Enterprise 2.0: Knowledge-sharing and collaboration through emergent social software platforms (ESSP) (The case of IBM)

Master’s Thesis within Informatics (JM2D28)

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'I know more than I can tell'

Michael Polanyi (1967: 4) The Tacit Dimension
Abstract

Intellectual capital is the single most important asset owned by any organization. Business continuity and the long term sustainability of every business organization depends partly on how well accumulated organizational knowledge is passed on from generation to generation. Knowledge is hard to capture due to its implicit nature and even harder to manage, thus the deployment of numerous knowledge management systems by organizations in recent times. Knowledge sharing among employees within organizations can sometimes be very problematic. These problems stem from issues pertaining to power, secrecy, individualism, time, ignorance and technological issues among others. This paper seeks to investigate how web 2.0 technologies are being used to overcome these problems and facilitate knowledge sharing as well as collaboration. Web 2.0 has been described as the new web which focuses on the use of platforms. Platforms are digital environments in which contributions and interactions are globally visible. The new web technologies which are based on platforms are referred to as emergent social software platforms (ESSP’s). The use of these web 2.0 technologies (ESSP’s) within a business enterprise for the achievement of business goals is known as enterprise 2.0 (E2.0).

Central to this research is the knowledge sharing cycle model, which has three main stages; internalization, externalization, and objectification. Internalization occurs when individuals acquire or learn from the organization. Externalization is achieved when individual implicit knowledge is made explicit. Objectification is making new knowledge globally accepted. This cycle has been adapted to illustrate the role played by ESSP’s in facilitating knowledge sharing. A case study of IBM Corporation is used to arrive at the findings which are used to adapt the model. IBM Corporations extensively deploys E2.0. The company uses one central Social networking platform called IBM connections, which incorporates several ESSP’s. There are seven services on IBM connections which include profiles, Activities, wikis, blogs, bookmarks, Files, and communities. Employing the interview technique, observations and the use of secondary data, the research questions are answered. The findings indicate that ESSP’s can be used to support knowledge sharing practices and also helps to convert knowledge into its different forms (explicit and implicit). Blogs, wikis, and communities support internalization and externalization. The process of objectification is supported by wikis. Findings also indicate that the services within IBM connections platform support mass collaboration and foster strong ties among employees. In an objective manner, the paper points out some of the negative consequences of E2.0. Major issues uncovered through the case study include, sensitive data, undefined way of working with ESSP’s, privacy, abuse of use, and lack of interest.
Table of Contents

1 INTRODUCTION ......................................................................................... 8
  1.1 Background ......................................................................................... 9
  1.3 Previous Research Work in Field of ESSP’s ........................................... 11
  1.2 Problem ............................................................................................... 11
  1.3 Purpose and Research questions .......................................................... 12
  1.4 Perspective ......................................................................................... 13
  1.5 Delimitation ....................................................................................... 13
  1.6 Definitions ......................................................................................... 14

2 METHODOLOGY ....................................................................................... 17
  2.1 Research Strategy – Case Study ............................................................ 17
  2.2 Reason for Choice of Case (IBM) .......................................................... 18
  2.3 Research Approach ........................................................................... 18
  2.3.1 Qualitative Vs. Quantitative Research Methods ............................... 19
  2.4 Data sources ....................................................................................... 20
  2.4.1 Primary Data .................................................................................. 20
  2.4.2 Secondary Data .............................................................................. 22
  2.5 Literature Review ............................................................................. 23
  2.6 Research quality ............................................................................... 23
  2.6.1 Internal Validity ............................................................................ 23
  2.6.2 External Validity ........................................................................... 24
  2.7 Reliability ......................................................................................... 24
  2.8 Research Ethics ............................................................................... 25

3 THEORETICAL FRAME OF REFERENCE .................................................. 27
  3.1 Knowledge sharing within organizations ............................................. 27
  3.1.1 Internalization .............................................................................. 28
  3.1.2 Externalization ............................................................................. 28
  3.1.3 Objectification ............................................................................. 28
  3.2 Intermediation .................................................................................. 29
  3.3 Communities of practise ................................................................. 29
  3.4 Shift happens .................................................................................... 29
  3.5 Changing business Environment ....................................................... 30
  3.5.1 Changing Demographics ............................................................... 31
  3.5.2 The Proliferation of Emergent Social Software Platforms (ESSP) .... 32
  3.6 From Web 2.0 to Enterprise 2.0 .......................................................... 33
  3.6.1 Free and Easy Platforms for Communication and Interaction ........ 33
  3.6.2 Lack of imposed structures ........................................................... 33
  3.6.3 Mechanisms to Let Structures Emerge .......................................... 34
  3.7 Emergent Social Software Platforms (ESSP’s) ..................................... 35
  3.7.1 Blogs ............................................................................................ 35
  3.7.2 Wikis ............................................................................................. 36
  3.7.3 Social Networking Site (SNS) ........................................................ 38
  3.7.4 Discussion Forum ........................................................................ 38
  3.7.5 Podcasts and Web conferencing ................................................... 38
  3.7.6 Tagging ......................................................................................... 39
  3.7.7 RSS (Really Simple Syndication) .................................................. 39
  3.8 Wikinomics and the Mass Collaboration ............................................ 39
  3.8.1 Principles of Wikinomics ............................................................... 40
<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.9 The Enterprise 2.0 Bull’s Eye</td>
<td>42</td>
</tr>
<tr>
<td>3.10 Theoretical Frame Of Reference</td>
<td>43</td>
</tr>
<tr>
<td><strong>4 EMPIRICAL FINDINGS</strong></td>
<td>45</td>
</tr>
<tr>
<td>4.1 IBM Company Profile</td>
<td>45</td>
</tr>
<tr>
<td>4.1.1 Core Business Operations</td>
<td>45</td>
</tr>
<tr>
<td>4.2 ESSP’s Within IBM (IBM Connections)</td>
<td>46</td>
</tr>
<tr>
<td>4.2.1 Profiles</td>
<td>46</td>
</tr>
<tr>
<td>4.2.2 Communities</td>
<td>46</td>
</tr>
<tr>
<td>4.2.3 Blogs</td>
<td>47</td>
</tr>
<tr>
<td>4.2.4 Bookmarks</td>
<td>47</td>
</tr>
<tr>
<td>4.2.5 Activities</td>
<td>47</td>
</tr>
<tr>
<td>4.2.6 Files</td>
<td>47</td>
</tr>
<tr>
<td>4.2.7 Wikis</td>
<td>47</td>
</tr>
<tr>
<td>4.3 Case Results</td>
<td>48</td>
</tr>
<tr>
<td>4.3.1 IBM’s Social Media Strategy and Vision</td>
<td>48</td>
</tr>
<tr>
<td>4.3.2 Role of social media (IBM Connections) within knowledge sharing and collaboration</td>
<td>50</td>
</tr>
<tr>
<td>4.3.3 Negative Implications of Using Social Media</td>
<td>54</td>
</tr>
<tr>
<td><strong>5 DISCUSSION AND ANALYSIS</strong></td>
<td>57</td>
</tr>
<tr>
<td>5.1 The knowledge Sharing Cycle</td>
<td>57</td>
</tr>
<tr>
<td>5.1.1 Intermediation</td>
<td>58</td>
</tr>
<tr>
<td>5.1.2 Internalization</td>
<td>58</td>
</tr>
<tr>
<td>5.1.3 Externalization</td>
<td>59</td>
</tr>
<tr>
<td>5.1.4 Objectification</td>
<td>59</td>
</tr>
<tr>
<td>5.2 Collaboration</td>
<td>60</td>
</tr>
<tr>
<td>5.2.1 Being open</td>
<td>60</td>
</tr>
<tr>
<td>5.2.2 Peering</td>
<td>60</td>
</tr>
<tr>
<td>5.2.3 Sharing</td>
<td>61</td>
</tr>
<tr>
<td>5.2.4 Acting globally</td>
<td>61</td>
</tr>
<tr>
<td><strong>6 CONCLUSION</strong></td>
<td>64</td>
</tr>
<tr>
<td>6.1 Reflections</td>
<td>65</td>
</tr>
<tr>
<td>6.2 Future Recommendations</td>
<td>66</td>
</tr>
<tr>
<td>REFERENCES</td>
<td>67</td>
</tr>
</tbody>
</table>
Figures

Figure 1: Research Process (modified after DeMast & Bergman, 2006) ................................................................. 19
Figure 2: Knowledge Sharing Cycle by Huysman & Dirk de Wit (2002) ................................................................. 27
Figure 3: Social Media Campaign by Gary Hayes & Laurel Papworth (2008) ........................................................... 32
Figure 4: Web 2.0 “Meme Map” by Tim O’Reilly (2009) ......................................................................................... 34
Figure 5: Enterprise 2.0 Bull’s Eye by Andrew McAfee (2009) ................................................................................. 42
Figure 6: Theoretical Frame of Reference ........................................................................................................... 43
Figure 7: Conceptual Model of Social Media within IBM ....................................................................................... 48
Figure 8: Objectified Knowledge Sharing Cycle .................................................................................................. 57

Tables

Table 1: Comparison between Qualitative and Quantitative Methods ................................................................. 19
Table 2: Interviews’ Details .................................................................................................................................. 21
Table 3: Classification of Various Processes Huysman (2002) ............................................................................ 29

Appendices

Appendix 1: IBM CONNECTIONS – SCREEN SHOTS ............................................................................................ 72
Appendix 2: IBM – Case Study - QUESTIONNAIRE ............................................................................................ 79
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Chapter 1
Introduction

Chapter 2
Methodology

Chapter 3
Theoretical Frame of Reference

Chapter 4
Empirical Findings

Chapter 5
Discussion and Analysis

Chapter 6
Conclusion and Reflections
1 INTRODUCTION

Researchers argue that intellectual capital is the biggest asset of any organization and serves as the greatest source of power (Druker, 1993; Toffler, 1990; Quinn, 1992). These authors agree on the statement that the future belongs to people who are endowed with knowledge (Nonaka, 1996). We live in a knowledge-driven world, which therefore makes the “knowledge worker” the greatest single asset (Druker, 1993). One of the most popular management concepts over the past few decades has been that of knowledge management (Huysman, 2002). The field of management has seen increasing interest and research over the years. Researchers and practitioners alike have a kin interest in Knowledge sharing (KS) in organizations. Research shows that these two groups (Researchers and practitioners) confirm that knowledge sharing improves organizational performance (Lesser & Storck, 2001).

The practise of managing knowledge is crucial for every organization. Most often, organizations do not know what they know. Locating and retrieving knowledge within organizations can be problematic (Huber, 1991). Knowledge sharing is an area of great interest within strategic management, and has drawn the attention of researchers.

Huysman et al. (2002), define the management of knowledge sharing as “the structured support and guidance of acquiring knowledge, exchanging knowledge and using knowledge to support business processes within an organization”. These authors further states that knowledge-sharing is carried out with three different goals in mind: Acquire knowledge, reuse knowledge, and develop new knowledge. These various goals can be achieved with support from Information Communication Technology (ICT) (Huysman, 2002). Many managers ask how they can promote knowledge sharing within their organizations.

Information Technology (IT) has long since been used within business organizations to support business processes/activities. The field of knowledge management is no exception and has seen its fair share of IT support tools. IT is used as an enabler in most knowledge management (KM) initiatives (Alavi & Leidner, 2001). One way by which IT can support KM is by helping people work together in virtual teams. Technology has evolved immensely and today IT provides cutting-edge support to knowledge-sharing management.

Technology has improved and IT tools and applications have become more adapted for use on the World Wide Web (www). The internet and web 2.0 technologies have brought great changes to the way in which IT is used to support KS. O’Reilly (2005), who pioneered the term web 2.0, defines it as “the business revolution in the computer industry caused by the move to the internet as platform, and an attempt to understand the rules for success on that new platform. Chief among those rules is this: Build applications that harness network effects to get better the more people use them”. Web 2.0 or the ‘new web’ harnesses the power of crowds. It provides the opportunity for individuals to interact on the web in several different ways. Web 2.0 might be seen as hype in the IT world, but this might not be the case. This phenomenon is relevant to all organizations that want to bring people together in communities that can generate useful information and knowledge (McAfee 2009). Web 2.0 is the new powerful tool that is being used for KS efforts by some organizations.

Since the coming of web 2.0, the internet community has seen a proliferation of emergent social software platforms (ESSPs). Web 2.0 is the transition from the old static internet to a more dynamic and interactive one which is based on platforms. The compound term ESSP’s, when broken down contains different concepts (emergent, social software, and platforms). Andrew McAfee (2009) defines these concepts as follows; McAfee (2009) defines ‘emergent’ as software that is freeform, containing mechanisms like links and tags to let pat-
terns and structures inherent in people’s interactions become visible over time. *Social software* are software which enable people to collaborate, rendezvouz, connect through computer-mediated connections. Finally, *Platforms* are described as digital environments in which contributions and interactions are globally visible and persistent over time (McAfee, 2010). Some examples of ESSPs include: blogs (blogspot.com), wikis (Wikipedia), Social Networking software (Facebook), Social media platforms (YouTube), forums etc. The usage of web 2.0 technologies such as ESSP’s within business organizations has been termed Enterprise 2.0. The term *Enterprise 2.0* was coined by Andrew McAfee to describe the use of ESSPs by organizations in pursuit of their goals. Enterprise 2.0 can be applied in organizations in several different ways. Central to the concept of Enterprise 2.0 is its ability to harness the collective intelligence of the masses, collaborate and share information and knowledge. These technologies therefore can possibly be used to overcome some of the challenges faced by organisations in their knowledge-sharing efforts. These are the new IT tools which are being used to support knowledge sharing and management within organizations.

1.1 Background

Terms such as *knowledge worker*, were first introduced by Drucker in the 60’s to highlight prominent changes that were taking place in the society (Drucker, 1993). The definition of knowledge has always been disputed but Western Philosophers generally agree that knowledge is justified true belief (Nonaka, 1996). The study of knowledge sharing emerged as a key research area from the field of Technology transfer and innovation. It then shifted to the field of management and more recently to the field of strategic management (Cummings, 2003). Five different contexts that can affect successful knowledge-sharing are identified from literature by Cummings (2003) and they include: form and location of knowledge, recipient’s learning predisposition, relationship between source and recipient’s knowledge-sharing capability, and broader environment in which sharing occurs.

Knowledge is generally unstructured, and the notion that it can be captured, shared, and applied to knowledge work has still not been fully realised (Davenport, 2005). There are many factors that hinder effective knowledge sharing. Knowledge sharing literature (Huysman, 2002; Tiwana, 2000; Davenport, 1997; Nonaka, 1995) identifies some common reasons why knowledge-sharing among employees in organizations might be problematic. These reasons are explained below.

**Knowledge as a source of power**

Some people view knowledge as a source of personal power. Some individuals might not be willing to share hard-earned knowledge in order to stay ‘indispensable’ to their employers. Internal competition among members of the same organization also acts a barrier to effective knowledge sharing.

