Wiki as a Collaboration and Information Tool in Business: Analysis and Implementation

Filip Åsblom

Abstract

Wiki as a Collaboration and Information Tool in Business: Analysis and Implementation

Filip Åsblom

Teknisk- naturvetenskaplig fakultet
UTH-enheten

Besöksadress:
Ångströmlaboratoriet
Lägerhyddsvägen 1
Hus 4, Plan 0

Postadress:
Box 536
751 21 Uppsala

Telefon:
018 – 471 30 03

Telefax:
018 – 471 30 00

Hemsida:
http://www.teknat.uu.se/student

This thesis, carried out within the framework of the Master of Science Program in Sociotechnical Systems Engineering, investigates wiki as a collaboration and information tool in business. The author takes a broad approach to the technology and takes both technology and organisational aspects into account.

It describes how wiki technology differs from other common technologies such as e-mail, instant messaging, et cetera. It also describes how such tools act as a collaborative tool seen in different aspects of collaboration.

Three case studies within IBM are described where wiki technology has been used in different ways, both with collaborative and informative purposes.

The author describes how a wiki was implemented for a Swedish geographically disperse service line, Application Innovation Services (AIS), of IBM. The effect on information availability within AIS is measured with two questionnaires, before and after implementation, and the result shows that the wiki implementation has affected the information availability in a positive way.

Keywords: wiki, social software, collaboration, knowledge management, web 2.0

Populärvetenskaplig sammanfattning

Detta examensarbete avhandlar hur wikiteknik kan användas som samarbets- och informationverkyg inom företag. Wiki är ett tekniskt system som tillåter användare av hemsidor att själva, på ett enkelt sätt, ändra på hemsidors innehåll. Detta möjliggör att användare av en viss sida gemensamt kan bygga upp dess innehåll genom samarbete och på sådant sätt kan en hemsida växa fram genom användarnas delaktighet. Istället för att ha utsedda redaktörer som skapar innehållet kan användarna själva skapa innehållet baserat på sådan information som de själva anser är användbart och information de själva, eller andra, kan dra nytta av.

Wikiteknik klassificeras ofta som social mjukvara (från engelskans *social software*) och kan fungera som samarbetsmjukvara. Samarbete kan dock ske på flera olika sätt. I uppsatsen presenteras fyra aspekter av samarbete: kommunikation, upptäckande, socialisering och utförande. Olika verktyg stöttar dessa olika aspekter på olika sätt.

Uppsatsen beskriver ett antal fallstudier där wikiteknik används inom IBM och med vilka motiv och framgång de används.

Vidare beskriver uppsatsen hur en implementering av en wiki för den svenska delen av affärsenheten Application Innovation Services (AIS) genomförts. Två enkäter för att mäta informationtillgänglighet har genomförts inom AIS Sverige – en före och en efter introduceringen av den nya wikin. Resultaten av dessa enkäter är att den nya wikisidan har bidragit till en förbättring gällande informationstillgänglighet.

Contents

List of Tables

List of Figures

Acknowledgements

Writing a thesis about collaboration without collaborating would not only be strange, but also quite stupid and boring. Many persons have helped me in my work with this thesis and I would here like to give some of them a small but nobel recognition.

I would like to thank everyone at IBM and AIS helping me with my thesis by giving input and support during the project, especially Tomas Mundt-Petersen, Peter Bjellerup, Karin Jeansson, Pontus Lindqvist, Niklas Lindström, Jonas Pergament and Luis Suarez.

Some persons that have helped me to get the oppertunity to write this thesis are Anna Bertilsson, Dag Krogdahl, Eva Sjökvist and Joacim Sundell. I am very glad that you believe in me and my work.

Last, but not in any way the least, I would like to give a special thanks to my family, Linnéa and all my friends.

<div align="right">The author, Stockholm</div>

x

Chapter 1

Introduction

A short remark

This thesis is an academic work carried out in the framework of the Master of Science in Sociotechnical Systems Engineering program at Uppsala University. It is important to stress that the conclusions, analysis and thoughts in this thesis are my own, and not representative for IBM's positions, strategies or opinions when not stated explicitly so.

1.1 Introduction

Wiki technology has been used in some communities for knowledge and information sharing, *e. g.* Wikipedia, as well as a tool for enabling communication and collaboration among developers in mainly open source software groups.

The first wiki was created in 1995 by Ward Cunningham (Leuf & Cunningham, 2001) but until a few years ago it didn't exist in a notable scale in a corporate context and so far its impact on business has been rather unknown. (Szybalski, 2005) But during the last couple of years during the Web 2.0 buzz* some organisations have started to adopt and implement wikis in their organisations. Wood (2005) predicted a growing frequency of wiki usage among corporations. In a study McKinsey & Company (2007) showed that companies plan to maintain or increase their investments in technology trends that encourage user collaboration.A recent follow up study McKinsey & Company (2008) describes that whilst the investments has increased the problems with actualizing the benefits has also gained attention:

---

*The *Web 2.0* discussion as I see it is a new focus on the web where the Internet moves away from one group of "information providers" providing information for a group of "information consumers" but instead the users of the Internet themselves create the content of the web in structures such as social networks, blogs, tags and wikis.

> "At many companies, Web 2.0 is now familiar, but the mix of tools and technologies companies use is changing. Blogs, RSS, wikis, and podcasts are becoming more common, perhaps because companies have a greater understanding of their value for business." (McKinsey & Company, 2008, p. 2)

One of the study's conclusion is that when more social software technologies are being used, the companies are understanding the difficulty of realizing some of its benefits. (McKinsey & Company, 2008, p. 1)

In this thesis I will investigate which roles wiki technology can fulfil in a business organisation in terms of a collaboration and information tool. I will also look into how it can be implemented.

1.1.1 Objectives

This thesis' overall main concern is the wiki as a tool in business. Wiki has, as previously stated, been widely used in some communities which is not business oriented such as Wikipedia and the OSS/FOSS-community*. As Szybalski (2005, p. 4) denotes despite that wikis has existed since 1995, and the success of Wikipedia, the impact of co-editing documents in wikis has been rather small in the academic and business communities. This is one of the reasons why I think that it is interesting to investigate wiki as a business tool further.

This thesis got several objectives related to wiki technology. *The first*, more general objective, is to understand which uniqueness and potential a wiki has as a collaboration tool in a business context. By uniqueness I mean which set of functionalities that differs a wiki from other technologies with similar purposes. Aligned with this objective is the *second objective*, on which factors that influences the success of wiki implementation in an organisation.

The third objective is to implement a wiki within *Application Innovation Services Sweden* (AIS) within IBM. This objective is investigating how a wiki should be implemented at a local level and therefore of a more specific character for the AIS organisation itself.

1.1.2 Problem statement

The thesis got three problem statements related to the objectives of the thesis:

1. Which uniqueness and potentials does wiki has as a collaboration tool in a business context?

---

*OSS/FOSS is a common acronym for "Open Source Software" and "Free and Open Source Software".

2. Which factors influences if a wiki implementation is successful as a collaboration tool?

3. Which is the best way to implement a wiki within AIS?

1.1.3 Disposition

The following disposition has been chosen to address the thesis' problem statement.

This chapter, the first, gives a introduction to the thesis with problem statements, the method and theories used to analyse and deepen the understanding of wiki technology as a collaboration tool in an organisation. This is done to be able to address the problem statement regarding uniqueness and potential of wiki technology.

The second chapter covers a short literature review on wiki deployment as well as an introduction to IBM as a company focusing on IBM's view on social software, collaboration and work habits. This is necessary for giving a context to the AIS Sweden wiki implementation.

The third chapter describes how the work at AIS within IBM has taken place. It describes the implementation for the AIS Information Site and the first of two surveys, this one carried out before the deployment of the system. This describes how my work at AIS with implementing a wiki has been taken place.

The forth chapter describes some case studies within IBM on different wiki implementations within IBM to show different aspects of wiki usage within the organisation. The reason for describing these cases is to show some different aspects of wiki usage within IBM to understand how a wiki within AIS could be implemented as well as answer the problem statement first problem statement (uniqueness and potential) and the second problem statement (which factors that influences wiki implementations as a collaborative tool).

