because it is more about recognition because recognition is a soft factor that motivates the person especially in these kinds of social tools. So he thinks that, success stories have to be circulated more and more within the organization.

He expressed that, he doesn't use social media tools. As he works for a center of excellence; he don't see any great usage for his objectives. However, he started visiting the sites and thinks that he can give information pointers to his subordinates about the related blogs. He said, for example, recently read a blog about what the fate of the insurance company is. So he can give information pointers to his subordinates.

In his opinion, social media enhances relationships, knowledge touch points. Social media tools connects you with the bigger community of the organization, rest of the tools connects you to the smaller community of the organization. He raised a question when asked about strategy and top management support. Without a strategy why does the top management introduce anything within the organization? However he said that If the top management introduces incentive plans, employees will become attracted to it.

Furthermore he added that the name of the tools itself representing the social nature. So recognition is important. Social recognition followed by monetary benefits is a good idea. Senior managers should get involved with proper policy and governance systems.

He argues that the organizations always do a cost-benefit analysis. In order

to introduce an incentive plan they have to introduce a new policy. Management also thinks about the benefits of the organization. For example: Capgemini works on multiple technology, so it needs a big team for quality check regarding social media tools. It is a huge investment for the company. They do cost benefit analysis.

As one cannot force employees to use the tools, they have to motivate them. Employees having experience between 1-5 years, for them coming to work and do coding itself they feel burden. Regarding the promotion of the social media tools by management, he said that knowledge management groups are trying to ensure that the adoption of the tools should reach all levels of employees. Maybe in 2-3 years usage will increase.

Especially in his opinion, no social media tools ever replace the conventional communication channels or knowledge management channels. It only compliments by offering additional advantages. Finally he concluded that the employees have to share the knowledge. Some employees doesn't want to share their knowledge because fear of losing position and knowledge. They think that they might lose the advantage in the team.

C.2.0.6   Interviewee-06, Manager, Capgemini, Hyderabad, India

The interviewee-06 is a manager at Capgemini. He expressed that major communication or collaboration happens through e-mails, conference calls, instant messaging and lotus notes. They have a knowledge management portal. A newly joined associate would be given complete corporate information; all accessibility will be given to the employees.

They have social media tools within their organization but few employees are using the tools. Management has recently started encouraging the use of social media tools. When having discussions regarding yearly or quarterly goal setting meetings, managers are asking employees to use the tools.

Furthermore he expressed that even though having taken all these measures it is difficult to make employees use them. Managers need to promote continuously because not all employees take the message seriously in first instance. It will take considerable amount of time to make the employees use the tools. In his opinion

the usage of social media tools depends on designation and experience.

He expressed that for developers they already have technical portals and fo-
rums. Fresher doesn't need social media tools. The problem with newbies is each
comes from different background and different college with a different mindset. It
is very challenging for managers to align the fresher's mindset with organizational
activities. They will be given training too.

The moment they think that employees are ready; half of the employees will
leave the job. He expressed his concerns: Where is the chance for them to learn,
participate and use the knowledge resources for the organization? It will take
almost 5 years to organize them; some will leave in the middle and some after 5
years. For example: when we start a new project we will tell our client about the
number of employees we have in the team while keeping in mind that half will
leave by the end of the project.

Furthermore he argues that the employee motivation matters a lot in knowl-
edge sharing or using the tools. 0-5 years of experienced employees are still
learners, they can learn as much as they want. After 5 years onwards employees
won't listen, they behave according to their own interests. Most of the employees
search for information on google. In his opinion if he has a team consisting of 10
members, only 5 employees have the knowledge means and therefore only 50%
of his total team consists of knowledgeable personnel. In that 50%, only 25% of
the knowledge will be shared by the employees. He said that he needs to calculate
like this.

The advantages he expressed are: It will enhance individual knowledge, they
will enable the employee to work faster and help the employee grow in his carrier
(It might be misused by some people).

C.2.0.7 Interviewee-07, Manager and Founder, Prodigy systems, Hy-
derabad, India

The interviewee-07 is the founder of the Prodigy systems. It is a very small soft-
ware company located in Hyderabad, India having employees numbering around
30 to 40. He said that, for us e-mail acts as a repository system.

Furthermore he added that they do have an internal portal so employees can

visit and find the information. But most of the employees search for the information through Google. If they have any specific problem which they already dealt with then they will visit the internal portal.

Management want to exploit the benefits of the social media tools. Based on their needs they wanted to make knowledge management collaborative by introducing internal blogs, word press, wikis, and internal messenger. Their idea was to make knowledge management collaborative and make sure that everyone is on the same platform because these tools bring everybody together on one platform.

They wanted to motivate employees so they linked the contributions of employees to the performance measures. For example: Employees were encouraged to post a blog topic at least one blog a month. However he added that 70% of the employees started contributing to the blogs but the quality of the information was very poor. Regarding quality issues, as their company is not so big so can't afford a quality manager. If they would have afforded a quality manager that would have been better for them.