**Secrecy and organisational structure**

Some managers or business owners are reluctant to share sensitive company secrets. In some cases, the strict top-down organizational structure impedes the free flow and transfer of valuable knowledge within the organization. Access to personnel higher in rank in such organizational structures is made difficult. There is always the factor of trust when knowledge is shared. People might choose to hold back with their knowledge if they do not trust the recipient.
Individualism and ignorance

Another reason advanced in literature, which impedes knowledge sharing, is individuals who would rather re-invent the wheel instead of simply asking a fellow colleague. This might stem from personal pride and ego. Due to trust issues and personal relationships, some employees prefer not to use information and knowledge from other employees or sources with whom they do not have strong ties (Szulanski 1994).

There is also the issue of ignorance. Szulanski (1994) argues that people sometimes do not know that other people in the organization have or are in need of specific information. Some employees simply might not realize the benefits of KS. Humans have a lot of knowledge that resides within, and unconsciously they ‘horde’ knowledge which could be helpful to others around them.

Time factor

One important impediment to knowledge sharing is the lack of time. Szulanski (1994) again stresses that people often do not have sufficient time to utilize available resources and information. Every organizations has tight schedules and assignments for its employees and this often leaves very little extra time for individuals to engage in voluntary knowledge sharing activities. Making inputs into a Knowledge management system (KMS) for example is something that might be viewed by an employee simply as an extra burden on their already hectic workload.

Technological issues

Inadequate technological infrastructures could also slow down the process of knowledge sharing. The wrong choice of IT support could also result in usability issues which would interfere in KS efforts. Some KMS and IT systems have a steep learning curve and the lack of adequate support and training leads to poor KS among employees (KPMG, 2000). A survey by KPMG (2001) found out that half to three quarters of KM systems failed to meet their goals due to lack of training. Such systems (KMS) focus on information and knowledge that is easily quantifiable. Unfortunately, not all knowledge is quantifiable there is a need for better suited tools to aid in the management and transfer of knowledge.

Groupware technology was designed to overcome the challenges of managing knowledge. These systems aimed at helping people with a common goal work together by giving them access to a shared pool of information and communication tools (McAfee, 2009). A typical example of groupware is Notes, which was released in 1989. Numerous similar systems were released after this period. One of the shortcomings of Groupware was its inability to find and share information and knowledge. Groupware applications were also very costly to deploy and maintain. These applications in some cases decreased productivity because some tasks were performed outside the groupware because it took a lot of time to synchronize calendar schedules. These systems had low reliability as a single malfunctioned server could bring everything to a halt. Between the 80’s and 90’s the second main group-level technology was deployed through knowledge management systems (KMS). These new systems were database oriented and designed to capture knowledge about specific topics, and as Davenport (2005) puts it, these systems were ‘brain dumps’. These systems generally did not deliver the desired results. These databases only acted as repositories for collecting information about specific issues. The systems were not dynamic or flexible enough to spread knowledge in an efficient manner. McAfee (2009) argues that in order to be able to understand why groupware
and KMS did not deliver as expected, attention has to be directed towards the World Wide Web (www).

McAfee (2006) argues that the new tools and communities that sprung up on the internet overcame some of the limitations of earlier tools which were used for computer-supported collaborative work. According to Maria A. (2010), we live in a social era and our world is connected like never before. Tons of data, information and knowledge are shared, and distributed in the social virtual world (online).

The increasing adoption and use of social media within organizations certainly spells a gradual shift from conventional systematic business practices. New concepts such as Wikinomics, ideagoras and prosumer, have sprung up, all necessitated by the recent trends in the way knowledge and information is acquired, shared and disseminated. New models are coming up based on these concepts rather than on hierarchy and control (Tapscott, 2007). According to Tapscott, employees are driving performance by collaborating with peers across organizational boundaries. This is all made possible by the new social media tools that are available on the web. A lot of companies are beginning to adopt these technologies and perhaps this could go a long way in solving knowledge sharing problems within organizations.

### 1.3 Previous Research Work in Field of ESSP’s

The concept of knowledge sharing within organizations through the use of emergent social software platforms is not an old one. Meaningful previous research has been carried out in academic institutions and organizational. Previous research has focused mostly on collaborative issues regarding platforms such as wikis, and blogs. Some of studies have contributed in this field by creating awareness for organizations about the benefits of using ESSP’s for knowledge creation. The concept of Enterprise 2.0 is quite young, which accounts for why the body knowledge in this area is still very small. Some areas of previous research include:

1. The impact of Enterprise 2.0 on innovation processes, and aligning Enterprise 2.0 platform in order to trigger innovative initiatives.
2. The influence of Enterprise 2.0 technologies for the organizational structure and cultural values.
3. Using Wikis for effective collaboration and the impacts on group working within the organizations.

Generally during our literature review authors observed that most researchers have researched on Wikis in terms of knowledge sharing, creation of knowledge, collaboration among self-managed teams. General findings in previous research work indicate that social media tools such as wikis are increasingly becoming popular for managing knowledge and collaboration within enterprises.

### 1.2 Problem

There has always been a need to support knowledge processes within organizations (Huysman, 2002). One of the pitfalls of knowledge management is getting individuals to share their knowledge with fellow colleagues. A lot of organizations face the problem of loosing valuable knowledge with the retirement of employees (DeLong, 2004). Not only is it hard to tap the tacit knowledge that resides within seasoned employees, but sometimes effective collaboration and communication amongst them also poses a problem. It is better to “harness the col-
lective intelligence of a group of people and thus yield better or more accurate information than any individual within the group possessed” (James Surowieki, 2005).

Imagine a new employee in a large corporation, trying to ‘find their feet’. Meeting the right people and finding answers to problems encountered on the job for beginners can sometimes be problematic. Interestingly, the issue here is not the absence of the resources and help needed by these fresh employees, but rather difficulties in accessing required resources. Connecting knowledge seekers with knowledge providers and facilitating the free flow of knowledge is a difficult task. Within every organization, resides a massive amount of knowledge, which must be carefully managed. This has therefore necessitated the creating of numerous knowledge management systems (KMS). In order to effectively create and manage collective wisdom there is the need for information exchange among employees (Angel C. & Elizabeth F., 1997).

Technology can be a very instrumental tool in facilitating information exchange and thus the use of KMS. Unfortunately, these elaborate systems (KMS) have their shortcomings, and are not always used by employees. Social media has been used in recent times to enable and support collaboration and knowledge management efforts (Yates et al., 2010). Yates et al. (2010) illustrate (using their concept of shaping), how organizations can use social media tools such as wikis to collaborate and share knowledge. Media tools such as blogs and wikis have been cited by some authors as conventional tools which enable knowledge creation and sharing through collaboration (Hasan & Pfaff, 2006; Wagner, 2004, 2006). Some scholars have argued that social media is reshaping and changing the way in which we as individuals work and interact with each other. It also ushers in new ways of collaborating and sharing (Hirschheim & Klein, 2010; Wagner & Majchrzak, 2007; McAfee, 2006).

Social media has penetrated the corporate world and many organizations are beginning to recognize the value of these new tools within the organization (Andriole, 2010; Stocker et al., 2009; Stenmark, 2008). The term Enterprise 2.0 was coined by Andrew McAfee to describe the use of web 2.0 tools within formal corporate settings. Such tools include wikis, blogs, social networking platforms and many more. Wikis for example are increasingly being used by many organizations to collaborate and share knowledge (Yates et al. 2010). These authors further argue that, unlike traditional models of knowledge sharing, which have a stable knowledge base; wikis provide the possibilities of reorganizing, rewriting and integrating shared knowledge.

Despite the impact that social media seems to be having on organizations and its increasing adoption, there is very little empirical knowledge available in this field (Chai et al., 2010; Andriole, 2010; Stocker et al., 2009) This therefore leaves a research gap in the area of how social media is impacting knowledge sharing amongst individuals and groups at the workplace. According to The Human Capital Institute, "Corporate Social Networking helps today's businesses to find creative ways to recruit, engage, and retain their employees and facilitate strategic knowledge sharing across the enterprise.”

1.3 Purpose and Research questions

Social media is changing the way we work and interact with each other (e.g. Hirschheim & Klein, 2010; McAfee, 2006). The new web (otherwise known as web 2.0) is redefining the way people within organizations collaborate and share knowledge. Based on this premise, this thesis seeks to carry our research within this area, in order to provide some empirical
evidence to support the arguments being put forward by some scholars such as the above-mentioned.

The purpose of this research is to investigate the role of social media (ESSP’s) within an organizational setting. The specific target area would be knowledge sharing within the organization with the aid of social media tools. A clear understanding, definition of the concepts (social media) and the emerging new term ‘enterprise 2.0 will be provided. A description of main social media tools will be provided in addition to their various uses within organizational settings, regarding knowledge sharing. The overall purpose of the thesis brings us to the following research questions.

*How is social media being used within organization to facilitate knowledge sharing and collaboration?*

Just as is the case in real life, there are always two sides to every coin. It is therefore the interest of authors of this paper to find out the consequences of the using social media. This leads us to the second research question.

*What are the consequences of using social media for knowledge sharing and collaboration?*

The consequences implied by this question are the negative effects that might result from the use of ESSP’s tools within the organization.

### 1.4 Perspective

This research is carried out from a management perspective within an organization. Social media can be seen in a wide variety of areas in life, but this thesis chooses to focus on its use within the enterprise, and thus the use of the word enterprise 2.0. This emphasizes the fact that this work is strictly concerned with the use of social media within the confines of an organizational setting between employees.

The results and findings in this work therefore can be of great interest to managers and business owners who face the problem of effective knowledge sharing and collaboration within their organization. The employees who are involved in sharing knowledge with each other across the organization are also another group to which this research could be of interest. Managers can be educated on how to implement these social media tools, meanwhile employees can learn the benefits and general consequences of using such tools within the organization.

### 1.5 Delimitation

The research goals of this paper focus on the usage of social media (ESSP’s) and resulting consequences. The technical aspects of implementing social media tools within the organization are therefore beyond the scope of this paper and will not be addressed. Knowledge management is a broad management field with several perspectives. This paper specifically focuses on the dynamics of knowledge sharing with the aid of IT (which in this case is ESSP’s). Though the problem being solved centres around knowledge sharing (KS), it is important to note that more emphasis is placed on the IT tools (ESSP’s) which are being used. More focus is therefore placed on describing the solution to the problem instead of exploring the dynamics of KS itself. Only basic knowledge management concept related to knowledge sharing will be highlighted and explained.
We do not claim to cover all available ESSP’s, but rather only those which are applied and used by our case study will be explored. The term ESSP’s is considered as a subset of social media within the context of this paper and may be used interchangeably. There are numerous social media tools, but this paper cannot possibly investigate all of them. We therefore will stick to the major ones which are in use by the company being studied.

1.6 Definitions

**Social media:** The relatively inexpensive and widely accessible electronic tools that enable anyone to publish and access information, collaborate on a common effort, or build relationships (Jue A. et al., 2010)

**Knowledge Sharing:** Lee & Al-Hawamdeh (2002) define knowledge sharing as the voluntary process of transferring knowledge from one party to another which makes the knowledge reusable

**Knowledge Management:** According to Alavi & Leidner (2001) the process of creating, transferring, organizing, applying and sharing the knowledge is called knowledge management.

**RSS Feeds:** Really Simple Syndication (RSS) is a tool used to publish continuously updated activities such as blog entries, audio, videos, and headlines etc. According to the Stenmark (2008), the aggregation of feeds and news through variety of channels simultaneously called RSS technology.

**Web 2.0:** The term web 2.0 was introduced by Tim O’Reilly in 2004, for the next generation of web services and business models over web or due to the major shift of internet towards a platform.

**Enterprise 2.0:** Enterprise 2.0 is the use of web 2.0 technologies to accomplish organizational goals (McAfee, 2009).

**Wikinomics:** The concept by Tapscott & Williams (2006) describes the new economy where instead of simply consuming, we are actively collaborating, producing and consuming at the same time. The term is simply described as the new economy of mass participation and collaboration.

**Emerging Social Software Platforms (ESSP’s):** These are the new web 2.0 technologies which are all based on platforms. These tools help people to rendezvous, participate, collaborate, peer and share. These platforms are otherwise known as social software.

**Organizational Learning:** According to Huysman (2002), the combination of internalization, externalization and objectification make up the organizational learning process. This is a process through which organizations gain new knowledge about its goals, environment, and the processes it performs.

**Internalization:** Internalization is the process of learning from the organization, where the organizational knowledge is acquired by individuals inside the enterprises (Huysman, 2002).

**Externalization:** When the individuals share organizational knowledge with each other both inside and across the departments, is called externalization (Huysman, 2002).

**Objectification:** According to the Huysman (2002) externalization does not necessarily lead to accepted knowledge. Only when shared knowledge is accepted by all members of the or-
ganization does it become objectified knowledge. Objectification is therefore getting new knowledge ‘global’ acceptance.

**IBM Connections:** IBM connections are the name of the main social networking platform that is used by IBM Corporation internally for business purposes. This platform integrates several different services which are designed to accomplish different goals.
2 METHODOLOGY

In this chapter, authors discuss a variety of research approaches, strategies and techniques to support research questions by providing solid and logical argumentation based on literature review and empirical findings. Aspects regarding research quality such as validity, reliability, and applicability (extent to which results can be generalized) will also be addressed in this section.

2.1 Research Strategy – Case Study

A research strategy is ultimately influenced by the nature of the research questions. The five core research strategies include; experiments, surveys, archival analysis, histories and case studies (Yin, 2003). According to Yin (1994), if the research question is answering a how or why question, then research strategy could be case study. This strategy gives a rich and in-depth look at a particular phenomenon within the subject being studied. There is the possibility to explore specific concepts and theories within the case, through observations, interviews and other methods, in order to get accurate answers to particular questions. According to Stake (1995) case studies are used to improve understanding of the subject and create room for personal interaction with the subjects involved.

A case study is a good alternative if a rich understanding of the context of research and the various processes being enacted is needed (Morris and Wood, 1991). This method is good for answering the why, what and how questions (Saunders et al., 2007). IBM has been chosen as the case to be studied in this research paper and the main research question of this paper answers the "how" question and thus the choice of case study. Therefore help to improve the quality of our research in areas of generalising results and validity.

According to Yin, 2003 data collected through case study implies that a variety of sources are being used to gather data. Some examples include: primary sources (verbal reports), surveys, personal interviews, observations and secondary sources (financial reports) and related systematic researches performed by enterprises themselves. Different authors believe that multiple case studies are useful in solving problems. Using multiple case studies however depends on the nature of research question.