The fifth chapter contains the results of the thesis and the and also the result of the second survey, carried out after the deployment of the AIS Information Site. This chapter answer the problem statements.

The sixth chapter contain a more broad discussion on collaborative technologies in general and wiki technology in particular.

Last in the thesis there are some appendixes: a glossary, the implementation strategy for AIS Information Site and the survey carried out within AIS.
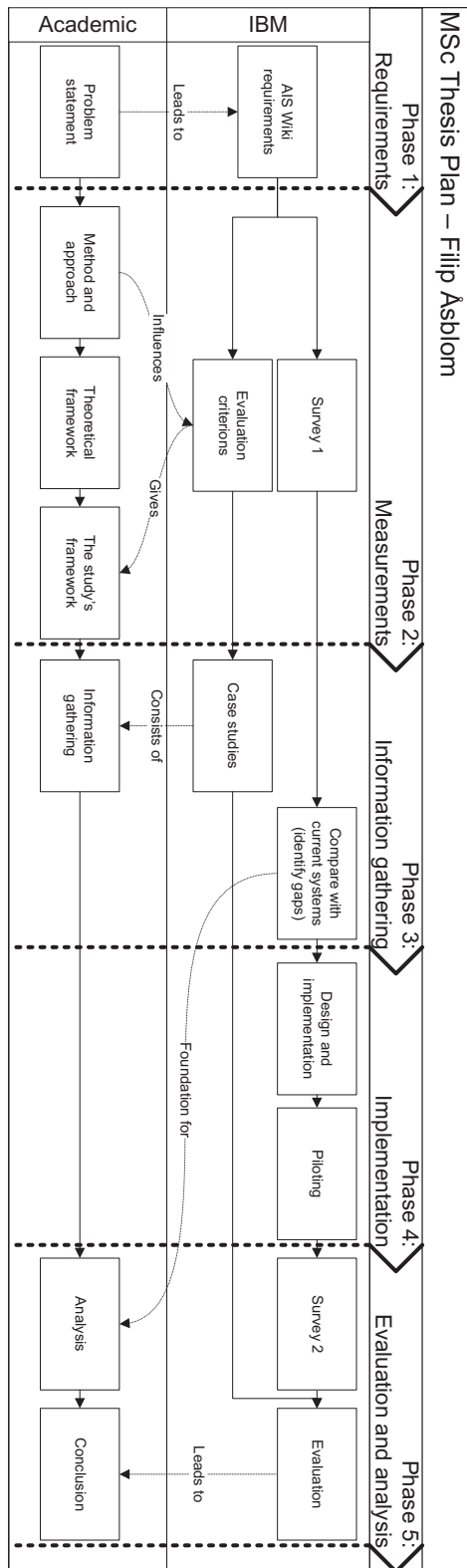
Figure 1.1: Relationship between the two method and approach paths, the IBM path and the Academic path.

1.2 Method and approach

A project like this thesis involves several sub-projects and paths, to bring clarity to this I would here like to describe how this thesis project has been carried out, give a brief description on which methods that have been used and describe how the different parts of the project relate to each other. More detailed descriptions of the methods used are given when so needed in corresponding sections in this report.

This thesis consists of two major, parallel, paths – the academic and the IBM path – who are strongly related to each other. See Figure 1.1, page 4, for a graphical representation. I have found this division of the project very usable for myself and also when explaining how different parts of the thesis as a project fits together – this due to the double faced nature of an academic project carried out within an enterprise.

The academic path follows a traditional academic disposition of a thesis consisting of a problem statement, a method and approach, a theoretical framework, a framework for the study, information gathering, analysis and conclusion. This path relates to the IBM path in several ways, *e. g.* the problem statement itself leads to the IBM path.

The IBM path consist of requirements gathering, development of evaluation criterions and two surveys, gap analysis, design, implementation, piloting and evaluation.

Case studies has been carried out and evaluated according to the method and approach in the academic structure. All the cases studied are IBM projects and also evaluate with the requirements specified in the IBM path kept in mind. The case studies were carried out as semi-structured interviews with one or two representatives from each wiki project.

To analyse the first problem statement, the one related to the uniqueness and potential of wiki technology as a tool, a comparison with existing similar technologies will be used to be able to identify gaps between the different tools and the case studies also help in this due to their decision do chose a wiki technology instead of other technologies.

To answer which factors that influences wiki technology's success in an organisation the case studies as well as the previous gap analysis will be used.

To address the implementation strategy and success of the AIS Sweden Information Site the result from surveys as well as a general implementation analysis will be used.

1.3 Theoretical framework

This thesis use a combination of different theories to analyse technology, collaboration and information and the relationships between those subjects. These sections outline the theories used to understand how technologies evolves and some dynamics of the relationship between organisation and technology which is interesting because of the strong relationship between technology and organisation in collaborative technologies such as wikis. The theories will be used throughout the thesis as well as in the results and discussion section.

One theory that has influenced my way of thinking and approaching wiki and social software is the theory of Social construction of Technology, also known as the SCOT theory, partially developed by Wiebe Bijker and Trevor Pinch. This is also a good foundation to understand wiki technology since it is a quite new technology within enterprises and this theory can explain how new technologies evolve in a social context.

The SCOT theory was developed in the field of Science and Technology Studies with the aim to explain how technology develops in the society. Its advocates claims that technology is socially constructed and that the negations that takes place between the relevant social groups defines the technology.

Even though the SCOT theory's main concern is to describe how technology is developed from an history of science perspective I claim that it is feasible to use when investigating how new technologies emerge and develop over time.

This is not a classical usability study but the concept of socio-instrumental usability is a useful concept when understanding how and why wiki technology could be put in use in an organisational context. Usability is a large field and the International Organization for Standardization (ISO) has also released a standard defining usability as "the extent to which a product can be used by specified users to achieve specified goals with effectiveness, efficiency and satisfaction in a specified context of use" (*Part 11: Ergonomic Requirements for Office Work with Visual Display Terminals (Vdts) – Guidance on Usability*). The problem with this is that it does not specify why a users want or have a need to use a technical tool. As Ågerfalk and Eriksson (2006) show in their article on socio-instrumental usability the main focus of contemporary usability research has been on the three criterias on how users can achieve specified goal subject to the effectiveness, efficiency and satisfaction (Ågerfalk & Eriksson, 2006, p. 24). That research's main concern is on how "good" a technology is on an instrumental level from an individual perspective. Ågerfalk and Eriksson claim that this view is insufficient since the social context also must be considered

when discussing usability. "The social context is what makes the actions at the user interface meaningful in the first place and, as such, is not just 'likely to affect usability' " (Ågerfalk & Eriksson, 2006, p. 29).

Ward Cunningham, who developed the first wiki, has described the wiki technology as "the simplest database that could possibly work" (Leuf & Cunningham, 2001) – but still, even though that the technology itself is simple in computer technical perspective, its use and practise is harder to implement, define and describe due to the dynamics of its simplicity.

Technology always exist and emerge in a social context and this has a huge impact on the technology's adoption and field of use. A new technology that emerges is defined of the relevant social groups affecting it. In this way technologies get re-negotiated in what they are and what field of use they are meant for. One of the greater examples in recent history of the computer – from a couple of supercomputers in the hole world to do all the 'necessary' computations – to computers in every home and office. Very few people predicted that when the first computers emerged that there would be one in every home and in every electronic device in the future. The technology got redefined as new relevant groups and actors emerged and the technology found new ways of use in new social contexts.

This can also be described in an IBM context related to the company's view on innovation. Sam Palmisano's, IBM's CEO, view on innovation is:

> "Innovation occurs at the intersection of invention and insight. It's about the application of invention – the fusion of new developments and new approaches to solve problems." (Palmisano, 2003)

I would claim, that the insight itself, is how the artefact, or invention, relates to a certain socio technical context. It is in a new technological and social contexts that the invention gets the status of innovation. As we have seen in the situation with wiki, the technology in itself is very easy, but the potential of it as an innovation is in its applications in an organisational context where the technology gets its value from its uses of practices.