He said that employees preferred to use e-mail, when they encountered a problem instead of wikis. Employees feel as if it is an extra activity to share to a wiki platform. So their system moved back to the E-mails. They wanted to introduce a collaborative atmosphere. The reason for failure of their attempt , in his words, is in order to bring the knowledge sharing culture with in the organization, infrastructure set up was difficult.

He said that in general some people have fear that the deployment of the tools lead to loss of productivity or gossips but that is not the case in reality. It doesn't diminish productivity. Age and job position of employee matter in the adoption of the SM tools because the adoptability is more for younger generation where as older generation employees look at these tools from a contribution point of view.

Employees don't want to share knowledge especially on SM tools because they feel that they are already busy with their work. Since it is voluntary, employees don't consider it as an important issue. He said, he doesn't see any disadvantages of SM tools, in his opinion these tools gets everyone on the same platform.

C.2.0.8   Interviewee-08, Developer, Cognizant, Chennai, India

The interviewee-08 is working as a developer at Cognizant. He is well aware of the social media tools and KM base which are in his organization. He says that most of the communication happens through e-mails and other existing channels. Regarding social media, he said that the tools were introduced long ago but the employees don't have either information or awareness regarding them.

However last year the management integrated everything in COGNIZANT 1 which is a single place to find information . From then on, the management has taken initiatives to create awareness regarding the social media tools and now it has reached to every single employee. However the usage of social media by employees is low. Hardly only a few employees actively participate on these platforms.

Most of the employees use these platforms for discussions like incentive planning, visa related details or regarding company information. In his opinion, technology wise very few employees use it. He said that management is promoting social media tools.

For example: Recently he attended a meeting in which a technical architect who is superior to the managers gave an interesting presentation. He expressed the advantages of the web 2.0 tool. If the technical discussions happen through e-mails between groups or individuals, that information will vanish after sometime. Rather if they post or have discussions on the separate share point application so everyone can see and it, it would then last forever.

He expressed that the top management is having a good strategy as they started encouraging employees by introducing the points. If an employee contributes to technical blog or participates in discussions, or has given a successful answer to a posted question then he will get 200 points and becomes more popular in his community. He shared his experience as last year while he was working on a migration project, he posted relevant information on relevant blogs. He then received comments for his contribution.

He said that these are open platforms (the visibility is high) so some employees might be hesitant to post information and they might also be confused as to what information is considered relevant to post. However he said that the entry

level employees might not know how to ask a question or post the information so they stop themselves in using these tools. Even though an employee wants to post, he might not do this thinking that he is less experienced so other might not consider/value his contribution. However individual motivation plays an important role because if one wants to use the tools they will find ways to learn from others.

In his opinion managers are also not using the social media tools, very few technical managers are contributing but non-technical managers are busy in getting projects or talking to clients. Companies like cognizant are having employees in thousands so talent is scattered among all the locations. These platforms are facilitating information sharing and talent search.

Management is trying hard to promote the knowledge sharing culture by asking employees for technical contribution and linking the contribution effort to ratings. If an employee posts a good innovative thought to the innovation portal then that would be passed to around 900 employees, making the employee visible in the community and others will also approach to him regarding the same information. They are investing a lot in promotional activities. In general employees don't want to share knowledge when they have technical expertise.

C.2.0.9   Interviewee-09, Developer, Cognizant, Kolkata, India

The interviewee-09 is working as a developer at Cognizant. In his opinion Cognizant is having a very good culture (friendly atmosphere, can reach any manager, communicate to any employee). Most of the time, they use e-mails and instant messaging for communication and collaboration.

Generally each and every update will be communicated through e-mails. In his opinion mostly onsite employees or senior level vice president (VP) level employees use blogs. As he is working on a private bank domain, they have to follow regulations and have to follow very high security policies. According to him, social media tools are not used widely within the organization. Some might visit the platforms to know about organizational updates, to read funny topics.

They have to pass an exam regarding security information, it is mandatory. They have a security manager. Furthermore he said that employees avoid putting

the information because these social media tools are more visible and because of security reasons they hesitate.

He expressed top managers are communicating through blogs widely. Wikis are not very well used by them. He visits the sites to know about the strategic plan of the company or regarding promotions if something related is posted. He said that if he wants to upload any information he can use the KM portals, he will use them.

He expressed that the reasons for not using the social media tools by the employees are work load, deadlines and fear of breaching security rules. He said that these are good platforms to share knowledge but employees won't use them. Managers neither use them nor encourage them but are busy in jumping on their business. In his opinion job and job position don't matter in using the tools. The advantage of social media: he can see my company CEO in a YouTube video and listen to his message, it is a nice feeling, and he also get to know about other employee profile.

C.2.0.10   Interviewee-10, Developer, Wipro, India, currently located in USA

The interviewee-10 is working as a developer at Wipro consultancy services, India. Currently he is working onsite in U.S.A. He says that their company has a KM portal. He expressed that very few employees are using the social media tools.

Employees can only access the portals within the organization network using 2 passwords. They cannot easily access from the outside. For example: from onsite/client location, because they have to use 4 passwords. This shows how user friendly the portals are. They have the social media tools but if they are easily accessible then employees might use them. They communicate through e-mails with their coworkers.