According to Yin (1994) single case study is suitable if the purpose is to examine the established theories. A single case study is therefore suitable for this research because theories are being tested and applied to IBM. The knowledge sharing cycle model by Huysman et al. (2002) will be applied to the case. Several social media theories will also be tested and applied to IBM, and the ultimate goal is to incorporate all these concepts in one big framework. The framework would give one big picture of how social media supports the knowledge sharing cycle.

According to Yin (2003), there are three types of case studies; an exploratory case study is used to gather maximum information related to the research topic. A descriptive case study focuses on defining the problem not its cause. An explanatory case study talks about the data position on cause-effect relationship. This research therefore will be conducted by using the explanatory approach as a research strategy. The aforementioned research questions; how social media is being used for knowledge sharing and the consequences of implementation within organizations, have cause-effect relationship. The exploratory approach will also be employed in this paper. since the first research question answers the "how" question, there is
a need to do a deep exploration in order all possible data that would answer the "how" question without leaving behind any ambiguities.

2.2 **Reason for Choice of Case (IBM)**

After a careful study of various companies of interest, International Business Machines (IBM) in Sweden earmarked as the most suitable choice for our case study. IBM is a mature organization with a rich experience in the use of social media within the organization. This organization pioneered and set industrial standards with the use of older systems such as Lotus Notes the organization has grown and developed new systems for collaboration and knowledge sharing. Not only does IBM use social media and ESSP’s tools for their own purposes but they also sell IT solutions for collaboration and knowledge sharing to external clients and companies. This therefore makes IBM a very suitable choice for our case study because it is a company which fully understands the impact of social media within the business environment. It could also be argued that they are early adopters and have been using social media for a long time. This choice of case study is also very suitable because the organization is multinational and spans several different countries and this would make the research findings more generalizable.

2.3 **Research Approach**

Saunders et al. (2007) propose two methods of data collection, qualitative and quantitative. The chosen method (quantitative or qualitative) is most often than not influenced by the chosen strategy. In this work, the case study strategy has been chosen, which consequently means the data collection method would be qualitative. According to Saunders et al. (2007) this method is based on texts and metaphors and has a very low level of standardization. These authors further argue that the examination of people’s ideas, opinions, values, interpretations, apprehensions and behaviours constitute the main purpose of study here. Unlike the quantitative approach which superficially studies a very broad range of subjects, the qualitative approach focuses on one subject and gets rich and detailed information and data. One advantage of the qualitative approach is that it helps us collect data from people in real life settings, thereby helping the researchers get a deeper understanding about their experiences and local context (Creswell, 1999; Miles & Huberman, 1994).

According to Ghauri and Gronhaug (2005), both ways of reasoning by researchers ultimately builds theories. Inductive reasoning based on empirical evidences or observations and this is usually associated with qualitative studies. However deductive reasoning based on extracting results from existing knowledge and this is usually related to quantitative research. Moreover inductive study has systematic however deductive study has logical reasoning. Saunders et al., (2007) argue that the deductive approach is seen as a way of proof. In this approach, a theoretical/conceptual framework is tested using collected data. The same authors refer to the inductive approach as a way of discovery. Here, data is explored and used to develop new theories.

Depending on the research questions, different methods (inductive and deductive) can be merged. The first step of systematic research is to have generated theories which came into existence after the induction process of observing facts. The deduction approach proves or disproves hypothesized relationship about the inductive theories.
According to Strauss and Corbin (1990), Qualitative methods are widely used in social and behavioural sciences. A mixture of both deductive and inductive methods can be employed in research work and this combination results in Abductive method (Ezzy, 2002). This method will be used in this work which implies that the empirical findings and theories will complement each other at various stages of the project. In the beginning, the theories of knowledge sharing, and social media will be tested to some extent within IBM and late in the project, empirical findings will be used to develop and adapt the previously mentioned theories.

This model illustrates the use of the deductive and inductive methods at various stages in the project, while avoiding any contradictions. In the beginning of the research, mainly deductive methods are used to gather theoretical information which is connected to the problem area. In the later phases of the project, an inductive approach is used to collect empirical data from the case study. The processes in the model do not flow in chronological sequence but are rather iterative and continuously updated as the thesis work progresses.

2.3.1 Qualitative Vs. Quantitative Research Methods

Kumar (2005) argues that the selection of method depends on purpose of research topic, process of data collection and analysis of data. According to Gillham, B. (2000), the qualitative research helps researchers to highlight the ambiguities that are still not explored. According to Bazeley (2004), both approaches can be distinguished based on types of data for example textual or numeric and structured or unstructured. A comparison between the two aforementioned approaches is illustrated below.

<table>
<thead>
<tr>
<th>Qualitative Method</th>
<th>Quantitative Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓ Focus on respondents view</td>
<td>✓ Focus on testing, verification, facts and reasons</td>
</tr>
<tr>
<td>✓ Observations and measurements in natural settings</td>
<td>✓ Controlled measurement</td>
</tr>
<tr>
<td>✓ Subjective</td>
<td>✓ Logical and critical study</td>
</tr>
<tr>
<td>✓ Explorative study</td>
<td>✓ Objective</td>
</tr>
<tr>
<td>✓ Process oriented</td>
<td>✓ Result oriented</td>
</tr>
<tr>
<td>✓ Holistic perspective</td>
<td>✓ Analytical perspective</td>
</tr>
</tbody>
</table>

Table 1: Comparison between Qualitative and Quantitative Methods
This research focuses on how social media facilitates knowledge sharing and collaboration. Based on our research questions, and taking into account the characteristics of the above mentioned approaches, the qualitative technique is best suited for this paper. This will help us capture a very practical viewpoint with minimal ambiguities. Though subjective, this method gives a rich understanding of the problem and findings with in-depth knowledge and understanding.

The two different approaches of research design (qualitative and quantitative methods, techniques) depend on the research question and perspective (Jankowicz, 1991).

2.4 Data sources

There are two main data sources used in research; Primary data (direct original) and Secondary data (Hussey and Hussey, 1997). Researchers use both sources primary and secondary depending on a particular problem or phenomenon. In our research work we use both types of data to have broader view on the real and complex problems faced by enterprises. The various data sources are explained the sections below.

2.4.1 Primary Data

Data collected through interviews and surveys is called primary data. Primary data is most useful source of original and valuable data. The goal of using primary data sources is to get information which is not available in secondary data forms. Primary data is an alternative for secondary data and consumes much time and cost as compared to secondary data. Interviews are used as the sole method for primary data collection in this work.

2.4.1.1 Interviews

To gather data, interviews are conducted to have interaction between the researcher and the respondents (Ghauri and Gronhaug, 2005). According to Wrenn et al. (2002), there are variety of ways to conduct interviews such as, personal interviews, mail interaction interviews and telephonic interviews. Personal interviews are most useful, flexible and prominent way, which give the opportunity to find answers to complex problems in real life settings (Yin, 2003; Kvale, 1996).

According to Ghauri and Gronhaug (2005), interviews can be categorized based on content of the research question/s in to; structured, unstructured and semi-structured interviews. Structured interviews have pros and cons. One of the core advantages of adopting structured approach is that researchers have the chance to ask already formulated standard questions to the concerned respondent. The downside to this approach is the lack of an open discussion between interviewer and respondents.

However, unstructured interviews provide an open forum for discussion with full freedom. Keeping the research problem and questions in focus, researchers ask exploratory questions which demand extensive explanations and descriptions on the part of the respondent. When researcher’s aim is to discover hidden phenomena, unstructured interviews can be conducted. In unstructured interviews, there is little control and guidance as the questions is designed in an open-end fashion.

There is another type of interview, semi-structured interviews which differ from two types mentioned above though with some similarities. Semi-structured interviews focus on gather-
ing information, views and explicit attitude of respondents in various situations. Semi-structured interviews come with predefined questions, but are not limited to these questions. There is always room for follow-up questions to capture specific meanings or resulting issues (Kvale, 1996).

A semi-structured interview was adopted in this research because it best suits our purpose. The respondents were given considerable liberty to discuss the questions but some level of guidance and control were provided in order to help us get the specific answers needed. This method was especially suitable for answering our research questions because we could capture good descriptions as well as follow-up on the consequences of implementation.

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Managers’ Name</th>
<th>Designation</th>
<th>Date, Time &amp; Duration of Interview</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>James EK</td>
<td>Country Executive Manager Lotus Software and Collaboration</td>
<td>2011-03-23 One hour seven minutes, 13:00 to 14:07</td>
</tr>
<tr>
<td>2</td>
<td>Karl</td>
<td>Manager for Sales Tax Collaboration</td>
<td>2011-03-23 One hour, 14:10 to 15:10</td>
</tr>
<tr>
<td>3</td>
<td>Christer Wikmark</td>
<td>Social Media Manager</td>
<td>2011-03-23 One hour twenty minutes, 15:10 to 16:30</td>
</tr>
</tbody>
</table>

Table 2: Interviews’ Details

2.4.1.2 Right choice of Respondents

According to the Ghauri & Gronhaug (2005), the right choice of respondents is key to getting accurate information. Only the right personnel and employees can give the right point of view and best suitable answer to the research problem. Authors made very careful consideration and chosen non-probability sampling in making the selection of respondents. It is important to focus on employees who have good knowledge and competence within the subject area in the organization.

Three managers at IBM with in-depth knowledge about the functioning of social media within the corporation were interviewed. The country executive of Collaborations at IBM Sweden was one of our interview subjects. He has overall knowledge about the whole organization and serves as a suitable candidate because we could capture both a managerial perspective as well as a slightly more technical perspective from him. The second candidate is from the technical sales department. In order to properly understand the infrastructure of the social media platforms and how they operate, we needed somebody with technical knowledge. The third candidate is a middle level manager in the department of collaborative solutions at IBM Sweden. Attention is given to managers because we hope to capture a holistic picture, and in order to do this knowledge has to be extracted from employees who can easily see the big picture. These subjects are also very suitable because they work directly with the sales department of IBM social media solutions, and therefore have rich knowledge about the functioning of these platforms within the organization.
2.4.1.3 Relevance of Interview Questions

The interview questions have consequently been formulated such that a clear understand of the role of ESSP’s in knowledge sharing within the organization can be attained. The interview questions have been categorized into different themes.

The first category is that background questions. With these questions, we hope to establish the overall goals and strategy of knowledge sharing and social media within IBM. This will help in establishing the status quo of knowledge sharing and social media and the vision of the organization.

The next category of questions is designed to find out the types of ties that exist between employees at IBM. A good understanding of these ties is needed because it is a big influencing factor on the degree to which employees share knowledge. Understanding the types of employee ties that exist within the organization would help to understand the knowledge sharing needs of the employees.

Social ties are also important to map throughout the organization because it would be easier to analyse the impact of social media in strengthening these ties. It should be noted that closer social ties with colleagues throughout the organization creates greater opportunities for collaboration and knowledge sharing.

The four categories of questions all deal directly with knowledge sharing. Question in these categories seek answers to straight forward questions about how ESSP’s aids the knowledge sharing cycle in all three phases of internalization, objectification and externalization. The authors try to get answers to which specific tools are best suited converting knowledge from one mode (tacit) to another (explicit).

The next category of questions deals with collaboration issues. These questions will extract answers that are relevant to the role of ESSP’s in collaboration efforts within the organization.

The final category of questions addresses the second research question. These questions seek to find out the implications of using social media. The focus here is on the general negative aspects or consequences of using ESSP’s within organizations.

2.4.2 Secondary Data

Existing data, which has been gathered for some specific purpose is called secondary data (Kotler and Fox, 1995). This type of data might be useful, to find the answer of research question. Sometimes secondary data alone is not sufficient to provide required empirical data, and therefore primary data is needed (Ghauri and Gronhaug, 2005).

Care must be taken when using secondary data because the purpose of collecting secondary data is not always necessarily in line with the purpose of the current study. This kind of data must therefore be used with care and all necessary adaptations must be made. There are two types of data according to Ghauri and Gronhaug (2005), external and internal secondary data. Internal data refers to collection of information from suppliers, employees, IBM internal reports, and complaints etc. However external secondary data sources are books and articles etc.

In our report secondary data was collected to support empirical findings. In order to get a good idea about the operations and functionality integrated in IBM Connections, the authors relied partly on secondary data which is available on IBM official websites. The various plat-
forms in use are available for demo testing and viewing on the website. This gave the researchers a good opportunity for individual observations and the collections of secondary data.

2.5 Literature Review

According to Ghauri & Gronhaug (2005), there are three motives behind a literature study. Firstly, research question can be properly framed. Secondly, it helps researchers to identify related theories, facts and models around the research area. Thirdly, a good literature review helps researchers position their work within the research field.

Authors gathered the relevant, suitable and detailed articles, journals and books in the same area. Most importantly we kept the updated and authentic material in our mind throughout the literature review. We have used presentations, videos, scientific reports, blogs, and commercial articles to keep ourselves more updated and knowledgeable to find the gap in the existing knowledge. Most of the literature was retrieved from online journals and Jonkoping University library databases.

Our research questions guided the literature review throughout the work. Saunders, et al., (2007) consider literature search strategy as a process which consisting of four steps: Defining the parameters of search: The authors defined search parameters which included the areas of Knowledge sharing within organizations, social media, and enterprise 2.0. These parameters in the beginning were very broad, but as the work progressed, they were refined and narrowed down to specific issues relating to the research questions. Explain and define key-words or search terms; key words such as knowledge sharing, Enterprise 2.0, ESSP's, social media, web 2.0 etc., were all defined and explained in a working context. This minimizes the chances of ambiguities and misunderstandings both for the authors and the readers of the work.

Relevance of literature; with the massive amounts of secondary data sources available, there is the need to do thorough screening to admit only the most relevant and useful literature sources. Using Literature; All literature deemed important and stated in the reference list has contributed to the quality of this work in one way or another.

2.6 Research quality

This section of Methodology addresses issues regarding the quality of research, reliability, validity and credibility of data (Shenton, 2004). The quality of the research is determined by its trustworthiness (Lincoln & Guba, 1985). Trustworthiness has different dimensions which can be likened to the following concepts: internal validity, external validity, reliability, and objectivity.

2.6.1 Internal Validity

According to Merriam (1995), reliability and validity are two concepts related to qualitative research methods which have a great impact in the final findings of the research. Validity is easily measured in tangible variables such as age, income and weight of a particular sample size. Intangible variables on the other hand, such as customer’s attitude or people’s behaviours towards a particular product or situation are always difficult to measure (Kumar, 2005). It is always important to check the validity of gathered data to meet the accurate and expected good results. Internal validity is described as the truth and confidence of research findings (Lincoln & Guba, 1985).
In order to achieve internal validity, research findings must reflect the opinions and views of the subjects rather than those of the researchers. The reality of the situation is presented without bias. By so-doing the researches also ensure objectivity of the research (Seale, 1999). Internal validity is achieved in this report. The authors have been very objective and careful to present the views and opinions of the interview subjects as accurately as possible. All interviews were recorded in order to avoid any misunderstandings.