Wiki technology can in some implementations and usages be seen as a knowledge management system, Havens & Knapp (1999, p. 6) defines knowledge management as:

- Knowing individually what we know collectively and applying it.

- Knowing collectively what we know individually and making it (re)usable.

- Knowing what we don't know and learning it.

Wiki technology can support these processes by creating a framework for formalizing the knowledge into a central repository. But there are difficulties with knowledge management systems. du Pleesis emphasize that community is the significant differentiator between knowledge management and information management. (du Plessis, 2008, p. 286)

du Plessis describes in an article the barriers in organisations to successfully implement knowledge management systems. The conclusion drawn is that there exist many barriers who are closely aligned to organisational national and personal cultures. du Plessis recommendation is that an important first step before implementing a knowledge management programme is to identify the barriers in a given context from the organisation ifself, and thereby be proactive and rectify the issues when they arise. (du Plessis, 2008, p. 291)

1.3.1 Four aspects of collaboration

Collaboration can take place in many dimensions and different tools support different aspects of collaboration. The model presented here gives a foundation for analysing the uniqueness of wiki as a tool as well as a formalisation to be able to explain the wikis in the case studies collaborative function.

Many different kinds of software is called collaborative software, social software and sometimes also Web 2.0. I will not use the Web 2.0 term since I consider it has been quite misused due to several reasons. First, some software that are collaborative have by some persons been called Web 2.0 even though that the content itself isn't displayed in a web browser. Second, almost everything that is newly developed on Internet has been called Web 2.0. Therefore I prefer to use the term collaborative software, web based collaborative software or social software for the tools I am investigating.

David Singer, IBM Distinguished Engineer, has developed four different aspects, or dimensions, of collaborative software (Singer, 2008). I find this way of analysing different tools very feasible in order to understand their role in a social context. The dimensions are visualized in Figure 1.2 and represent:

> **Communicate** Convey specific information from one identified source to another identified audience. Can be one-to-one or one-to-many.
>
> **Discover** Find information that was not specifically directed to you, create and publish information for an unknown audience.
>
> **Socialize** Discover information about colleges to increase the ability to interact with them as people. Can also work the other

way around, *i. e.* make information about yourself available to colleges.

Perform Do constructive work with colleges, *e. g.* create a presentation or writing a paper.
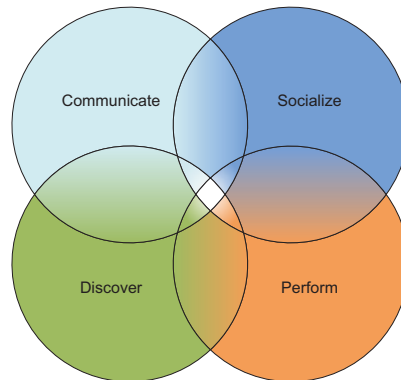
Figure 1.2: A collaborative act is not mutual exclusive of one of the aspects but often involves several of the four aspects.

These aspects are not mutual exclusive, many tools support several of the aspects. Singer (2008) for example has collected evidences that instant messaging can be useful both for communication and socialization but bad regarding discovery, email is good as a communication tool but quite bad on socialization. (At least in an IBM context where instant messaging through Lotus Sametime is a more common tool for socialization.)

Singers aspects will be used later on in the study to understand why different tools work in different ways within the organisation.

Chapter 2

The study

2.1 Perspectives

As I see it, wiki is pictured in two different ways in the literature. In one way wiki is seen as a publishing system supporting other systems. In this view a information site is *maintained* by wiki. In the other way a wiki is seen as a system in itself. *I. e.* the technology becomes an artefact instead of just being a supportive tool for other artefacts. In this view the information site *is a* wiki.

These two perspectives has an impact on which role the technology takes into ambition in the organisation. A wiki technology is not anything that can be put in use and then suddenly collaboration is taking place.

2.1.1 A pattern based approach

Stewart Mader uses a pattern based approach* to describe successful wiki implementation in his book *Wikipatterns* (Mader, 2008). Mader describes how wikis can be used in different contexts through a collection of ten case studies, each answering the questions (Mader, 2008, p. *xvii*):

1. *Background* – Why did you choose a wiki?

2. *Type* – What type of wiki are you using?

3. *Practises* – How are you using the wiki?

4. *Patterns* – Looking at `Wikipattern.com`, what patterns are in use on your wiki?

5. *Effect* – What changes have you seen as a result of using a wiki?

---

*In general software engineering, a design pattern is a general reusable solution to a commonly occurring problem in software design. A design pattern is not a finished design that can be transformed directly into code, it is a description or template for how to solve a problem that can be used in many different situations. *Wikipedia: Design pattern (computer science)*

(The emphasized text above is my categorization of each question, used later on in my case studies.) These questions are good for describing why and how different wiki implementations is used, therefore I will use this breakdown when analysing wiki implementations within IBM in my case studies (Chapter 4, page 25).

Mader (2008, p. 10) claims that there is no single "right" way to use a wiki and therefore he created the homepage `wikipatterns.com` to document *different* user behaviour patterns. Patterns can be defined as "a three-part rule, which expresses a relation between a certain context, a problem, and a solution" and a anti-pattern is a negative behaviour that is bad for the wiki's development. At `wikipatterns.com` a total of about 90 patterns and anti-patterns has been collected. Since these are gathered from users from real cases they can serve as a foundation for creating a model which can analyse wiki implementation and community behaviour on a wiki.

2.2 The study's framework: Social software at IBM

This thesis has been written at *International Business Machines Corporation* (IBM) and in order to understand the roles of different IT tools, *e. g.* wiki's potential, within IBM it is necessary to get an overview of the tools in use and also which organisational culture and technology culture that exist within IBM. *I. e.* a short analysis of human, technological and organisational aspects of collaborative software within IBM is necessary, emphasized on the latter two. Since AIS is a part of IBM this section is highly relevant for the AIS organisations approach to company values and strategies.

IBM has made a move towards social software due to an organisational strategy based upon that business has changed fundamentally in the post-Internet world. One major change is that Internet allows organisations to be globally integrated due to that strategy, management and operations is shaped globally. (Carey, 2008, p. 3) Online communities are seen as a key step in taking part of this opportunity. (Carey, 2008, p. 4)

One way do address IBM's perspective on technology in general and social software in particular is to show the company's three core values: (*IBM Values at Work*)

- Dedication to every clients success.

- Innovation that matters – for our company and for the world.

- Trust and personal responsibility in all relationships.

Being innovative is for IBM is a crucial part of remaining competitive as a company. By communities such as TAP, described later in this section, the company puts the two later core values into practice. This is done by allowing the employees to be innovative and to support this process by different actions and programmes. The third value is associated with IBM's "liberal" view of work, an example is that many employees work from home and there are no mandatory working hours, such as you need to be at the office 9-17, if the client do not demand it.

Since IBM is a very large and complex company it is not possible, nor desired, to give a complete view on the company's technology strategy and technologies. Therefore I will describe one of the major technology programs. One program that displays IBM's view on technology within the organisation is the *Technology Adoption Program* (TAP). The program was introduced as

> "an implementation of a new community driven IBM model for introducing and managing access to new technologies, within the IBM enterprise" (Alkalay, Almond, Bloom, Chow, Peters, Rogers & Wyble, 2007, p. 2)

Though the TAP program as well as in the corporate computing strategies employees are able to use early versions of technology currently under evaluation and testing. This creates a possibility to try out new tools as beta versions and therefore IBM got a open policy on which softwares the employees can install on their computers. It is up to each employee to decide which software they want to use in order to do the tasks that they work with. This allows IBM to test new tools and try their suitability in an organisation before implementing them as a product and releasing them to customers.

Chapter 3

AIS Sweden Information Site

3.1 Application Innovation Services

AIS is a service line within the business unit *Global Business Services* (GBS) of IBM. The mission of AIS is to help clients grow, innovate, differentiate, and transform the clients' businesses by delivering world-class solution design, development, and integration services, accelerators, and outcomes.