They have so many restrictions in the organization, for example: when he was working on a project, while posing a question the managers thought that the visibility of the information is more so they restricted the information. This shows the conservative mind set of managers. They don't have any top management

support or a proper strategy to implement the social media tools.

The employees don't use the tools. In his opinion, these tools would be successful when they don't have any internal websites or other communication tools. Managers should take proactive approaches towards knowledge bases. Managers should encourage team members to post the white papers. Managers are also not using the tools. He thinks that Wipro doesn't encourage employees by introducing an incentive system.

Recognition by the managers /coworkers is important when participating in the social media tools. If an employee gives a perfect answer for the question or shares his knowledge, he should be encouraged by giving awards or allotting points which will relate to promotion, or link to bonus.

At the same time he expressed that if they introduce an incentive system, there might be a problem that the employees might misuse it. For example: If some points are given to the employee who contribute to blogs, then there might be a chance that they bring the content of some others and post it. In India work load is a lot, the employees are always busy with their work so the employees are not interested in these tools.

In using social media tools, he said age and experience matters because with experience one will gain the confidence and can expose himself on these platforms. The most important thing is the motivation of an employee. If an employee wants to update his knowledge and wants to survive in the market then he/she might be ready to be on pace with the technology and trend change.

Furthermore he argued that managers are not using them. Managers have to take initiatives to support KM documents. If somebody uploads the information that he has with him, for example, to a wiki base, then who will immediately approve or verify the content? They don't have any responsible person to check the quality of information.

He said that in order to get promotion they need to pass certain tests. If they fail 3 times then their appraisal will also get affected. Furthermore he expressed that if managers made the usage of social media mandatory then employees will quit the job. He felt that these tools will decrease the productivity to some extent and might be also lead to misuse. The advantages he perceived are: help in creating awareness of the company and/or helps branding the company.

C.2.0.11 Interviewee-11, Developer, TCS, Kolkata, India

The interviewee-11 is a programmer working for Tata consultancy services. He is well aware of knowledge management bases because he has given all the information on the introductory week. However, he said he came to know about office blogs while surfing for some technical information, accidentally came to know about them.

He said that he has neither given information previously nor are the tools mentioned by the managers. In his opinion no one is using the tools in the organization. He said that most of the employees do not know about the tools. He is not happy with his managers/organization.

He is an active user of social networking sites in his personal life. When discussing about the social media he raised the question that why should he use them. He said that when there are no benefits and no need of them in daily work , why should he waste his time.

Furthermore he expressed that the participation depends on employee personal interest however we are always busy with daily work, we don't have time to share knowledge or anything.

He said that they don't have support from top management or incentives regarding the promoting of social media tools. The management introduced the tools just for name sake since our company is CMM level 5.

C.2.0.12 Interviewee-12, Senior architect, Ericsson global India services, Kolkata, India

The interviewee-12 is a senior architect at Ericsson global India services. This company is formed recently and more or less it is a service company. They use e-mails and quick chat for communication and collaboration. They have social media tools embedded in the Ericsson collaborative platform, for example: Internal wikis and customized Facebook "Mynet". They don't use the tools, even managers also hardly see the benefit of using them. They don't have any top management support or strategy as of now.

He expressed that even though he contribute to the platforms taking his time from work load, he should get the recognition. If he don't receive any responses

then it will demotivating him. If he won't get encouragement then he will stop posting.

They don't have any incentive or appraisal system linked to the contribution. In his opinion reasons for not using the social media by employees: Day to day work pressures and not having enough time.

C.2.0.13 Interviewee-13, Developer, Ericsson global India services, Kolkata, India

The interviewee-13 is a fresh graduate and almost finishing 1 year at Ericsson. He knows that the tools are deployed in the organization but never used them. He works with his colleagues via e-mail. He doesn't have any idea whether his manger is using the tools or not.

In his opinion they don't have any top management strategy or incentives to encourage employees and no monetary benefits for their contribution. However he expressed that these tools make the user more visible, so maybe employees don't want to participate or they are shy to share knowledge.

Furthermore he expressed that through these tools the information can pass quickly, discuss and publish ideas.

Data sheets and Content on CD

List of content and data sheets enclosed in the CD are as follows,

File Name	Remarks
01-Alivelu-thesis-document.pdf	Electronic version of the thesis document
02-OnlineQuestionnaire-data-original.xls	Microsoft Excel sheet containing data for 137 responses for Online questionnaire
03-Usage-social-media-correlations.xls	Microsoft Excel sheet containing calculations for correlation coefficients between dependent and independent variables
04-Regression-Analysis.xlsx	Microsoft Excel sheet containing calculations for multiple regression analysis.
05-Cronbachs-Alpha.xls	Microsoft Excel sheet containing calculations for Cronbach's coefficient alpha
06-Active-users-tools-usage.xls	Microsoft Excel sheet containing calculations for usage of social media tools by active users

Table D.1: List of content and data sheets enclosed to CD