The interviewees were also given a chance to look at the material that was being reported before finally publishing the paper. Internal validity is also achieved in this work, through the very nature of the second research question. The researchers have not only tried to highlight the positive aspects of the platforms being used by the company, but have also made an effort to investigate negative aspects related to the use of these platforms.

2.6.2 External Validity

External validity refers to the extent to which the results of the research can be generalized or applied to other cases (Seale, 1999). The results of our research can be generalized but might have limitations to organizations that are knowledge intensive. The selected case study is a very credible company which operates on a global scale. IBM operates in more than 170 countries worldwide. The company therefore spans different cultures, geographical regions, organizational structures, hierarchical structures etc. With such diversity, the authors believe that the results obtained here can be generalized companies within the same industry.

Organizations of about the same size (medium and large enterprises) as IBM are considered here as the ideal companies for generalizing the results of this research. We also argue for good generalization of results by stating that the platforms used in the organization are global.

All IBM employees worldwide have the same access to the social networking platform. They use this platform to achieve the same results, irrespective of the differences in the local prevailing business atmosphere. We therefore think that this strengthens external validity. It is important to note that the research strategy here is a single case study and this might limit external validity because different business models in different industries might not acquire the same results from social media implementation.

2.7 Reliability

Reliability is all about the consistency and stability of a study. Decrease in the errors lead to higher reliability (Kumar 2005). Reliability demands that the use of the same methods and techniques by a different set of researchers at another point in time should produce similar research results (Lincoln & Guba, 1985).

Throughout this research, scientific techniques and methods have been followed and it is therefore the belief of the authors that an implementation of these same techniques will yield similar results. There might however be variations given the fact that the semi-structured interview approach cannot be guaranteed to yield the same answers every time. In order to achieve reliability, the authors have been very careful to state all scientific techniques being used and to stick to them throughout the research work. The interview questions have been made very clear and respondent’s personal information included in the report. This is to ensure that readers who doubt any information can get in direct contact with the interviewees to verify or get more clarifications.
2.8  Research Ethics

According to Ghauri & Grönhaug 2005, the moral values and principles that have impact on the researcher’s way of conducting activities in a systematic and organized way is referred to as ethics. In conducting this research we paid close attention to research ethics issues. The most important issue relates to the interviewees. The exact objectives of the research were clearly outlined to the respondents. Prior permission was obtained before recording the interviews. Care was also taken to ask about what type of material we were free to publish from the interviews. The authors presented themselves and acted in very professional manner. Before making the manuscripts available to the public, the respondents have had the privilege to read through it first, in order to endorse the quoted statements from the interviews. During the interviews, the authors tried to keep the atmosphere as relaxed as possible, and gave the respondents ample time to give their answers.
3 THEORETICAL FRAME OF REFERENCE

In this section, the various theories relevant to the problem area will be described and discussed. These theories will later on be used to analyse the empirical data that will be obtained and will also help in the formulation of a new framework which describes the role of social media in knowledge sharing and collaboration.

3.1 Knowledge sharing within organizations

“All of life and business is a game of odds. Just as HR policies increase the odds of employee retention, and good customer service increases the odds toward repeat business, knowledge management is about increasing the odds toward knowledge being transferred, utilized and [contributing to] innovation” -- Larry Prusak, executive director, IBM Corp.'s Institute for Knowledge Management (Glasser 1999)

Knowledge can often take two forms: implicit or explicit. The former is often hard to capture or transfer from one subject to another; meanwhile, the latter is clear and can easily be acquired and shared. The state of knowledge at any particular time (either implicit or explicit) depends on its current mode of conversion.

Nonaka (1995) illustrates this with a knowledge conversion model which transitions between four stages that include: Socialization, Externalization, combination and Internalization. As knowledge goes through these various modes, it changes switches between implicit and explicit forms.

Huysman (2002) develops a very similar model which specifically describes the knowledge sharing cycle. The model is depicted below.

![Knowledge Sharing Cycle by Huysman & Dirk de Wit (2002)](image)

There are three processes (internalization, externalization, and objectification), which in combination make up the organizational learning process (Huysman, 2002). These processes
can be visualized using the know-sharing cycle seen in Fig. 3 above. This model is intended to capture and analyse the management of knowledge-sharing within organizations.

3.1.1 Internalization

Internalization is the process of learning from the organization. This occurs when an individual acquires organizational knowledge, and it is only by so doing that they actually become members of the organization.

According to Huysman (2002), it is only through this process that one actually becomes an ‘insider’. There are many ways of internalizing knowledge. Some of these include: knowledge systems, training sessions, manuals etc. Another way of supporting the internalization process is through informal methods. There exist a large pool of unrecorded (tacit) knowledge and this is referred to by Spender (1996) as collective knowledge. Telling stories and exchanging anecdotes could be some ways of sharing this knowledge (Sims, 2000).

Other scholars argue that letting people work together helps in the learning process (Brown and Duguid, 1991; Gherardi, 1991). They advocate for learning by actively participating.

3.1.2 Externalization

When individuals share knowledge with each other, this is known as externalization. As they share this knowledge, they in turn beget knowledge. Externalization takes place in various ways, and these could either be formal or informal channels. Formal channels include meetings, project groups etc. Some informal channels include conversations in the corridors and launch-break chats Huysman (2002).

Externalization can be facilitated by IT infrastructures such as Intranet applications, telephones, etc. It is easier to externalise explicit knowledge, but unfortunately, not all knowledge is explicit. Explicit knowledge can be communicated with the help of a formal and systematic language. Implicit knowledge on the other hand is not formalized and therefore very personal. It is consequently hard to share implicit (tacit) knowledge.

Nonaka and Takeuchi, (1995) argue that implicit knowledge can obstruct the externalization process, thereby leading to substandard learning processes.

Huysman and de Wit (2002) advance two reasons for externalizing knowledge: knowledge exchange for the sake of reuse and knowledge exchange for the benefit of developing knowledge. They further state that knowledge reuse is an adaptive learning process. This knowledge adaptation is done such a way that the original knowledge remains unaffected. Knowledge reuse involves the flow of knowledge from a carrier to the receiver. Knowledge development is a reciprocal process of knowledge transfer.

3.1.3 Objectification

Exchanging knowledge does not always necessarily mean that the knowledge would be collectively accepted. Shared knowledge only becomes organizational knowledge therefore when it is accepted by the members of the organization. The process of objectification is not always a conscious one, and can sometimes be long-drawn. Von Krogh et al (2000) refer to the process of objectification as globalizing local knowledge.
Huysman and de Wit illustrate objectification with the example of a group of technicians who have learned a new way of fixing a machine. Their operational knowledge remains local until, it is accepted by the organization for example as published manuals in the training of new comers.

Objectification takes the longest period of time out of the three knowledge-sharing processes discussed above. The table below shows a classification of the various processes involved in knowledge sharing and organizational learning.

<table>
<thead>
<tr>
<th>Learning process</th>
<th>Learning from</th>
<th>Resulting in</th>
<th>Type of knowledge-sharing support</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internalization</td>
<td>Organizational Knowledge</td>
<td>Individual Knowledge</td>
<td>Knowledge Acquisition</td>
</tr>
<tr>
<td>Externalization</td>
<td>Individual Knowledge</td>
<td>Shared Knowledge</td>
<td>Knowledge exchange (for purpose of reuse or development)</td>
</tr>
<tr>
<td>Objectifying</td>
<td>Shared knowledge</td>
<td>Organizational Knowledge</td>
<td>All types of knowledge-sharing</td>
</tr>
</tbody>
</table>

Table 3: Classification of Various Processes Huysman (2002)

3.2 **Intermediation**

Another important concept in the knowledge sharing cycle, (though not included in the model above) is intermediation. This is the process of connecting knowledge seekers with knowledge providers. Nonaka and Takeuchi (1995) provide a model called the SECI model, which describes the various modes of knowledge. The various knowledge modes are described below.

- Socialization converts Tacit to Tacit knowledge
- Externalization or (articulation) converts Tacit to Explicit knowledge
- Combination converts Explicit to Explicit knowledge
- Internalization converts Explicit to Tacit knowledge

3.3 **Communities of practice**

The concept of communities of practice was first coined by Jean Lave and Etienne Wegner in 1990. The term is defined as a group of people who share an interest in a common activity, which they know how to do, and interact regularly in order to improve their skills and learn more (Wegner, 2004).

Sometimes communities spring up in workplaces in order to address specific problems. Community member interact with each other and by so-doing, they develop and maintain knowledge which is disseminated across the organization. Communities of practice therefore represent the social fabric of knowledge management within organizations (Wegner, 2004).
Knowledge can be tacit and explicit, dynamic, and individual and lives in the act of human knowing (Wegner et al., 2002). Wegner (2004) argues that knowing is not always an individual experience, but involves and interaction with the community which entails exchanging and contributing. Knowledge therefore becomes a result of what a community accumulates over time. Communities of practise are self-organizing. Members of a community are self-selected, implying that they voluntarily choose to join the community. Communities of practise are therefore often built around things that matter to the members of the community. Communities of practice can spring up in the work environment for example. This could be for the purpose of solving problems that reoccur. Members of such communities interact with their peers and form bonds and relationships which spread company-wide. Such communities help address knowledge sharing needs. A lot of knowledge thrives in every community.

Individuals feel the responsibility to share this knowledge instead of expecting personal benefits (Wasko & Faraj, 2000). This is the case because members of every community share a common interest on a specific subject which they are enthusiastic about. Knowledge is considered to be embedded in the community (Wasko & Faraj, 2000). This knowledge is captured and preserved in a dynamic manner.

There are three characteristics of Communities of practise, domain, practice and community (Wegner, 2004). The domain is a concept that needs exploration. According to Wegner (2004), practise refers to the pool of knowledge such as methods, stories, cases, and documents etc., which are all shared by members of the community. The community refers to an interested group of people who share the same interest for a subject.

3.4 Shift happens

As technology advances, major shifts are occurring, which challenge existing business models and practices. In order for any organizations to be sustainable in the long run, there is the need to adapt to these shifts and changes. Jue et al. (2010) identify some major areas which are being affected by these shifts which are discussed here. These changes and shifts are impacting the way in which organizations now use IT to support business practices such as knowledge sharing and collaboration.

3.5 Changing business Environment

The internet and other social media are facilitating the creation and flow of information. There are more possibilities for partnering across geographical barriers. Information is generated and disseminated at massive rates. Over the years, there has been a shift from the Industrial era to the information (Maria, 2009).

Different marketing and production strategies are also changing and e-commerce is challenging traditional business models. More and more businesses are beginning to realise the power of mass collaboration and are therefore putting problems on the internet to get solutions from the general public. Maria (2009) author of The Social factor states that “in the Social Age, information resides in the network, within organizational layers. This creates a new world order of communication, requiring different ways of working and thinking”.
3.5.1 Changing Demographics

Jue et al. (2010) identify different demographic segments with respect to technology use. These various groups have different characteristics pertaining to the use and adoption of social media. If organizations are going to adopt social media to support knowledge sharing and collaboration, then it is important to understand the behavioural pattern of different demographic groups towards social media usage. The various categories are listed below and briefly described.

- Traditionalist or silent generation who are born between 1900 – 1945 thereby experiencing the World War II. These generation values stability and security. This group makes up 7% of the Global population.

- Baby boomers that constitute about 18% of the global population. This category falls within the age group 1946 and 1964 and they tend to value team work.

- Generation X which constitutes about 14% of global population. They fall in the age group 1965 – 1976. This category experienced peaceful times and saw more women entering mainstream workforce. They also experienced the dotcom burst. Some of the values of this group include corporate responsibility and personal empowerment.

- Generation Y or millennial comprise 24% of the total population and were born between 1977 and 2000. This generation has seen a wide variety of threatening events, such as terrorists acts, alarm over the long term sustainability of the planet, natural disasters etc. Being the largest segment of global population and the ‘leaders of tomorrow’, they are of particular interest, because they value technology, social growth and activism.

As the Baby boomers gradually reach retirement age, vacancies will be created which need to be filled by the younger generations.

The generation X population is relatively small and this implies that millennial will be in high demand to fill up these positions. By 2025, it is estimated that approximately 79million workers (from Generation X) in the United States would have left the work force (Jue et al. 2010). It is therefore imperative for employers to learn and understand the expectations and needs of the millennial in order to be able to comfortably assimilate them into the workforce. This generation is changing the fundamental nature of where and how work is performed (Jue et al. 2010). Most of the members of this generation grew up with the technology we see today such as laptops, cell phones, video games, and other gadgets. The only life there know is the one facilitated by technology such as electronic banking, emails, text messaging, etc. Jue et al. (2010) state that this generation has great demands for convenience and real time communication causes to satisfy their needs for instant knowledge.

An IT program manager at Intel Corporation (Steve Snyder) stresses the point that younger employees expect instant and integrated ways of communication in their work environment. “This is not just about being social. We hear this request across the board in all business functions. An employee wants to know how she can take her smart mobile device today and connect it to her email. It is simply expected. She believes it should be mandatory.

We need to enable this connection and provide it in a secure environment”. Millennial, as argued by Jue et al (2010) will demand flatter organizational structures. They value and trust personal relationships rather than organizations. This is also the generation that indulges in the highest use of social media, which makes them very dynamic. These characteristics must be taken into consideration by organizations and preparations made in order to adapt and ac-
commodate this future workforce. The use of social media within organizations is still an alien concept for some companies, but as millennials gradually come into the workforce, they will bring along their habits and expectations. Social media is popular among members of these generations and employers would be forced to adapt to these needs.

3.5.2 The Proliferation of Emergent Social Software Platforms (ESSP)

The authors of *Social Media at work* Jue et al (2010) stress that “Healthy organizations are living systems that strive through the establishment and maintenance of robust connections”. These connections are being aided today by social media and there is an ever increasing number of people worldwide using these tools. The very concept of social media seems to be inescapable as we find it all around us in our daily lives.

The following figure tries to capture the big picture of social media interactions.

![Figure 3: Social Media Campaign by Gary Hayes & Laurel Papworth (2008)](image)

The above diagram depicts a broad range of social media tools which we can find around us today. They include amongst others article directories, blogging, social networking, online communities, wikis, video sharing etc.

A Universal McCann study in 2008 found out that 57% of adults worldwide have joined a social network, thereby making it the most popular platform for the creation and sharing of content. This study again indicates that 6 out of the top ten internet sites today are social sites such as YouTube, live.com, Facebook, Wikipedia, LinkedIn, Twitter. These social technologies are becoming a part of our daily lives and instead of resisting them, it is about time to start embracing and finding new ways of tapping some benefits from them.

The Gartner Group has also published some predictions about social media which are worth noting. By 2014, social networking services will replace e-mail as the primary vehicle for interpersonal communications for 20 per-cents of business users. It is predicted that in the near future, more companies will build internal social networks and the clear line between emailing and social networking will fade away. According to Gartner, organizations must de-
velop long-term strategy to deal with “a rich set of collaboration and social software services”.