AIS Sweden consists of about 60 employees who's professions mainly are project managers, system architects and technical experts. The employees got IBM offices at Stockholm city, Kista and Malmö and the majority of the employees also work from the clients office as well from home. So the geographical dispersity is large. IBM also encourages mobility so a lot of the employees generally spend one day of the week working from home.

3.1.1 Today's systems

Different AISers use different tools in their job but the goal with this section is to give an overview of technologies that is used when distributing and communicating AIS relevant information with groups or individuals in the AIS organisation.

Instant messaging

Instant messaging is widely used in IBM through the instant messaging system Lotus Sametime. The users use a standalone version or versions incorporated in the Lotus Notes client. Within AIS Sametime is a very frequently used communication tool used daily by everyone.

Sametime is used as a person-to-person communication tool generally for short messages and questions.

Email

Email is generally used for sending out longer messages than what is suitable in instant messaging and it is mainly used as a communication tool for distributing information to persons or groups of persons.

Notes Calendar

The calendar function in Lotus Notes is the main tool used for time management when arranging meetings and distribute information regarding those meetings. When a meeting is scheduled the persons invited to it receives an event in the form of an email that they can accept, decline or propose to reschedule. It is also possible to attach files to a meeting.

Teamrooms

Lotus Teamrooms are used in some projects to store information and documents for a group of people, but currently there are no general Teamroom dedicated to the AIS Sweden organisation itself.

3.2 Background

During 2008 the business managers of AIS Sweden developed a list with 30 prioritized actions for AIS Sweden during the course of 2008. One of these actions were:

> "**Assembled AIS Information**
> Set up a wiki as AIS information portal, collecting important/relevant links to other information."

One part of this thesis project's scope was to gather requirements for the wiki, implementing the technical solution, gather a first round of content, run a pilot test and presenting the new wiki to the team members of AIS.

As a part of the thesis a combined strategy document and project plan for the development and roll out for the project was created, see Appendix A, page 47. This was done to create clarity for myself, my IBM supervisor, the AIS management team and other persons involved in the project.

When I started research on wikis I found an old AIS Sweden wiki, with the latest update committed in the beginning of the summer of 2007. After contact with the owner I found out that the wiki wasn't in use any more and started to investigate further why that was the case. It seemed like the old wiki had been stopped to be maintained due to lack of management support and that the wiki itself wasn't well established in the organisation. This was a lesson

learned, to succeed with the new implementation the wiki itself must have a community, management support and a clear role in the organisation. These findings also got evidence in research, one respondent in the McKinsey survey said: "The most effective efforts started as grass roots efforts. The role of senior management was to provide the support for this to continue and then get out of the way." (McKinsey & Company, 2007, p. 13)

3.3 Requirements

Several stakeholders were identified in the project: the business managers, the employees, and some other IBM functions that also had an interest in the AIS site. Since AIS is geographically disperse it was important to let the workforce that have other workplaces than Stockholm to have influence over the future system due to their remote location and need for internal information since they don't get to hear the discussions taking place at the Stockholm office.

The system's goal was to enable a way to formalize the AIS way of sharing knowledge, information and hopefully also to enable collaboration through a common technology and place for the collaboration to take place.

The decision to use wiki technology has several grounds. It is a simple tool which is easy to learn. Since everyone are allowed to contribute the content itself can strongly relate to the users. And also it is an ordinary web page – it is not just another technical tool – for the user who just access the system it really looks like an ordinary web page similar to the other ones on W3.

No explicit requirements regarding the content of the site were created but the sites content were to depend on the users own preference. Therefore these requirements where gathered in an informal way by investigating what the stakeholders wanted and then submitted, by themselves or me, as an idea list as a part of the wiki.

3.4 Evaluation criterions and the first survey

One way of evaluating the impact of a system is to use metrics. By conducting two surveys, one before the system's deployment and one after, and compare the two surveys it is possible to track change. The first online survey (see Appendix B, page 49) was e-mailed to the whole of AIS Sweden as a link to an online form on the 26th of August and the respondents had one week to reply.

The survey investigated the respondents opinion and mentalities regarding the information availability. My opinion is, based on my view of science strongly influenced by history of mentalities and history of science and ideas fields, that it

is more interesting to investigate mentalities rather than "the actual situation" (if such a situation really can exist) since the mentalities are what shapes the employees views on a subject and by changing those a "real change" can take place.

In total 46 persons out of 60 replied to the survey obtaining a response frequency of almost 80%.

———
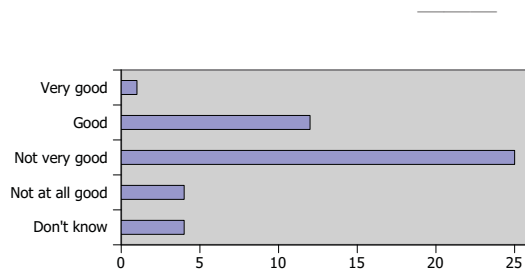
Figure 3.1: "What do you think about the availability of information on AIS Sweden?" Results of the first survey.

The first survey showed that among AISers there is evidences that there is a lack of availability of information on AIS Sweden, see Figure 3.1. One respondent described the situation as:

> "The information is there; if you get hold of your BM*; but it is not that easy to find on your own."

Over half of the respondents thought that the information availability was "Not very good" which is to be considered as bad.

———
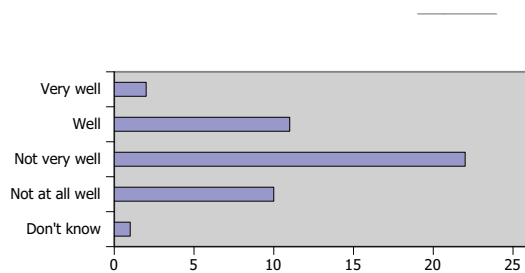
Figure 3.2: "How well do you know where to find information, relevant for you as consultant, regarding AIS Sweden?" Results of the first survey.

The same reply pattern was shown when measuring how well the respondents knew where to find information on AIS Sweden relevant to their roll as consultants. (See Figure 3.2.) One employee writes:

---

*Business Manager

"All written info is done through email today, which is not excellent."

The problem with email is that the information is contained somewhere in the persons mailbox and finding that particular e-mail is time consuming, also it is often not possible to know if the information is accurate.

———
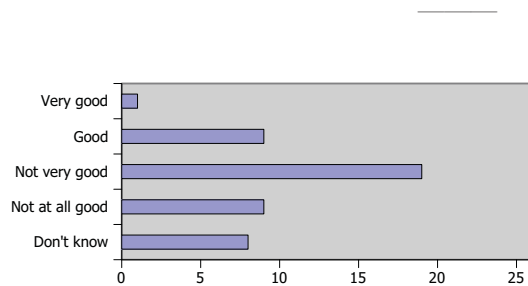
Figure 3.3: "Is there today good ways to share AIS information relevant to other AISers?" Results of the first survey.

When asking about ways to share information between AISers the results were also similar to the questions above. But the group that submitted the "Don't know" alternative was a bit larger. This might be due to that there is not a formalised and communicated structures on how to share information relevant to the AIS community itself, something that some respondents also describe in their comments. See Figure 3.3.

———
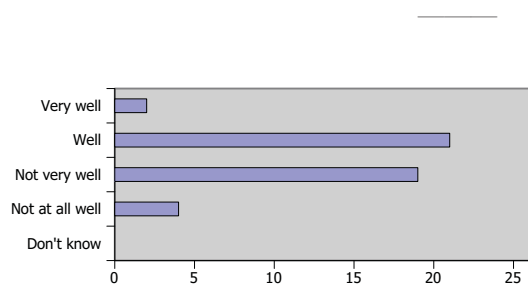
Figure 3.4: "How well do you feel that you can keep updated on news concerning AIS Sweden?" Results of the first survey.

When asking on how well the employees could keep updated on news concerning AIS Sweden half of the respondents thought that they could keep updated well or very well. The other half felt that they could not keep very well or not at all well updated. See Figure 3.4.

One respondent describes that except the information presented on the monthly groups meetings almost only e-mail is used for communication and

by reading those mails it is easy to keep updated. But the respondent also writes that it is sometimes hard to find the information in Lotus Notes* and also you don't know if that information still is valid and up to date. Another respondent gives a similar picture:

> "[It] feels like the only relevant information sources are the AIS Team Meetings and the manager mails, would be good though with an on-line information source to complement this."

Another respondent gives the impression that there is geographical differences in the organisation subject to information availability:

> "As a employee in Malmö I do have a feeling about working in a situation without any closest manager somewhere a bit outside of the real AIS which is located in Stockholm and nowhere else. AIS is more an organisation to report to than an organisation that we are part of and therefore are also much of the information that reach us very filtered when we get it. It is a serious problem with the current AIS organisation."

So the understanding of the state in the organisation before the wiki implementation is that many employees think that there is a lack of availability on information. In some of the comments there is also signs of a need to formalize and create new structures for handling AIS relevant information.

3.5 Gap analysis

One way to analyse the role of a future system or change is to perform a gap analysis which aims to explain differences between tools. To perform this analysis it is important to explain how the organisation work today and which tools that are in use and how those tools differ from the planned future system. Therefore I will here analyse how wiki technology differs from other tools currently in use to support information and knowledge management within AIS Sweden presented in section 3.1.1 on page 15. A more detailed analysis of wiki as a tool compared to other tools is carried out in the Results section.

Different tools supports different ways of communicating, Table 3.1 shows how different tools supports communication and also contribution.

As stated previously the management's aim with the wiki was to formalise the way AIS share AIS relevant information and knowledge. Today's mostly used tools for information sharing is the monthly meetings, email, phone and instant messaging.

The four aspects of collaboration, *i. e.* communicate, discover, socialize and perform, map to the social action the users want to achieve by doing the

---

*The e-mail system within IBM.

	Sender	Receiver	Contribution
Lotus Notes – E-mail	1	1 or n	Not existing
Sametime – Instant messaging	1	1	Dialog with peer
WikiCentral – Wiki	1 or n	n	Possible to edit the information
Lotus Notes – Calendar	1 or n	1 or n	Not existing
Blogs	1 or n	n	By commenting

Table 3.1: Comparison matrix for different IBM-tools for collaboration and their characteristics.

act. Different tools has different collaboration purposes hence some tools are useful when fulfilling a certain social action whilst other are not. This analysis is carried out later on in the Results section. These dimensions are useful when analysing how a certain collaboration technology really is *collaborative.* Therefore to analyse the different technologies in place at AIS Sweden today according to these aspects is a useful way of understanding their collaborative role.

3.6 Design

A wiki was chosen due to its simplicity, web interface and also that it is easy to learn how to edit and contribute. As the platform the implementation WikiCentral was chosen. WikiCentral is a TAP project and IBM's internal wiki implementation running a version of the Confluence engine by Atlassian.[*] Other alternatives for the platform existed[†] but WikiCentral was chosen due to several reasons. The main reason was that it is easy to get started with and that the content itself is presented in a similar way as the other pages on IBM's intranet W3. This was desired since in this way the wiki would not become "just another tool" but instead become a part of the intranet and for many users hopefully seen as an ordinary web page – but with editing possibilities.

One thing to emphasize is that the Confluence engine is a corporate wiki, compared with for example the implementation of MediaWiki that Wikipedia uses. Corporate wikis enable simplified management of multiple wikis for groups, teams and projects. In Confluence the overall wiki is called the site. Within that site sub-sites called *spaces* can be created and such a space can be dedicated to a team, a topic, a product et cetera. The AIS Sweden Information Site is such a space. A space consists of several pages. What makes the spaces feature desired in an organisation is that a single framework can manage multiple wikis. (Mader, 2008, p. 44f)

---

[*]`http://www.atlassian.com/software/confluence/`
[†]*E. g.* the team collaboration software Lotus Quickr

Wikipedia is the most well known wiki implementation in the world and therefore I would like to stress some differences and similarities between it and the AIS Information Site. As I see it Wikipedia is an encyclopaedia using wiki technology as a publishing and editing system. The AIS site is not an encyclopaedia – it is an information site regarding AIS Sweden and its employees. Hence, a wiki does not need to be an encyclopaedia consisting of one page dedicated to describe a certain topic. The wiki technology is not restricted to that usage. The technology enables users in an easy way to participate and contribute in the content capture, develop and reuse processes.

The wiki had the goal to formalize the way AIS share knowledge, information and also enable collaboration. Since everyone has the possibility to add content the content gets related to the users own preference on which information they desire to have access to.

The design was chosen to be simple to use and understand. I decided to start with a few pages and during time let the AISers fill them with more content and change it in a way that suited themselves. With too little structure it is hard to find information and know where to contribute and the same goes for too much structure. The start design was chosen so that the users were able to contribute with links and request new information and features and when more content was gathered the goal was to structure it gradually according to how the site's content evolved.

3.7 Implementation

A basic system was developed in WikiCentral and seeded with some content and presented to a pilot group. As a beginning, to learn people how the wiki works, a page called "Projects and people" was created containing a table were people were encouraged to add their name, profession, current and past assignments and interests. In this way the employees learned how to edit a page and how easy (or for some hard) it is to contribute to the page.

3.7.1 Editing guidelines

The wiki contained a page describing the background of the wiki and editing guidelines for the users. This to mitigate barriers who are closely aligned to organisational national and personal cultures as recommended by du Plessis (2008).

The page described the site's goal as to work as an information portal and to collect important/relevant links to other information as well as work in the

way that the Swedish AISers themselves wanted to. The page also stated, to avoid confusion, that the site's language was English and that all users of the wiki were encouraged, and also in an easy way able, to contribute to its content and that if something goes wrong a roll-back using the versioning system always is possible.

3.7.2 Piloting

A pilot group of about ten persons were gathered. The goal was to have a pilot group which was well representative for the AIS as a whole and also to have well engaged participants. The persons in the group were selected to represent a broad variety of AISers subject to:

- Profession

- Years of experience in IBM

- Early or late adopter

- Geographic position

- Interest in the project

The group consisted of employees with all professions within AIS: project managers, consultants, IT architects and IT specialists. Some had over ten years experience of IBM, one had started two weeks earlier. Three of the ten persons did not have Wallingatan as their home office but were sitting in Malmö and Kista. Some were early adopters – some were more late adopters.

The group was given an introduction with the background for the AIS wiki, the pilot group's purpose, the content philosophy and a technical introduction.

The group was encouraged to participate in the following ways:

- By using the Ideas page

- By commenting on the pages

- By using the forum

- By starting to edit a page and add a section to expand later on

- By adding a page and seed it with some content/headers

3.7.3 Roll out

The first step in introducing the page to all Swedish AIS practitioners was by sending out, at the 14th of October, an email which briefly described the background of the wiki, that the wiki was up and running, an encouragement for people to add themselves to the "Projects and people"-page, links to the editing policies and also that I was able to assist them in any questions.

On the 24th of October as a part of the AIS Sweden group meeting a presentation was held regarding the AIS Information Site. The presentation was similar to the one held for the pilot group, but with less focus on technicalities and more focus on the four aspects of collaboration and how different part of the site map onto different aspects.*

---

*I would expect that a bit over 50% of the Swedish AISers participated in the meeting eighter by physically being in the room or by participating in conference call and web conference.

Chapter 4

Case studies

The case studies below has been chosen to show how some wiki implementations in IBM has taken place. They are not a random selection but has been chosen so that they complement each other in different aspects of wiki usage. Also all the wikis studied are currently in use, so no pure wiki "failures" has been studied.

All the case studies chosen uses the WikiCentral implementation. It was not given that all the cases would use WikiCentral but since it is the most common wiki implementation inside IBM it ended up this way.*

The *AMS Nordic – Methods, process and tools* was chosen since Application Management Services (AMS) is a parallel organisation to AIS and that it is a Nordic organisation.