3.6 From Web 2.0 to Enterprise 2.0

“Web 2.0 is the business revolution in the computer industry caused by the move to the internet as a platform, and an attempt to understand the rules for success on that new platform. Chief among those rules is this: build applications that harness network effects to get better the more people use them”.

The definition by O’Reilly captures a very broad scope and highlights some very important concepts. Enterprise 2.0 is not a very different concept from web 2.0. Enterprise 2.0 is the use of web 2.0 technologies within organizations for business purposes. In order to fully understand the whole web 2.0 infrastructure McAfee explains some underlying trends which are presented here.

3.6.1 Free and Easy Platforms for Communication and Interaction

Popular collaboration technologies such as e-mail, mobile phone texting, and instant messaging (IM) are termed channels (McAfee 2009). These channels keep information and communications private. Information sent via channels is not visible to third parties, and neither is it searchable nor consultable. Channels therefore leave no trace of collaboration pattern (McAfee 2009).

The channels might be suitable when information has to be kept private, but for the knowledge worker, this might not be very convenient. When information and knowledge needs to be shared publicly, there is a need for an alternative way of collaborating. The alternative to channels therefore is platform.

McAfee (2009) describes platforms as a collection of digital content where contributions are globally visible and persistent. Visibility here implies that anyone with access to the platforms can see them. The knowledge/information is persistent implying that it remains on the platform and can be consulted always.

3.6.2 Lack of imposed structures

Imposed structures are constraints and restrictions. McAfee (2009) describes these structures in various categories below:

- Workflows: These are steps that need to be taken to accomplish a task. This is a flow-chart of a business process detailing task, decision points, sequences, etc.
- Decision rights: This allocates roles, authority and power.
- Interdependencies: These are the various relationships that exist between different entities and individuals.
- Information: This specifies how data will be handled and manipulated. What kind of data is included, how is it formatted.
The new free and easy platforms are designed without any of the imposed structures described above. A good example of systems that impose such structures is Enterprise resource planning (ERP) systems and KMS which impose strict structures and controls, unlike web 2.0.

### 3.6.3 Mechanisms to Let Structures Emerge

Prior to the coming of Web 2.0, some voiced concerns about the growth of the web. John Allen Paulos stated that “The internet is the world’s largest library. It’s just that all the books are on the floor”. This view portrayed the internet as a jungle of valuable unstructured content.

The new web however saw new technologies and search engines (Google), which viewed the web as a community, rather than a collection of individual sites. The concept here was to use hyperlinks that were referenced by members of the community to determine rankings in the community. The web is highly structured, even though there is no central authority in place (McAfee 2009).

The term “emergent” is used for web 2.0 because countless number of people around the world dynamically interacts with each other through links, while creating new content. Most ESSP’s are designed to let structures emerge. Some of these tools will be described in the following section.

Fig. 4 is a diagram by the Tim O’Reilly which captures a holistic map of web 2.0. O’Reilly (2009) argues that web 2.0 can be visualized as “a set of principles that tie together a veritable solar system of sites that demonstrate some or all of those principles, at a varying distance from that core”.

![Figure 4: Web 2.0 “Meme Map” by Tim O’Reilly (2009)](image)
3.7 Emergent Social Software Platforms (ESSP’s)

ESSP’s have equipped the characteristics of web 2.0 and are used for a wide variety of purposes today. These tools are called “social software” because they are social in their very nature. They help people to rendezvous, connect, or collaborate through computer-mediated communication (McAfee, 2009).

It also helps in the creation of online communities. ESSP’s are based on platforms and are ‘emergent’. Another very important characteristic of these tools is that they are freeform. This means that they have the following qualities as stated by McAfee (2009):

- Optional
- Free from imposed structures like workflows, interdependencies, and decision right allocations.
- Egalitarian, and free from “ranks”
- Accepting a wide variety of data types.

There are some common technical features shared by ESSP’s which are proposed by McAfee (2009) and discussed below. They are summarised in the acronym “SLATES” (Search, Links, Authoring, tagging, extensions, signals).

- Search: users can find what they are looking for through search queries and fields.
- Links: Easier to find the right information through hyperlinks
- Authoring: more people want to publish their own blogs or to make their voice heard by contributing on Wikipedia.
- Tags: through a community of tagging, there is better categorization.
- Extensions: By taking tagging one step further, there is an automated recognition and proposal of potential useful material to users based on their previous choices.
- Signals: Checking for updates can be overwhelming on the internet given the rate at which new material is created. Instead of manually checking for updates, a new technology, RSS (Really simple syndication) simply sends updates to users browsers on selected sites. These software called aggregators or readers queries sites of interest for updates, downloads them and displays them as headlines to users.

There are several examples of ESSP’s and a few major ones will be listed and described below (with examples) in order to give the reader and understanding in real life context.

3.7.1 Blogs

According to Arthur et al. (2010), a blog is an individual’s electronic journal, which is made public for all to see, inviting responsive comments from readers. The word ‘blog’ is the short form for “web blog”.

Blog entries are called “posts” and the frequency of posting depends on the blog author and the topic. Several tools exist to help individuals start their own blogs and one of the most popular one is blogger.com. On blogs, people can comment on the blogger’s posts, debate, and critique it as well. Blogs are designed to empower individuals to share their views, but
they are also used by organizations to communicate with customers, communicate internally etc. Blogs can be used for sharing the views of leaders within the organization and as a learning tool (Arthur et al. 2010).

Duffy et al. (2006) advances some differences between blogs and traditional websites and these are listed below:

- It is easy to create new pages, since new data is entered into a blog usually through a simple form and then submitted with the blogger (or person adding the entry to the blog website)
- There is very little technical knowledge needed for updating the blog — blogs have thus become the novice’s web authoring tool.
- Filtering of content for various blog entries, for example by date, category, author, or one of many other attributes.
- A lot of blog platforms allow the blog administrator to invite and add other authors, whose permissions and access are easily managed.
- Blogs provide a personal writing space that is easy to use, sharable, and automatically archived.
- Blogs have the ability to link and inter-link to form learning communities.
- Blogs have the potential to serve as a digital portfolio of students’ assignments and achievements.
- Blogs can be extended into fully featured content management systems.

3.7.2 Wikis

A wiki is “a website where multiple people can collaborate to create a work together by easily adding to or editing the content of the site” (Arthur et al., 2020). The term wiki was first coined by Ward Cunningham and appeared on the internet in 1995. Ward used the term to describe what he initially named “quick web”.

According to Miltiadis et al., (2009), wiki pages can be created, edited and linked to each other, using a simple web browser without specialized knowledge or experience. Wikis typically also store previous versions of every page as well as the users who made the changes. This makes it easy for users to see changes that have been made and also to be able to undo unwanted changes. Most wikis support key word searches and also allow the attachment of picture and other file types on the pages.

Wikis often have protocols which can be used to provide some level of authentication for every user. Miltiadis et al., (2009) state that “there is a strong tradition of minimizing restrictions and using community norms and the page history to prevent or correct problems”. Wikis generally do not impose strict structures on content, and this make it easy to adjust the sites navigational structure Miltiadis et al., (2009).

The most popular wiki on the internet “Wikipedia” describes a wiki as “a page or collection of Web pages designed to enable anyone who accesses it to contribute or modify content, using a simplified mark-up language. Wikis are often used to create collaborative websites and to power community websites.” Wikis are more commonly used as working space to
create documents for planning, research, brainstorming, and building new ideas (Arthur et al., 2010). There are many available free tools that allow anyone to start a wiki, such as pbwiki.com. Wikis have three basic privacy settings:

- Public wikis allow for viewing and editing of the wiki.
- Protected wikis allow for viewing but permits only members of the wiki community to edit the contents of the wiki.
- Private Wikis allow viewing and editing only to members of the community.

Wikis help organizations to collaborate on a big scale by allowing employees to work on the same document in real time. Wikis in organizations are sometimes called enterprise wikis.

According to Woods and Theony (2007), there are three different types of Wikis. The first category is content-focused. Such wikis have a compilation of a broad variety of knowledge on different subjects and fields. An example of such a wiki is Wikipedia. The second category of wikis is those that are process-focused. Such wikis are more suited for collaboration work with clear deadlines and objectives.

There are a lot of free wikis online today of this nature which can be used for projects that need collaboration. The last category is ease-of-use wikis which as its name indicate are very easy for beginners to use and add pages. This is specifically designed for amateurs who want to start out publishing some material on the internet.

### 3.7.2.1 Characteristics of wikis

The Wikis without any imposed structures or strict control still have hidden responsibilities for users (Woods and Theony, 2007).

There are some general characteristics that can be seen on most wikis. Duffy et al. (2006) lists some of these characteristics which are presented below:

- A wiki is a website that allows a user to add content, but also allows that content to be edited by any other user.
- Wikis can be used for personal goals, but are usually open to collaboration.
- Users of wikis often do not require any detailed technical knowledge of coding or Html in order to make contributions and edit wikis.
- Wikis tend towards expressing ideas as relationships between pages, thus creating a network of interrelated topics that is based on a ‘topical’ approach.
- Wikis are a-temporal; meaning that, the nodes (or interlinking textual references) change not according to time, but by way of development of the evolving and edited text.
- Wikis track the changes to individual pages over time and allow users to browse the development history of a page.
- Wikis encourage cross-linking and are dominantly spatial in structure.
- Wikis provide a space where knowledge becomes networked (situated, contextualised) but remains ephemeral: it changes, and can be changed and mediated by the general community.
According to Miltiadis et al., (2009) wikis can be used in a variety of knowledge management applications and can help to codify explicit knowledge, thereby creating maps or directories of tacit knowledge.

3.7.3 Social Networking Site (SNS)

Arthur et al., (2010) define SNS as “a website that allows people to share information about them and to search for others for the purpose of giving information, receiving information, or forming beneficial relationships”. The authors further state that profiles are the primary structure of SNS. Profiles give a “snapshot” of who you are. Social networking site facilitates the creation of vast networks of people with similar interest and helps individuals find information easily and fast. Individuals for example can post questions to communities and receive fast responses.

The power of these networks is tremendous and the reach is almost unlimited. Connections can be made from one network to another and there is a chain reaction created as links are made. Members of social networking sites can search profiles, and communities to locate the help they need. This often leads to the creation of communities of practice. Some very popular networking sites today include, Facebook, MySpace, Twitter, and LinkedIn.

The SNS are being used today in a variety of ways within organizations. Arthur et al., (2010) argue that Social networking cuts across artificial boundaries (geography, services, and product) to flatten communications. They further argue that the most vital knowledge and information needed in problem solving within organizations does not necessarily flow in a top-down manner but rather comes from in-between in an informal manner. This kind of communication is horizontal and flat and can be facilitated by Social networking. SNS ignore traditional structures that limit the free flow of information, thereby making the information available to all (Arthur et al., 2010).

3.7.4 Discussion Forum

A discussion forum as defined by Arthur et al., (2010) is “a place where questions can be posed to the public or a specific community and then answers and threaded comments can be viewed by all”. The questions and answers with subsequent discussions or comments are all threaded which makes it possible to view the whole history about a particular question or topic. Within organizations they could be a great way for employees to find answers to questions. This could also reduce the workload of the help desk giving that an active forum always contains member who have encountered and solved a problem that somebody is currently facing.

3.7.5 Podcasts and Web conferencing

Podcasts are series of downloadable audio sessions which are sent do subscribers on demand. These recordings can be played back on supported devices such as computers, MP3 players, mobile phones etc. This tool can be very handy given the tight schedules in most organizations. Employees can catch up on missed meetings and conferences though podcasts almost as if they were attending live.

Web conferencing on the other hand requires the presence of all participants in real time, but not necessarily in the same location. Arthur et al., (2010) define it as “a conference for people who are in different locations that enable them to see the same computer screen on
their individual computers and be in live conversation together over a phone or VOIP line”. These tools have great features for collaboration such as shared hard disk space for all participants, possible side discussions etc.

3.7.6 Tagging

Tagging is an important tool on the internet and it helps structure to emerge over time (McAfee, 2009). A tag is defined by Arthur et al., (2010) as “assigning a piece of information a key word that will help you find it again later”.

Information architect Thomas Vander Wal describes tagging as a folksonomy. This describes the categorization system that is developed over time by folks on the internet and can otherwise be seen as collaborative tagging. Users on the internet collectively classify and find information.

According to McAfee (2009), tagging fulfils standard criteria for emergence in the following ways:

- It is conducted by several agents spread across a digital platform such as the internet.
- The agents act independently with great autonomy.
- Agents are acting in their own self-interest.

3.7.7 RSS (Really Simple Syndication)

RSS feeds provide a smart way for workers to stay updated without visiting a variety of different and complex websites (Ward, 2007). This is achieved by a smart robot that crawls through selected sites looking for new content.

The new content is then aggregated and fed back to one location where the user can conveniently stay abreast with all updates from their favourite sites. RSS is being used by many companies internally for the potential growth of effective knowledge sharing. Also to foster the better achieved communication among peers to enhance the operational performance.

3.8 Wikinomics and the Mass Collaboration

Changes in demographics, technology, business and the world are ushering us into a new age where people are participating in the economy like never before (Tapscott & Williams, 2006).

According to Tapscott (2006), this form of new participation has reached a tipping point where new forms of mass collaboration are changing how goods and services are invented, produced, marketed and distributed on a global basis. There are opportunities to be harnessed by individuals and companies from these changes that are taking place.

Tapscott (2006) argues that collaboration in the past was often on very small scales among close circled such as friends, communities and workplaces. Some rare mass collaboration instances were only experienced in occasional political outbursts. He further states that it the old business models confined people in limited economic roles where they were trapped as passive consumers of mass-produced products. There were strict top-down decision structures and hierarchies in organizations and those at the bottom could have very little say.
Tapscott (2006) argues that all of this is changing today thanks to easily accessible information technology tools. These IT tools empower users and make it easier to create value, collaborate and compete on a global scale easier than ever before. This enables people to participate in innovative and lucrative business activities (Tapscott, 2006).

Today millions of people participate in self-organized collaborations to produce dynamic new goods every day (Tapscott, 2006). The authors call this “peering” or “peer production”. Peering, simply described is the masses working together on a common goal in order to foster growth, development and personal satisfaction.

Tapscott & Williams (2006) use the phrase “age of participation” to describe the concept of Wikinomics. IT tools such as open-source software and numerous internet tools are putting immense powers in the hands of consumers. In the very privacy of their homes, individuals and amateurs can produce and distribute content globally in such a fast and effortless manner that large corporations could only dream of in the past (Tapscott, 2006).

The authors put it, “mass collaboration is turning the economy upside down”. Tapscott (2006) argue that these changes and trends are ushering us into a world were knowledge, power and productive capabilities are going to be more dispersed than at any time in history. The authors argue that this means the emergence of a new business rule (collaboration) which would be the only way for organizations to thrive in the long run.

The concept of Wikinomics describes the new economy where instead of simply consuming, we are actively collaborating, producing and consuming at the same time. People can collaborate on massive projects on the internet such as Wikipedia which is open for contributions. Problem solving and R&D efforts for more and more large firms is taken to the internet where anybody can opt in to solve problems for rewards on sites such as InnoCentive. Instead of passively watching the news, we can today create our own news by uploading videos on sites such as YouTube. Ordinary people now have the power to innovate and create value on a global stage (Tapscott, 2006).

The term “collaboration” in the 21st century may have a new premise as stated by Tapscott (2006). “With peer production we will harness human skill, ingenuity, and intelligence more efficiently and effectively than anything we have witnessed previously” The internet and the arrival of web 2.0 has taken mass collaboration and participation to an unprecedented level.

### 3.8.1 Principles of Wikinomics

There four principles which act as the corner stone in Wikinomics and these include being open, peering, sharing, and acting globally. The each term shall be examined separately in the following section.

#### 3.8.1.1 Being open

Openness is one of the four pillars of Wikinomics. Don Tapscott (2006) argues that organizations that leave their boundaries porous to external ideas and human capital are likely to do better than those that rely solely on their internal competence.

The word “open” has a lot of positive attributes such as transparency, freedom, flexibility, engagement access etc. Tapscott &William (2006) argue that traditional firms have however not always been open because it has always been believed that companies can only
compete by keeping their valuable resources close to their heart. Being open entails access to internal organizational processes and activities. This can be seen as thinking out of the box. Sometimes, it might be hard to come up with innovative new ideas within the organization. It however might be easier for people outside the organization to generate these ideas and solutions. This is the case because outsiders are not trapped in the same mind-set of those within the organization, and therefore can view things from a different perspective.

The companies are forced to be open today in order to tap into the global talent pool that resides outside their organizational walls (Tapscott & William, 2006). Transparency is healthy for organizations and smart ones embrace it and try to be actively open (Tapscott & William, 2006). Information technology plays a great role in fostering openness. Through the internet and software applications, individuals are gaining unprecedented access to market information, and organizational resources.

3.8.1.2 Peering

Tapscott & William (2006) argue that throughout history, hierarchies have served as the primary engine for wealth creation. These hierarchies organize people into structures of superiors and subordinates. There is however a radical new organization structure that is emerging. This is the flat organization structure which rivals the hierarchical structure in its capacity to create information-based products and services (Tapscott & William, 2006). This new organizational structure is known as peering.

The idea of peering is illustrated by the case of Linux platform which began as a collaboration project. Self-organizing individuals working on the same software code (which was initially published by one person) came up with a powerful and useful software application which got very popular. Tapscott & William (2006) argue that peering works so well because it leverages self-organization. They further state that peering has its greatest impact in the production of information goods.

3.8.1.3 Sharing

Tapscott & William state that conventional wisdom advocates for strict control and the protection of proprietary knowledge such as intellectual property (IP). The authors further state that organizations cannot collaborate effectively if all of their IP is hidden. There has to be some sharing of knowledge and intellectual capital.

3.8.1.4 Acting Globally

The fourth principle of Wikinomics is acting globally. We live in a new era of globalization, and we often hear the phrase, “the world is a global village”. Not only do organizations now have to think globally, but they also have to act globally. Companies that succeed need a good grasp of the big picture of world markets, technology and people.

Tapscott & William (2006) state that “it pays to have global capabilities - including truly global workforces, unified global processes, and a global IT platform to enhance collaboration among all of the parts of the business as well as the company's web of external partners”
3.9 The Enterprise 2.0 Bull’s Eye

The figure above represents the relative volume of different types of ties for a prototypical knowledge worker. According to McAfee (2009), interpersonal ties and structural holes provide a way to frame the benefits of Enterprise 2.0.

To explain the Bull’s eye concept, we shall consider a prototypical knowledge worker in a large geographically dispersed organization. This worker has a small group of close collaborators and these are the people with whom this worker has strong professional ties. This is represented by the innermost ring in the diagram.

The next layer beyond this group represents people with whom the prototypical worker has collaborated on past projects. These are colleagues with whom he/she interacts periodically knows via professional acquaintances. The prototypical worker has weak ties with this category.

Beyond this layer the prototypical worker has only potential ties with the next category of employees. This layer represents employees within the organization who could potentially be valuable to the prototypical worker if he/she knew about them. These are people who could keep her from reinventing the wheel, answer pressing questions and point her to the right direction (McAfee, 2009).

The author states that in like manner, the prototypical worker could help many other people in the company if their experience and abilities were widely known in the company. Unfortunately, because of structural holes between this worker and the rest of the organizational members the interpersonal ties here are only potential, not actual. The outermost ring represents professional strangers (McAfee, 2009). The people in this category would probably never form any sort of valuable ties (either strong or weak) with the prototypical knowledge worker.

This model is relevant for organizations using social media for knowledge sharing and collaboration because it helps define the existing ties within the company. When these ties are understood, the right tools can be applied in the right areas to strengthen them.
3.10 Theoretical Frame Of Reference

In this section of the paper, a framework which will be used to analyse the results that are collected from the case study will be presented. The conceptual diagram below depicts the main theories that will be used in analysing the empirical findings. The relationships between these concepts have also been established to give the reader a holistic view of the theoretical structure of the thesis.

![Figure 6: Theoretical Frame of Reference](image)

Wikinomics advocates for mass collaboration and as earlier explained, there are four main pillars of Wikinomics. These include being open, acting globally, sharing and peering. There is a fifth concept (communities of practice), which has been added to these pillars. These five concepts are all user actions or activities.

All of these actions are performed with the aid of web 2.0 platforms (ESSP’s) such as blogs, wikis, Social networking sites, forums, etc. When these platforms are used within organizations, for organizational goals, the web 2.0 concept becomes enterprise 2.0. Enterprise 2.0 generates and uses a lot of information and knowledge and in turn supports the knowledge sharing cycle. After a detailed analysis of empirical findings, the authors will focus on the knowledge sharing cycle and illustrate (using an adapted knowledge sharing cycle model) how social media aids collaboration and knowledge sharing.
4  EMPIRICAL FINDINGS

4.1  IBM Company Profile

IBM is an American Multi-National technology and consulting company which traces its roots to Herman Hollerith’s Tabulating Machine Company started in 1896. On June 16, 1911, the merger of the Tabulating Machine Company, the International Time Recording Company and the Computing Scale Company of America, gave birth to Computing-Tabulating-Recording Company (CTR). The Company name was later changed to International Business Machines (IBM) in 1924.

IBM defined itself from the beginning by adopting a rather forward-thinking culture and implementing management practices which were grounded in core values. Since its inception, the company has grown and expanded tremendously through numerous acquisitions with Cognos being one of the biggest companies it acquired in 2007. IBM employs 400,000 workers (also referred to as IBMers) located in 200 different countries. The company has a diversified workforce with a rich multicultural background. It operates on a global scale and is listed among the fortune 500 companies in the USA.

4.1.1  Core Business Operations

IBM’s core business is manufacturing and selling computer hardware and software. IBM also provides consultancy and hosting services to Small and Medium-sized (SME) companies. The company owns way more patents than any other technology company in the United States. IBM has nine research laboratories in seven different countries in the world. Being a huge corporation, the company is divided into different business segments which specialise in different operations.

The Global Technology service segment provides business process services and IT infrastructure. This segment is also responsible for strategic outsourcing, integrated technology and technology-based support services. The Global business service segment, offers consulting services, application management services, and systems integration. The Software segment is responsible for developing middleware and operating systems software. Some examples of such software include WebSphere software, which is used to integrate and manage business processes. Other software packages include information management software for data warehousing, business analytics, business intelligence, performance management, predictive analytics etc. The Systems and technology segment, caters for computing and storage solutions and needs. This segment is responsible for solutions in the area of servers, disk storage, microelectronics, and point-of-sale retail systems. The financing segment provides financial services such as providing leases and loans for the financing of internal clients and end-users.

The first Knowledge Management system in IBM was implemented in 1994 and later Rob Lewis disclosed the fact that super knowledge sharing within the organization (IBM) is the key to survival and success. IBM has always focused on innovative tools and creative processes. IBM was using the Lotus software, blue YouTube for IBMers, podcasts, blogs, wikis, discussion forums but recently they have incorporated all these social tools into a single internal social software platform which is called IBM Connections.
4.2 ESSP’s Within IBM (IBM Connections)

At IBM, a set of ESSP’s have been integrated into one Social Networking Site (SNS) called IBM Connections. One of the principal roles of IBM connections is to facilitate knowledge sharing within employees in the organization. IBM connections integrate several different platforms across the organization. The system is designed such that integration with existing systems in the organization is made easy. In a typical intranet system, there are imposed structures which control the flow of information and knowledge. The managers and system administrators decide what information is accessible by who and when.

IBM connections on the other hand lets users decide for themselves. The type of information shared, how it is shared, and with whom, is totally left to the discretion of the employees. This point is reiterated by James Ek when he says: “Employees decide what information is relevant for them through the help of social tools”.

There are key “services” (as IBM calls it) in this SNS which are all designed for the overall purpose of collaboration and knowledge-sharing within the organization. Karl (Technical sales manager) explains that:

“All of these services are based on rest API’s. This is a standard which makes it possible to utilize these services somewhere else. All services can be integrated in other web-based systems such as SharePoint. All or some of the services can be used on existing platforms or systems”.

These services are divided into seven different categories which include: profiles, communities, blogs, bookmarks, activities, files and wikis. These various services have specific functions which are described below. (Screenshots have been included for better clarity).

4.2.1 Profiles

This is a directory of people in the entire organization. It includes information needed to form effective networks across the organization. The profiles service stores basic contact information, tags, for expertise and interest, and also includes an “about me” section.

This section gives a personal description about the employee. In the profiles service, there is the ability to define friends in the employee’s network. It is also possible to synchronise personal profiles with corporate directories and human resource applications. Profiles can be used to search the organization for skills and expertise. It can be used to build up a social network of colleagues and track their latest posts. *(See appendix 1 for screenshot of profiles)*

4.2.2 Communities

Lotus Connections Communities is a website where people who share a common interest can interact with one another, share information, and exchange ideas. Community members can participate in community-specific activities. This service allows users to congregate around a subject of interest. It provides online forums, discussion boards, shared bookmarks, tags and news feeds. This service incorporates instant messaging (IM) capabilities.
4.2.3 Blogs
Lotus Connections Blog serves as an online journal that you can use to deliver timely information with a personal touch. These blogs can be used to present ideas and get feedback from others or learn from the expertise of others who blog.

4.2.4 Bookmarks
Social bookmarking is a tool for saving, organizing, and sharing Internet and intranet links. With this service, users can discover bookmarks that have been created by others with similar interests and expertise.

4.2.5 Activities
The activities service is a light-weight web-based project management service targeting professional business people. It provides a common online location where important stuff such as “to-do” lists and messages for team members can be stored. Activities simply act as a Collaboration tool for collecting, organizing, sharing, and reusing work that is related to a project goal.

4.2.6 Files
This is a common repository in which you can upload files and share them with others. Store versions of a file, view who has downloaded a file or commented on it, and see highly recommended files.

4.2.7 Wikis
This is a tool for creating wikis that individuals, groups, and communities can use to capture, share, and co-author information/knowledge. View page changes, recommendations, and comments.

_A conceptual model (holistic view) of social media within IBM_
4.3 Case Results

4.3.1 IBM’s Social Media Strategy and Vision

IBM is one of the few multi-national corporations that pioneered the adoption of social media and ever since then has embraced it, promoting its use throughout the organization. The company has a rich experience with the use of social media which dates as far back as 2002, when the system Lotus was first integrated in the organization.

The strategy adopted at IBM is “social business” as stated by James Ek, the country executive of collaborative solutions. He sees social media as the new way to communicate and the strategy for achieving this is making all applications in the organization ‘social’. The vision for enterprise 2.0 within IBM according to James EK is summarised in the following sentence:

“Quickly spreading information to a lot of people in an effective way is the way forward. Social awareness in combination with a great need, for companies to able to better communicate internally and externally.

The company realizes that we are more socially aware today, but instead of regarding social media as leisure tool to be used at home, IBM actively utilises it at the work place to increase productivity and efficiency. Collaboration is key goal that is achieved through the use of social media within the organization. There is a common slogan which is used by IB- Mers:
When team IBM comes together, we are unbeatable.

Extensive networks are formed throughout the organization through social media. This fosters even greater collaboration. IBM promotes an open information culture through the use of social media. Karl, the technical sales manager, states that:

“Open standards, open platforms is the general strategic direction we want to go. The connection platform is a social and open platform developed for internal use IBM”.

Access to information and resources throughout the organization has been facilitated, thanks to a flat organizational structure, made possible by social media. James EK states that:

“Social media flattens the organization and facilitates access to the right information and resources”

The company empowers employees to participate. Luis Suarez, a Knowledge management specialist at IBM Global Business Services states that:

“Command and Control corporations are no longer going to be there. People need to be freed to share what they know”

Through social media, IBM strives for a globally connected and integrated company which increases the outreach of its employees. It is this vision that prompted the CEO of the company Sam Palmisano to make the following statement:

“A globally integrated company looks very different. This is an enterprise that shapes its strategy, management and operations in a truly global way. It locates operations and functions anywhere in the world based on the right cost, the right skills, and the right business environment. And it integrates those operations horizontally and globally.”

Palmisano’s vision is to provide the tools necessary for supporting collaboration. The tool in this case is Lotus Connections. The main vision for this system is to build a professional network for former and current IBMers to network, collaborate, and leverage social computing, both within and without the corporation.

The company has different strategies for social networking (SN). Considering that there are already many other systems in place, there is an effort to integrate SN with existing applications. This makes it easier for employees to use SN because these new platforms are integrated into their routines and way of working. Another strategy for social media is innovating with new features such as visualizations and mapping federated search. Another strategy for social media at IBM is using open programming models (platform approach). Lotus connections is designed using service oriented architecture (SOA). This makes it easier to reuse services in the software.

Being not only a user of social media, but also a vendor of social media, IBM not only does the talking but also walks the walk. The company leads by example – actively using its own products as an example of what can be achieved. This is one strategy used by the company. James EK, Country manager for portal and Lotus Collaboration solutions states that:

We lead when we say collaboration solutions to our existing and new users. Internally we strive to do what we say, and social media is the natural way to communicate with peers for quick and effective spread of information.
4.3.2 Role of social media (IBM Connections) within knowledge sharing and collaboration

IBM connections have seven different services, some of which are specially crafted to facilitate knowledge sharing. The role played by these services (ESSP’s) will be described in detail in the following paragraphs.

4.3.2.1 Profiles

Profiles facilitate collaboration helps employees get connected with each other. In a few clicks one can learn about an employee’s skills, interest, expertise, and how to get in touch with them. The profile page has an about me section which gives specific information about the employee such as their experience and projects they participate in. The background section of the profiles page includes more personal information such as schools attended, contact information and online status.