The *BlueIQ Resource Center* is a global IBM community with the aim to spread the use of social software. It was chosen as a case study since it is a project with the main goal to accelerate social software usage and collaboration which is an interesting aspect of wiki usage, something that is generally relevant for this thesis project.

The *GBS AIS Global wiki* is a global IBM wiki dedicated to the AIS service line.

4.1   AMS Nordic – Methods, processes and tools

Application Maintenance Services (AMS) is an organisation within IBM generally working with larger maintenance contracts for IBM clients. This information was gathered through an interview. (*Interview with AMS practitioners* 2008)

---

*Eventhough it exists other tools such as Lotus Quickr.

With AMS Nordic a small group consisting of mainly two persons, Christina Fritzell and Leif Lindmark, are responsible for the information and guidance regarding methods, processes and tools for the practices of work for the AMS practitioners.

Before the wiki the group used an ordinary Intranet site on W3. But due to a reform in policies for W3 some years ago the possibility for smaller organisations to have W3 pages got restricted. In a recommendation from the Swedish communication team other possibilities that existed to maintain internal group information was highlighted and the recommended architecture was the Wiki-Central implementation. Therefore the AMS Nordic methods, processes and tools group decided to use that tool to spread their message.

The wiki is used as an information site on WikiCentral and the site's goal is to link to other relevant information regarding methods, processes and present practitioners over the Nordics that have different lead positions. Generally only Christina Fritzell and Leif Lindmark are updating the wiki so today the wiki acts more as a information hub rather than a collaborative space.

The main result seen is that the page is easier to keep updated than the former W3 site due to a less byrocratic updating procedure. Before the wiki the employees responsible for the content could not update the site themselves but needed to send the updates to the person responsible for that section on W3.

So far no collaborative advantages has been seen. I think that the reason for this is that the site's goal is not to serve as a collaborative platform since Christina Fritzell and Leif Lindmark are responsible for that the right information is given to the users of the wiki (*i. e.* visitors). But I would say that this is not to be seen as a failure – the wiki itself fulfil its requirement as working as a information hub – the goal is to supply the information needed by the visitors and due to the strict rules of the methods, processes and tools AMS consider it necessary to have a small group responsible for supplying the inform needed.

The site generally support the communicate aspect of the four aspects of collaboration. This in a "one" to many manner.

4.2   BlueIQ Resource Center

The BlueIQ is an IBM project which aims to accelerate social software usage both internally and externally of IBM. The BlueIQ core team consist of eight people distributed throughout the world and this interview was carried out with Luis Suarez (Spain/Netherlands/US). Luis Suarez acts as a co-leader and co-

ordinator for the project on the BlueIQ Resource Center wiki. (*Interview with BlueIQ practitioner* 2008)

When the BlueIQ Resource Center started there were 50 persons involved and one of the project's internal goal was to higher that number to 200 people by the end of 2008, but that number was reached by the end of January. Now a total of 460 persons all over the world are involved making it a large community.

The core team itself is responsible for activities, but all those activities are driven through the community and the BlueIQ Resource Center wiki is a central place for collaboration and information distribution.

The decision for choosing the wiki technology was chosen very early in the project as well as the WikiCentral implementation. In the beginning the wiki was restricted so only the core team could edit but all IBMers could view. But after some time the team decided to open up the system to all IBMers and now every employee is allowed to read and edit the content.

Early in the project phase the wiki was seeded with some basic structure that was going to be filled over time. But after some time as more content was added the core team decided that it was necessary to reorganize the site due to that the starting structure didn't support the evolved content in a sufficient way. This due to the collaborative nature of the site – no one from the beginning could predict how the site would evolve – therefore to reorganize was necessary to support the community and its practitioner's goals.

The wiki now has open access and editing, many practitioners in the wiki is familiar with open source software and therefore the openness is nothing new to them. In the community it exist a culture of sharing and so far no problems has arrosen due to persons editing other persons content.

The core team watches the site so that they receives notifications on updates and they also monitor the changes on a daily basis.

Luis Suarez think that the site supports all aspects of collaboration. The site communicates how to work with social software, it strongly works as a discovery point for persons interested in social software, it has socialize dimension in that people learn more about themselves and peers in the same situation, in itself it also performs in terms of the collective effort on adopting social software.

4.3 GBS AIS Global wiki

The AIS global wiki implementation was released the 1st of September 2008, the interview was carried out with Dan Manning (US), Global AIS Strategy & Business Development Lead, who is a part of the core team developing the wiki. (*Interview with AIS Global wiki practitioner* 2008)

AIS has not had any global presence on IBM's intranet W3 for the last couple of years and therefore the wiki was created as a way of communicating AIS both internally within the AIS organisation and externally towards the whole of IBM, the sites still remains behind the IBM firewall though. The reason for choosing wiki technology was that it created more control from an end user perspective instead of using an ordinary HTML-page. Dan Manning's and the team's experience of having a website on W3 was that the procedure for updating and editing was quite byrocratic due to the processes involved. The wiki solved this issue by allowing a core team to edit all the pages in a more controllable, easier and dynamic way without the byrocracy. The reason for choosing the WikiCentral implementation is that it is the wiki architecture supported by the CIO-office.

The wiki was developed by a core team, responsible for creating the structure and content, consisting of about six persons. Now, when the wiki has been rolled out, practitioners interested in joining the developer team can do so to continue to grow the content even more. Each Integrated Operating Team (IOT) has their own page and the aim is that each IOT page will have their own coordinator responsible for that IOT's page.

At the interview moment* no major changes or effects has been seen due to the wiki.

The main focus in this start of the wiki has been to serve as a communication and information portal for the AIS practitioners. So far the main focus of the wiki part has been on the communication and discover dimensions but Mr Manning hope that the wiki in the future also may support the socialize and perform aspects.

---

*The interview was carried out one and a half months after deployment.

Chapter 5

Results

5.1 Wiki's uniqueness and potential

One way to define the uniqueness of wiki technology is to compare it to other collaboration and information tools by look for gaps between wiki technology and other collaborative technologies according to Singer's aspects of collaboration (as described in section 1.3.1, on page 8). In table 5.1 different tools support for the different aspects are visualised, it is a conceptual design based upon private communications with David Singer (Singer, 2008) on his impressions of different tools usability according to the aspects. The darker an area is the more it supports, and is used, as a tool in that domain.

	Communicate	Discover	Socialize	Perform
Lotus Notes – E-mail				
Sametime – Instant messaging				
WikiCentral – Wiki				
Blogs				

Table 5.1: Different tools mapped onto their usability for collaboration according to David Singer's aspects of collaboration.

Eventhough that the wiki and the blog seems to hold similar properties seen to the four aspects of collaboration, they differ in terms of their features (*e. g.* differences in the time domain).

All the four tools above support a communicative aspect of collaboration and in general the most used IT-tools within IBM for this is e-mail and instant messaging. I think that those two tools serve their purpose well for their users but the information contained in those messages is hard or impossible to retrieve by a person that will prosper from it but not is involved in that particular discussion. Here, wiki holds a uniqueness compared to e-mail and instant messaging comparing how the tool support this discovery aspect. The

discover aspect was defined in the theoretical framework as to "find information that was not specifically directed to you, create and publish information for an unknown audience". That wiki and blogs holds this property and e-mail and instant messaging don't is a big difference between the tools. The wiki and the blog is meant to be open for persons to find that information due to their openness. The information contained in an e-mail or an instant messaging chat is only accessible by the persons in the send list respectively the persons in that chat.

One of the reasons the difference in the support of the discovery aspect between e-mail/instant messaging and wikis/blogs is the difference in functionalities. As Table 3.1 (p. 21) showed there is big differences in terms of the way the different tools allow communications. E-mail is made for one-to-one/many communication and instant messaging is made for one-to-one communication – therefore it is in the design of the software itself that the problem with a bad support for discovery of information exist. One of blogs and wikis big advantages is that the information is meant to be found by those who can prosper from it.