The information in the contact information section can be synchronized with corporate directories, databases and human resource systems. In the profile page, there is a recent posts section which shows the recent activities and posts that the particular employee has made to the system. Here you can also view what communities the user belongs to, their recent blog entries, and activities that the user is a member of.

The profile page also displays the tags of the user, and these tags help to better define the employee and their areas of interest and competence. There is a further possibility through the profiles page to see who the employee reports to and other members who work with the employee in the same team (colleagues). It gives access to a list of people with whom the user is connected to in the entire organization.

Profiles can be used to search for employees within IBM with specific competences, by specifying this in search criteria, or within certain topics of interests or by simply using their name. There is then the possibility of adding other employees to your list of contacts or colleagues for easier access and future collaboration.

4.3.2.2 Communities

Communities are based on interest and expertise. It brings together people with a common interest or a common skill and gives them a place to share and exchange knowledge and ideas. It can be used with people within the organization and outside the organization such as customer and partners.

Community members can ask questions in real time to other community members. At IBM connections communities’ service, there are several communities. Based on the number of tags per community, employees can see which communities are the most popular. The MacBook community for example has 5000 members. These are all free-willing member who choose to be in that community. In this communities member interact with each other asking questions which are visible to the entire community.

Members can view each other’s post in the community, follow-up on their bookmarks to discover new knowledge and learn from other members. Within this community
there are discussion forums with topics which often are related to the overall subject of the entire community.

The most interesting thing about communities is its ability to connect people with similar interest; so that they can help each other acquire the right information and knowledge. Communities also have instant messaging capabilities which make it a lot easier to reach out to members who are online and get answers to questions.

Communities are designed to integrate with third party applications. Some communities within IBM connections leverage wikis to do collaborative work. Information and work from related wikis are updated within the community page. This helps employees collaborate more easily and give them access to valuable information. The communities service has a featured called same-time advanced which enables user to broadcast chats, or send general announcements to the members of the community that are online.

Members of the community can respond the broadcast chat in real time. There is the possibility of saving broadcast messages from chats in the community so that offline members can view them when they come online.

4.3.2.3 Blogs
IBM connections have blogging as one of its services and this can be very instrumental in knowledge sharing and collaboration. There are approximately 17,000 internal blogs at IBM with an approximately 100,000 employees actively using these blogs.

The Phil Borremans (from IBM) illustrates with an example of how the RSS features of internal blogging aids collaboration in project management:
"I have used my internal blog for project management with a team of colleagues a couple of months ago. We were testing a new product and needed to keep a virtual team updated on the progress we made. Through RSS feeds this was automatic and (very important at our company) didn't clutter the mailbox.

The easy way to comment on milestones or issues increased the interaction in the team compared to regular phone calls or sending out "update e-mails"."

The RSS feeds make blogs very helpful. Through these feeds, bloggers thoughts, user comments, links and discussions on specific areas of interest are all archived, filtered and distributed to respective subscribers. Subscribers to blogs choose what knowledge, topics, specific subjects they want to learn or read about and updates are sent to them through RSS feeds as soon as they are available. In this way, bloggers ideas, and personal knowledge is transferred to fellow employees within IBM. Blogs are an important tool used by the employees to share news and their personal views with their colleagues.

Users can browse all blogs that have been published by other IBM employees, view them, subscribe to them or recommend them to other colleagues. The blog entries with the most recommendations are usually displayed first to the users.

The blogs are interactive thereby providing the opportunity for users to comment and contribute to the views, ideas, and body of knowledge that is being posted by bloggers.
4.3.2.4 Activities

Karl, the technical sales manager at the IBM describes activities in the following words:

“‘Activities’ is the rebirth of ad hoc collaborations. This in order words can be called the mother of the to-do lists”.

With ‘activities’, employees can organize their work around their activities, rather than the tools they use. Some of the typical tools being referred to include; emails, instant messages, documents, presentations, spreadsheets etc. ‘Activities’ organizes this information in one place and makes it possible for employees to share the information with other people. Users can easily see a list of all their activities in one page and order them according to the level of priority.

There is also a possibility to see who has updated or added information in the activities. Activities can easily be edited and updated as they are performed. Other features in activities include viewing the most recent updates in the whole activity list and also filtering activities using tags. Other employees can update the activity page of an activity owner.

People can collaborate using, the initiatives feature on the activities page. With the initiatives feature, the owner of the activity can track their goals. There are also other resources which collect emails, reports, files and other important documents which can be shared with other people within the organization.

Reports for example can be added to activities and made immediately downloadable to all members of the organization. In the activities page, different types of activities such as meetings, milestones, programs, can be created and shared with all colleagues. Some activities can even be saved by users as templates so that other employees who want to organize similar activities in future can simply use these templates instead of doing it all over again. With activities, it is easy to organize the information that employees want to share and also provides the ability to track this information in the different sections available in the activity page.

4.3.2.5 Files

With IBM connections, sharing and managing files within the organization is made easy with the files feature. It helps collaboration efforts among employees and avoids the tedious and cumbersome task of sending emails.

“Files provide a convenient way to share documents, spreadsheets, presentations, and other types of files with people without the need to send large files through e-mail”.

Some of the common features of files include:

- Upload files and share them with others
- Tag files so that they're easy to find
- Add recommendations and comments
- Reduce inbox "bloat"
- Upload files and share them with others (as readers or editors)
- Choose to share files with selected individuals, groups and communities, or make them public
- View sharing properties, such as who has shared a file and with whom, people who have downloaded files
- Manage versions of a file, and allow others to upload new versions of a file
- Moderate file submission to ensure appropriateness of content
- Tag files to make them easy to find
- Recommend and comment on files
- Locate files by searching for text in the title or body of the file
- Sort files alphabetically by their name, the most recent first, the number of downloads, or by size
- Organize files in public or private collections
- Organize related files into folders
- Use the "Follow" feature to be automatically notified when a file or folder is updated
- Mark a file or folder as a "Favorite" to make it easy to find

4.3.2.6 Wikis

The wiki service on IBM connections is a powerful collaboration tool and also facilitates knowledge sharing. Wikis help teams to collaboratively enter, edit, and publish Web page content. Some important features that aid collaboration through wikis include:

- Compare wiki page versions to see what was changed and who changed it; restore to a previous version
- Track changes to a wiki page
- Recommend, tag, and comment on wiki pages
- Locate wikis by searching for text in their titles, page content, or tag
- Use "My Wikis" to views the wikis to which you belong
- Create wikis that are stand alone, or associated with a community
- Subscribe to wiki pages to be notified of changes
- Comment on pages

Wikis are a great source and store for knowledge that is generated within the IBM. Everyone within the organization has access to these wikis. As a source of knowledge, a vast variety of topics relating to different areas of the organization are published. These subject areas are constantly updated by fellow employees and provide valuable knowledge and information to other employees within the organization.

IBM employees not only share knowledge through wikis, but even more importantly, they collaborate by using wikis. Before the implementation of social media at IBM, employees had to heavily rely on emails for collaboration. This was very hectic due to the numerous emails that had to be exchanged for planning a simple event such as customer meet-
ing with different managers. There were often problems with synchronizing the times. However, as James Ek puts it,

*Using the wiki, all team members are able to edit the wiki directly. I save approximately 40 hours of work.*

Wikis as seen from the findings within the organization play a very instrumental role in managing knowing and facilitating collaboration. Krister Virmark states that;

*Through blogs and wikis, it is easier to get the knowledge out yourself because individuals can go through the knowledge more thoroughly before putting it out.*

4.3.3 **Negative Implications of Using Social Media**

As is the case with many things in life, there are implications for adopting social media within organizations. IBM is no exception and the interviewees did shed some light on this issue.

According to Karl (technical sales manager for IBM collaborative solutions), one of the biggest challenges of using social media within the organization is related to infrastructure. How should these platforms be setup to fit in with existing systems and the organizational structure? This question seems to be one that is rather tricky to answer, according to Karl, because adopting the use of social media requires careful considerations on the nature of the business, existing systems and the people. Furthermore, it can be little hard to define the boundaries of social media and set ground rules or formal processes on social media should be used. Social media is not very formal and structured, and different employees use these tools in different ways. Krister Virmark, states that:

*“It is not established within the organization that this is the way we are going to work.”*

Karl, also stresses the issue of vulnerability of sensitive data through the use of social software. In an open environment where sharing and access to information is made painless through the use of ESSP’s, it might become an issue to protect sensitive data and information. Accountability is made easy on ESSP’s. Authors of posts, articles, and every contribution on IBM connections can easily be identified and tracked.

This notwithstanding, unscrupulous employees can very quickly and easily do damage in various ways such as publishing sensitive data. Sensitive data in this case also refers to information about employees. The profiles page of IBM connections gives out some sensitive information about employees which in the wrong hands could be used for negative purposes.

Another consequence of using social media within the organization is overuse. In as much as positive benefits can accrue from using ESSP’s, there could be potential negative consequences from improper use or abuse. Employees might get carried away and spend far more time than is necessary on social media. This might consequently reduce individual productivity.

Another problem with social media at IBM is user acceptability. Even though the platform is widely used across the entire organization, there is always a small fraction of passive users. The younger generation (millennials) who are born in the computer age and have grown up with the internet and all its technologies are more welcoming to the use of social media. Millennials accept and use social media more easily than generation X or the baby boomers. There is therefore the need to get everybody on board, which might not always be
an easy task. Another consequence with the adoption of social media is the risk that some employees do not see the benefits of using it.
5 DISCUSSION AND ANALYSIS

Enterprise 2.0 can clearly be discerned throughout IBM Corporation. Web 2.0 technologies and ESSP’s are extensively deployed in the entire organization, and are actively being used to help attain business goals. In very simple terms, the strategy adopted by the company is ‘social businesses’.

The organization has radically shifted from the use of KMS to the use of social media for collaboration and knowledge management. Though used in conjunction with some legacy systems within the organization, social media is predominant and has come to be the ultimate way to collaborate, connect and share information and knowledge within the company. In the following sections, a systematic analysis of the various aspects of knowledge sharing and collaboration through the use of ESSP’s within IBM will be presented.

5.1 The knowledge Sharing Cycle

IBM integrates seven different platforms (otherwise known as API’s or services) into one platform called IBM connections. This platform serves as an advanced social networking site for the entire organization, and can be integrated with other existing systems.

The knowledge sharing cycle has three dimensions (internalization, externalization, and objectification). A fourth dimension – intermediation, is introduced to this cycle. Intermediation is connecting knowledge seekers with the source of knowledge. The seven services that are found within IBM connections are aptly suited for different dimensions in the knowledge sharing cycle. The model below is adapted from the knowledge sharing cycle model to show how ESSP’S supports the knowledge sharing cycle.

![Diagram of Knowledge Sharing Cycle]

Figure 8: Objectified Knowledge Sharing Cycle
5.1.1 Intermediation

The knowledge sharing cycle above has been adapted to include ESSP’s based on the empirical findings at IBM. The model seeks to illustrate how social media supports knowledge sharing. The cycle begins at the centre of the model with the process of intermediation. IBM’s social media platform (IBM connections) performs the task of connecting knowledge seekers with knowledge providers.

Within this platform, there are seven different services which are specifically designed to ease the task of searching for the right knowledge and making available for others personal knowledge. By signing up with a user account at IBM connections, users are immediately put within reach of easy-to-access knowledge sources. These users also have the tremendous power of reaching out to all corners of the organization through the various services provided on the platform.

5.1.2 Internalization

The process of internalization converts explicit knowledge (IBM organizational knowledge) to implicit knowledge (individual knowledge), as shown in the model. Employees at IBM Corporation (both old and new) have a lot to learn from the organization. There is a huge pool of knowledge to tap from.

The three most suitable services in IBM connections for internalizing knowledge are wikis, blogs and communities. With wikis, users can search through the numerous wiki pages available in the system to locate the appropriate topic/subject of interest. Through employee profiles in the systems, employees can also see if colleagues in the same department or in other departments in the company have published any wikis which are of interest.

These wikis have a wide variety of topics ranging from specific organizational issues and processes, to general subjects. Users can therefore go through these wikis, sorting out the relevant knowledge they require and assimilating it, thereby completing the process of internalizing this knowledge.

Tags and bookmarks make the task of knowledge seekers easier by pointing them to relevant pages or links which have been recommended by their peers. When the right knowledge is located, the knowledge seekers have the possibility of live interaction (if the knowledge providers are online) with the knowledge provider. In this way, more clarifications and explanations can be made on certain issues which are not quite clear. This all helps the knowledge seeker to internalize the knowledge published by the knowledge provider.

Blogs serve as a gateway into the minds of the publishers. Personal ideas, knowledge and experiences of the blogger is put down in writing, and made available for interested parties. With additional capabilities for commenting, and discussions centred on posts made by the blogger, it gets easier for blog visitors to get further clarifications on specific subjects. This therefore makes it easier to acquire the right knowledge and internalize it.

IBM connections make it possible to connect directly with blog authors through instant messaging. The knowledge seeker can therefore pose direct questions or seek more clarification about specific subjects.

Communities are another service within IBM connections which helps employees to internalize knowledge. Brought together by the passion or love for a particular subject, there is a rich information pool and knowledge within communities to be accessed by employees. Commu-
nities are vast and include a broad variety of subjects and include organizational processes, best practices, strategies etc. Being a member of a community, an employee can share in this rich pool of knowledge and interact with like-minded colleagues to get answers to pertinent questions. The community members empower and support each other. The process of internalization through the above mentioned platforms (blogs, wikis, and communities) ultimately results in individual (tacit) knowledge as depicted in the model.

5.1.3 Externalization

In the process of externalization, knowledge providers find sources to publish their knowledge or what they know implicitly. This process is the direct reverse of internalization. Implicit knowledge is converted to explicit knowledge.

The IBM platforms ease the task of externalizing knowledge. The platform is open, facilitates peering, and sharing, and consequently creates an environment for acting globally. There are quite a few platforms which support externalization. Through blogs, (which are easy to create and edit) employees can publish their personal ideas and knowledge. This helps users to bring out their inner thoughts and ideas, thereby facilitating externalization. Being an open platform, IBM connections subsequently make these ideas available on a global scale to anybody in the organization.

In communities of practice, members interact regularly in order to improve their skills and learn more (Wegner, 2004). In like manner the communities service in IBM connections brings employees together to interact learn and share with each other. By sharing what they know, they also learn in the process. A lot of knowledge is externalized through communities. Just like blogs, communities are very easy to start at IBM connections. There are no imposed structures in the system and the platforms are emergent. Communities grow and evolve continuously giving users the freedom to participate and have their opinions and knowledge shared.