It is important to stress that different tools can be used in different ways in different contexts. This is especially true when discussing wiki technology. In some cases, such as the AMS case, wiki has mainly been used as a publishing system and not as a collaborative technology. Here the goal with the wiki is not to support collaboration but more to act as a information supplying source. Here wiki shows similarities to a Content Management System (CMS) but differs in terms of technological configurability, in this cases wikis is used since they are, according to some users, easier to update and maintain compared to more byrocratic CMS technologies.

Wiki technology has a low entry cost compared to other web site systems, such as portals. It is quite easy to setup a wiki and there is a low development and maintenance cost due to the possibility for users to build up the content by them selves. Wiki is also a quite dynamic framework when the requirements for the site are vague and not well defined since content can be reused and reorganized in quite an easy way since there is a high separation between content and logic (which might not be the case in a portal). Different organisations has different requirements and portals are much more flexible tool compared to wiki seen in some perspectives, but I believe that parts of a company's intranet really can benefit of having wiki functionalities since it is a fast way of creating a site.

When preparing the presentation on the AIS Information Site I realised that

different parts of the site had different purpose and that those sites and purposes could be mapped to Singers four aspects of collaboration. The overall aim with the site was to create a formalisation of AIS's way of sharing information, hence the site as a whole would serve as a communication place. This shows that wikis can address many aspects of collaboration.

5.2 Factors that influences a wiki implementation's success

One way of addressing the question of wiki implementation's success factors is to understand which requirements the system itself aims to fulfil. By doing so it is possible to identify the barriers that prevents successful implementation. The case studies I have investigated shows a variety of different implementations with different goals. To measure their success compared to the same scale and to the same factors would be wrong due to those differences in goals and requirements. But it is still feasible to analyse the cases according to the for dimensions of collaboration and the gaps between where the wiki is today and where it want to be. A major gap would display a difference in ambition and lack of fulfilment to that ambition.

To raise critique on this thesis due to its analysis of the success of wiki technology based upon its case studies is valid. The cases I have studied got several limitations, *e. g.* all the cases are wikis that *are* in use and that people actually *maintaining* them and non of them has been large failures in terms of lack of community and engagement. However doing an analysis of wiki failures is out of scope of this thesis.*

Persons that have previous, positive, experience using wikis seems to be more interested in wiki projects and see the projects potential while many users that have been using unsuccessful wiki project seem to be more restrictive on wiki usage. This is a natural reaction but I think it is important to emphasize that different wikis have different goals and also that only because wiki projects have failed before does not necessary mean that every wiki project shall fail.

One factor that strongly affect the success of wiki technology is management support. I think this has several reasons. First, if management strongly pushes on using the wiki and also do that themselves people will get familiar with the environment. This creates a real formalisation and people will use the wiki

---

*It would be interesting to investigate failed wiki projects. I think that it exists several "dead" wikis due to the ease of setting up a wiki and the low cost associated with creating a wiki page on an existing infrastructure. This compared with other software projects which demand more intense work and strategies early in the project due to bigger investments in the start up phase where a failure is directly associated with economic losses.

as one of the places to search for information. Second, if a wiki aims to be a collaboration platform management can support this in several ways by allowing persons to use the wiki and also use it themself in collaboration with each other and their teams.

For example the AMS Case study displays a wiki which main goal is to supply information for a given community – here the main goal is not socialization. The page uses wiki technology due to its ease in maintenance and development. In this way the site may be successful even though it does not lead to a "new way of working".

5.3 The AIS Sweden wiki implementation

Culture has a strong impact on how technology is adapted within an organisation. In the AIS case the way of addressing this issue was to keep clear guidelines on how users were able to contribute to the wiki. Also it was important to understand who the major stakeholders were to align them and develop a wiki that suited their needs. AIS as a whole was addressed by specifying the guidelines mentioned. The reason for this was that it formalized the users role in the site and shed some light on what was expected from them.

Discussions with the business managers in AIS was also kept as often as possible. This to align the BM's goals with the site's goals to prevent lack of management support.

Some initiatives was taken from a grasroot level of the AIS organisation, *e. g.* the AIS Project Manager (PM) network, started to put up presentations, relevant links and such. This initiative was taken by the PM lead and now the project managers got their own section on the wiki where they gather their information.

Another initiative was taken by a practitioner in Malmö, but is not yet in use. This was a page that created a possibility to communicate with the Resource Manager (RM) on prospective projects for each consultant. The consultant created a page where he/she listed project opportunities as well as job interests and the aim is to let the RM take discussions about the projects and the progress of staffing the role on that page. But so far this page is not in use due to lack of engagement from the RM.

Many AISers has created, and update, their own profile on the Projects and people page and some has also uploaded links to the Links page as well as committed ideas to the wiki. The upcoming challenges for the wiki in order to succeed is to higher the management participation and use of the page.

Looking in the data log of the wiki there seems to have been around one-two changes per week on the site – with a more intensive change frequency in the beginning were a lot of people updated their current assignments and such on the projects and people page.

5.3.1 Measure the project's success: the questionnaire

To measure the prospected change of the system implementation the Swedish AIS practitioners were asked to fill in a second survey. This survey asked the same questions as the first one and the goal was to see if there were any differences in opinions regarding information availability among the AIS practitioners. In total 35 persons responded, obtaining a response frequency of about 60%.

One aspect that might have had impact on the information availability as well as managements involvement in the wiki project was a big management replacement and re-organisation in AIS that took place halfway through the thesis project. Two business managers ended their management role and three new business manager created a five person team. This lead to a re-organisation of the teams were most of the employees got new managers. This may have affected the project in several ways. One aspect is that with a new management structure the managers needed to put effort into their new roles and their employees, rather than focusing on internal IT infrastructure. This may also been seen as a opportunity by having the possibility to make the transition to use the wiki at the same time as a major management change. But it is difficult to tell which impact it has had.

The overall impression is that there has been a change regarding information availability and due to the responses in the commenting section of the survey it seems that some users think that is in regards to the wiki. One issue that is raised in several comments is that management need to start using the wiki to a greater extent. It would have been preferred to conduct the second survey with more time between it and the roll out of the project but due to the time schedule of the thesis this was not possible.

————

As seen in Figure 5.1 the difference between the pre-wiki implementation and post-wiki implementation regarding information availability exist. During the first survey less than 30 percent had a positive opinion (answering categories "Very good" or "Good") and after the deployment about 50 percent was in this category.
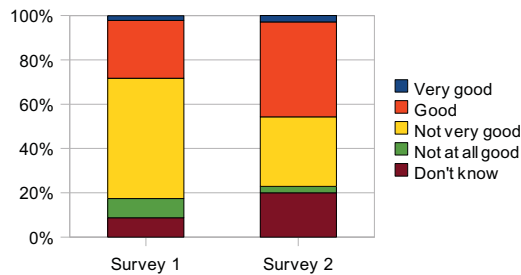
Figure 5.1: "What do you think about the availability of information on AIS Sweden?" Results of the two surveys.

———

It is also evidences to support that the employees feel a greater more confident regarding where to find AIS related information. As Figure 5.2 displays about half of the practitioners now feel positive regarding their knowledge on where to find information which correspond to a 20 point change. Still, this number is low but this might be due to the short time period between the deployment of the wiki and the second survey.
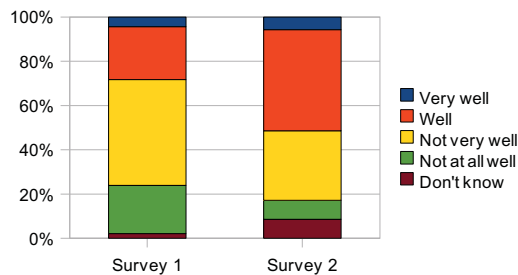

Figure 5.2: "How well do you know where to find information, relevant for you as consultant, regarding AIS Sweden?" Results of the two surveys.