Wikis provide another avenue through which employee’s knowledge can be externalized. They can choose to start their own wikis or simply add to the already existing body of knowledge available on these wikis. Editing or perfecting the work of previous authors on wikis is one way through which employees externalise their personal knowledge and share it with the rest of the organization. Through these platforms (wikis, blogs, communities) knowledge is transformed from its implicit mode to an explicit form and this ultimately results in shared knowledge as shown in the model.

5.1.4 Objectification

Not all knowledge is objective knowledge. The process of externalization transitions into objectification. Here, it does not suffice to simply externalize knowledge and make it available for other employees. There has to be universal agreement or acceptance of the new knowledge by the whole organization. Some of the platforms mentioned above such as blogs, and communities, allow for subjective knowledge.

Wikis however, most often consists of objective knowledge. At IBM the wikis created contain conventional and generally accepted knowledge. Wikis are therefore the most suitable platform for the process of objectification. Unlike blogs, and communities, other users within the organization (with the right access permissions) can edit wiki material if deemed necessary. The knowledge and information on the wikis can be viewed as the norm or conventional knowledge which must be correct and above all accepted throughout the organiza-
Wikis keep track of changes, who made them and when the changes are made. This makes it possible to track changes and therefore resolves issues of objectivity. Through wikis, knowledge can be objectified and this results in organizational knowledge. From organizational knowledge, the cycle starts all over again with internalization.

5.2 Collaboration

Tapscott and William (2006) argue that Wikinomics is changing the manner in which we conduct modern business. This new theory, they argue has some defining characteristics – being open, peering, sharing, and acting globally.

All four of these characteristics are clearly discernable within IBM Corporation and are facilitated by the use of ESSP’s. The various ESSP’s aiding collaboration will be discussed below in conjunction with the four pillars of Wikinomics.

5.2.1 Being open

Unlike traditional intranets, platforms and the web 2.0 provide an open environment for collaboration. Open in this case refers to attributes of transparency and leaving organizational boundaries porous to external ideas. IBM achieves openness through its social media usage and policies.

Everybody throughout the organization has equal opportunities of contributing or having a say on IBM Connections. All blogs, wikis, profiles, and communities are accessible to everyone within the organization. Through IBM’s collaboration soapbox, people outside the organization can contribute and access internal company resources.

The openness that is achieved through social media within IBM partly accounts for the flat organizational structure. Access to information, resources and people is made easy, fast and reliable through IBM connections. This fosters collaboration internally amongst employees and externally with other parties outside the organization.

5.2.2 Peering

IBM social media platforms also extensively promote peering. Through communities, employees with similar interests come together, forming peer groups and helping each other with problems. There are numerous communities on IBM connections with a variety of subjects and interest. Community members sort out help from their peers as well as help out other fellow members to solve problems and to acquire new knowledge.

IBM connection also facilitates peering through profiles. There is a possibility to view which communities fellow colleagues belong to. For new employees and other organizational members whose job description requires constant collaboration, this is very helpful. Peering is also promoted through blogs and wikis.

On blogs, employees can follow posts, and engage in active discussions and debates about the bloggers topic. There are a log of blogs on IBM connections and these blogs have visitors and peer comments. Wikis promote peering by bringing together like-minds (people with a passion for specific subjects) to collaborate on writing articles. They collaborate to produce quality work free of mistakes and errors. Every author’s work is reviewed by his/her peers and edited if necessary.
5.2.3 Sharing

Sharing entails exchanging ideas, information, knowledge and resources with fellow colleagues within the organization. Sharing within IBM is made easy through ESSP’s. There are a lot of features embedded within IBM connections which are specially designed to facilitate sharing. All applications and services that operate on IBM connections are heavily linked. Links in web 2.0 are very crucial for accessing and quickly sharing the right resources.

The Linking integrates all services and applications. Tagging is also extensively used to facilitate sharing. Through tags and bookmarks, employees can easily share important and relevant material with their colleagues. When searching for specific information, users most often trust and prefer what has been recommended (through tagging) by their peers. Bookmarks aggregate links to important resources and material and can be easily shared with fellow colleagues.

In the modern age, there is information overflow and sometimes keeping up with updates or sorting them out from all the massive tons of information can be tedious. RSS feeds were designed to solve such problems. Bloggers and authors of wikis, and other web 2.0 content can share their updates with interested parties through RSS feeds. Updates are immediately gathered from all sites and services specified by the user and placed in one location where they can all be accessed.

There are also other social media tools which are used within the organisation to facilitate sharing. Being a huge multi-national Corporation, offices in different countries have to communicate and collaborate. There hassles of money and time, prevent frequent face-to-face meetings. Tools such as web conferencing and podcasts are sometimes used. This makes it easier to share and collaborate with colleagues in another country as if they were in the same room. Podcasts are useful tools for sharing especially when some employees within the company miss important meetings or seminars.

The recorded version of such important meetings is made available online for those who were absent. These podcasts can then be downloaded and replayed to get the necessary information. One very important feature on IBM connections which facilitates sharing is the files service. Instead of sending numerous emails and flooding mail boxes, employees can simply organize their files in their personal profile and share links to their colleagues who in turn can access these files. These links to the files on personal accounts can be shared with an infinite number of employees. This eases the task of sharing files.

The wiki service on IBM connections is one of the best tools for collaboration and sharing. Wikis are not only used for publishing articles, but are being used within the organization for collaborative projects. With the possibility of several colleagues working and updating the same project simultaneously, the task of collaboration becomes easier. There are numerous private wikis within the platform which are used for smaller internal projects.

5.2.4 Acting globally

IBM connections is deployed and used throughout the IBM Corporations. The platform fully integrated in the web and can therefore be accessed virtually from anywhere around the world through the internet. The platform therefore has a global reach and makes the enormous organization easily accessible.

The services on the platform are accessible on the web and therefore employees can reach out to their fellow colleagues around the globe in a few mouse clicks. Using the enter-
prise 2.0 bull’s eye model by McAfee (2009), IBM can be positioned at the innermost ring of the model which represents strong ties. This implies that IBM connections create the possibility for employees to have very strong ties with fellow colleagues throughout the organization, and irrespective of geographical location, department or office.

The use of ESSP’s within the organization totally eliminates the outermost ring which represents “no ties”. Though widely dispersed, organizational members can easily build and create relationships with other employees who are not necessarily members of their team or department.
6 CONCLUSION

The main purpose of this thesis was to investigate how ESSP’s helps knowledge sharing and collaboration within organizations. In order to give a clear understanding to the audience, the knowledge sharing cycle was used and eventually adapted to include ESPP’s. This model is central to this paper and illustrates the impact of various forms of social media in different stages of the knowledge sharing cycle. The role of social media in collaboration among employees within the organization has also been highlighted throughout the work. The consequences of using social media were examined and treated as a secondary research question. Interesting results were obtained from this study, which are very much in line with the established theories in this field of studies. Advances in technology have changed the way we share knowledge. It makes it easier to freely and openly share knowledge to a large group of people in a network.

ESSP’s can be used to facilitate knowledge sharing and collaboration within organizations. The main enterprise 2.0 platforms which facilitate knowledge sharing include blogs, wikis, and communities. These tools facilitate knowledge transfer by helping to convert knowledge from its different modes. ESSP’s helps connect knowledge seekers with knowledge providers by way of extensive social networking. The various tools available on these platforms such as profiles, internal search engines, communities, etc, makes the tasks of searching and locating the right knowledge easier.

The various processes in the knowledge sharing cycle include internalization, externalization, and objectification. As knowledge goes through these different stages, the knowledge is converted from implicit to explicit knowledge and vice versa. At the stage of internalization, knowledge is converted from explicit to implicit knowledge, which leads to individual knowledge. This process is facilitated by blogs, wikis, and communities. In the process of externalization, knowledge is converted from implicit to explicit knowledge. In this stage, knowledge is transferred from individuals to the rest of the organization, therefore adding to the intellectual capital of the organization. At the level of objectification, shared knowledge is standardized and made acceptable throughout the whole organization. This is achieved with the aid of wikis.

Social media has been seen through the results of this work do foster and promote extensive collaboration throughout the organization. All the seven services that are integrated within IBM Connections help to improve collaboration within the entire organization. The four main characteristics of Wikinomics which are sharing, peering, being open, and acting globally are all attained by IBM through the use of IBM connections.

Through communities, wikis and blogs, employees get the opportunity to do a lot of peering by participating with their peers on subjects and topics of interest.

The files service in IBM connections facilitates sharing by eliminating emails and replacing it with links to files being shared. Other social media features, such as tagging and bookmarking also help employees to quickly find and share resources with their fellow workers.

The wiki platform is the greatest tool for sharing and collaborating as makes it possible for multiple people to work on the same projects simultaneously, while making live edits and updates. IBM has an open-information culture, and access to resources is made easier through ESSP’s. The company manages to attain a global reach with very strong employee
ties, which puts the entire organization mostly at the center of the Bull’s eye model. Social media has greatly increased the reach of individuals within the organization.

Some negative consequences of the use of ESSP’s were also discovered in this research. This issues span technology acceptance, misuse, sensitive data, and undefined structures or processes for ESSP.

Technology acceptance highlights the issue of employees who cannot see the benefits of using the system. It could also be about a certain age group such as baby boomers, who are less enthusiastic about social media. Misuse centres on employee misuse of ESSP’s for excessively long periods of time or for other purposes other than those which are supposed to support business goals.

Sensitive data is also another issue with ESSP’s. Getting access to people’s personal and sensitive information and using it the wrong way can be a real issue with enterprise 2.0.

Finally, the last issue that was discovered in this work is that of lack of defined structures and a systematic or standard way or working with and using ESSP’s. This might in some cases be problematic and interfere with other business processes.

6.1 Reflections

Research into interdisciplinary subjects can be very challenging. In this paper, we have had to simultaneously address knowledge sharing (which is a huge academic field of its own) and Enterprise 2.0.

There is a very big tendency to lose sight of the main research purpose in such research. From start to end, the authors of this paper have been carefully guided by the research questions avoiding placing too much emphasis on knowledge sharing. Rather, knowledge sharing is only introduced very superficially to give the readers a basic understanding in this area. This helps to build a foundation that is vital for understanding the final model that is presented in the discussion sections of the work.

The case study method was applied in this work and we believe this method has been helpful in arranging at objective conclusions. However, it is worth noting that multiple cases in different industries would produce more credible results. The interview questions on which our findings are based where carefully formulated to suit the purpose of the work. These questions were guided by the theoretical frame of reference.

However, the authors have observed that some questions regarding the second research question were not sufficiently elaborated. Secondary literature and sources that have been examined propose and argue for far more complex issues that arise from the use of social media. However, our results present very few negative consequences arising from the use of ESSP’s.

The answers given by the three interviewees within IBM are the basis for most of our findings and discussions. We have however also used other secondary sources of recorded interview with employees within the organization. These interviews have helped in making some arguments and discussions.

Though this thesis does not exactly add a new body of knowledge in the field of Enterprise 2.0 or knowledge management, we do believe that it sheds light on radical new way of doing business. It illustrates how social media can be integrated and used within a business
organization and the benefits that can be ripped from doing so. This research therefore shows a new path, which companies can follow in order to improve collaboration and knowledge sharing within their organization.

6.2 Future Recommendations

The findings in this research could precede further work in the area of Enterprise 2.0. This field is relatively new and the authors of this paper believe that there exist many research gaps to be filled.

Our research mainly focused on knowledge sharing and collaboration. Exploring other angles such as innovation, organizational change, business and IT alignment could be interesting. Organizations face many different problems today stemming from a wide variety of areas. The role and impact of ESSP’s within these various areas could be investigated. Findings in this paper shed light on some negative consequences associated with the use of ESSP’s within organization.

Future research could center on overcoming some of these problems. Investigating how and why some of these problems associated with social media arise is another possible research angle. Other specific research questions which the authors propose include:

1. Using ESSP’s to bridge the alignment gap between business and IT strategy.

2. The use of Enterprise 2.0 to foster innovation within organizations.

3. How to successfully integrate ESSP’ architecture with existing organizational IT architecture.

4. How ESSP’s can help in building the customer relationship model for strategic marketing in higher education system.

It is hoped that further research will continue in this exciting new field in order to help unleash and leverage the full power and capacity of Enterprise 2.0
REFERENCES


DeLong W. David (2004). Lost knowledge: Confronting the threat of an aging workforce. OUP USA


Appendix 1: **IBM CONNECTIONS – SCREEN SHOTS**

1. Profiles
2. Communities
3. Blogs
4. Bookmarks
5. Activities
6. Files
Appendix 2: IBM – Case Study - QUESTIONNAIRE

Enterprise 2.0:

Knowledge-sharing and collaboration through emergent social software platforms (ESSP)
<table>
<thead>
<tr>
<th>Theme</th>
<th>Questions</th>
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<tbody>
<tr>
<td><strong>Emergent Social Software Platforms (ESSP’s)</strong></td>
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| **Background**                             | 1. Describe the overall vision and strategy of ESSP’s within your organization.  
2. Describe the overall knowledge management/sharing strategy.  
3. Describe the overall infrastructure of ESSP within your organization  
4. Describe the various ESSP’s being used by your organization                                                                                                                                 |
| **Social ties**                            | 1. Describe the ties/relationships (strong, weak, potential, none) that exists between employees; locally, nationally, and internationally.  
2. Describe how ESSP’s is used to strengthen existing ties/relationships.  
3. How does your organization encourage and promote the use of ESSP’s.                                                                                                                                 |
| **Knowledge sharing**                      | 1. What is the role of ESSP’s in knowledge sharing  
2. How does the organization promote a knowledge sharing culture through the use of ESSP’s  
3. How does social media help convert implicit knowledge to explicit knowledge  
4. How far away does your organization deviate from the traditional knowledge management models?                                                                                                                                 |
| **Knowledge internalization**              | 1. How does ESSP’s facilitate individuals acquisition of organizational knowledge.  
2. Which ESSP’s tools are best suited for internalizing organizational knowledge.  
3. Which ESSP facilitates the process of knowledge re-use?                                                                                                                                 |
| **Knowledge Objectification**              | 1. How can ESSP’s promote the collective acceptance of knowledge within the organization.  
2. Describe a tool that is best suited for objectifying knowledge.                                                                                                                                 |
| **Knowledge Externalization**              | 1. How does ESSP’s encourage peer to peer learning?  
2. Which ESSP’s tools are best suited for peer to peer learning?  
3. How is knowledge created through social media tools, and what kind of knowledge is created?                                                                                                                                 |
| **Collaboration**                          | 1. How does ESSP’s promote an ‘open’ information culture within your organization.  
2. How is individual contribution towards organizational goals encouraged through ESSP’s?  
3. What is the global reach of an employee within the organization?                                                                                                                                 |
| **Implications of ESSP’s**                | 1. What are the positive aspects of enterprise 2.0  
2. What are some of the drawbacks of your social media strategy, with regards to knowledge sharing and collaboration.  
3. Are ESSP’s a new replacement for KMS?                                                                                                                                 |