———

Regarding the ways to share AIS relevant information an increase on 30 points has been seen on the positive side, see Figure 5.3. One respondent writes:

> "I think the vehicle (*i. e.* the wiki) exists, but the use of it hasn't penetrated enough in the AIS population. Management should focus much of the communication through the wiki and thereby increase its visibility and its status as the natural place to look for info. The most important thing now is to get all AIS:ers to keep the site updated. The BM:s need to take lead."
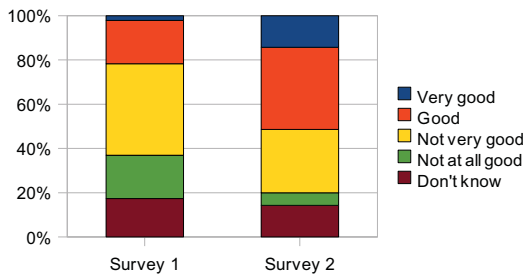
Figure 5.3: "Is there today good ways to share AIS information relevant to other AISers?" Results of the two surveys.

———

One respondent writes that he/she do not like the wiki but would prefer an ordinary newsletter, another respondent writes that one way to increase the awareness and use of the wiki is to make the business managers to refer to material on that wiki in their communications with the teams. One respondent has a positive attitude towards the wiki but wants routines to keep it updated:

> "The new AIS-wiki is an excellent way of sharing information. But currently it is hardly used (though it was only recently launched), so I suggest we establish routines for keeping it updated. For example: The section for sales information should be updated on a daily basis."

But during the time between the first and second survey it seems like more people feel that they have an easier time to keep updated on news concerning AIS. (See Figure 5.4.)
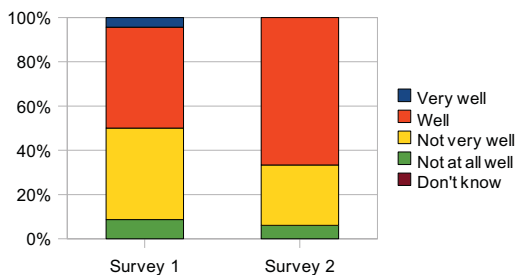
Figure 5.4: "How well do you feel that you can keep updated on news concerning AIS Sweden?" Results of the two surveys.

There is also evidences in the comments on cultural gaps between the AIS practitioners, some practitioners feel a great need for AIS relevant information whilst other don't think that is a part of what is desired from them:

> "There is always a conflict on whether, focus on the busy job in your project and looking for information about AIS."

Chapter 6

Discussion

6.1 Analysis

One reason why wikis are a bit problematic to implement may be because of the conceptual format. A lot of the tools used in today's computer systems resembles other non-computerised artefacts. For example e-mail resembles mail and blogs resembles diaries. Wikis does not in the same analogous way resemble a non-computerised artefact since the collaborative work in this manner has been enabled because of the computerisation. I therefore believe that the negotiations between the different actors will take longer time due to the non-consensus conceptual understanding of the artefact.

AIS Sweden consists of experts in different fields and it seems to be quite a big difference with the users ease of using the wiki. Some users see the wiki as an insufficient tool because of technical limitations but other users have a hard time to edit the site. I agree with both these aspects and will therefore elaborate on both those perspectives.

When analysing wiki as a collaboration and information tool in business other systems in use need to be considered. Within IBM there are a lot of other systems and therefore quite a large and complex IT architecture. IBM is quite lucky having a lot of integration between those but the wiki implementation itself do not provide many integration possibilities. For example to integrate the wiki with document management systems and profile pages are hard and much of those functionalities must be made by linking to other systems that support those features instead of having a more sophisticated integration.

As stated above some users found the page hard to edit. I think one of the reasons for this is that many wiki engines, including Confluence, supports both rich-text editing as well as wiki mark-up language. One of the problems with this (at least in the Confluence engine) is that the two editing modes supports

different functions and when some users try to edit a page in the rich-text mode the desired result can only be achieved in mark-up language mode.

Still I think that a wiki, especially if it has some integration possibilities with other systems in use, is a fast, and easy, way to be able to put together a web page for groups. If one of the requirements for the site is to be able to integrate with other systems wiki might not be the right tool – but the return on investment is high. If a lot of integration is desired a portal might be a better choice (especially if it is to be used as a intranet for larger groups) but that comes with a much higher price tag.

I have experienced that both organisational aspects, such as grass root participation as well as management support, as well as technological aspects, such as decision on tools, has a strong impact on the result of a implementation of wiki technology. I think it is very important to be clear on what is expected from the users and create clear guidelines for their participation. The decision on which technology to use is important so that the technology in itself do not become a clear limitation for the site.

6.2 Outlook and discussion

One thing to keep in mind when implementing a wiki in a business context is access rights. The IBM wiki implementation is integrated with the company's identity management system as well as access management system. In this way it is easy to configure which users or user groups that has the right to edit/view or administer a wiki space. Without identity and access management systems in use this could would be a bit harder to do – especially for organisations with larger user groups where every user must be added instead of using existing LDAP-filters based on *e. g.* mangement structure.

One thing that I have been thinking a lot about during the progress of my thesis is different ways of communicating and why people choose one tool over another. Within IBM there exist a lot of knowledge and information, and much of it is transferred through emails and instant messaging discussions. Some of this information is confidential but a lot of it is not – therefore I think it would be of great benefit for the organisation to make more of that information public through different tools, examples of such tools are wikis and blogs. Instead of just replying to a question in a mail many of that information and answers could instead be published on the intranet so other could prosper from that information. There might be many reasons why not more information is shared

in this way and I think that some of them are lack of knowledge on which tools that exist, lack of tools and cultural aspects. For many persons that possess the information that information created an advantage for them, they might fear that by making that information available they might loose their advantage.

Another thing that could benefit with a more frequent wiki usage instead of email sending is the flooding of people's mailboxes and also the reason for why some people recieves an email in the first place. I have identified three groups which got different relationships to information and knowledge, *e. g.* distributed in emails, for a visualisation see Table 6.1. The first group - the need group - is the group that really needs that information to be able to do their work. In the email case this is thought of to be the persons listed in the To:-field. The second group - the prospers - is the persons that would benefit out of getting, or be able to access, the information and knowledge. In email the persons who are in this group is selected by the sender (e.g. by putting them in the CC field). This power of the sender makes them a gatekeeper that decides on "Who is the one that has the right of knowing this" - even if the information in the email itself isn't of such a confidential level. There is also a third group that needs to be taken into account - the persons that get angry when receiving information (the GAWR). This group is for example probably considered by the sender of the email whether of not to put persons in the cc field. They always risk that that person is a GAWR.

By using more "open" tools (such as wikis and blogs) the prosper group can be extended to people that the sender do not know will benefit of accessing the information. But one problem with this is the gatekeeper/power aspect. How can we make people more willing to share information? I do not think that the problem only is that people do not know about file uploading, and that the tools are hard to use, but I believe this is strongly related to culture and the power of possessing information and the power of having the right of deciding who should prosper of the information and who should not (i.e. be a gatekeeper).

	Need	Prosper	GAWR
Lotus Notes - E-mail	The one listed in `To:`	Only `To:` and `CC:`	∃
Sametime - Instant messaging	Yes	∄	∃
WikiCentral - Wiki	Yes	∃	∄
Blogs	Yes	∃	∄

Table 6.1: How the groups *need, prosper, get angry when receive (GAWR)* is related to different communication tools.

I think more research within this subject on information sharing would be interesting to see. As an example develop a framework for information distri-

bution that is searchable within the enterprise and check if people are willing to use it, this could be done by creating the posibility for the emplyees to publish their emails publicly by deciding to "send and publish" instead of just sending it to the recievers.

References

Printed references

Alkalay, A., C. Almond, J. Bloom, A. Chow, F. Peters, R. Rogers & C. Wyble (2007). "Supporting Innovators and Early Adopters: A Technology Adoption Program Cookbook". In: *IBM Redpaper*.

Carey, R. F. (2008). "The corporate newsletter goes social: IBM and Employee-Centered Social Media". In: *socialmediatoday.com*.

Havens, C. & E. Knapp (1999). "Easing Into Knowledge Management". In: *Strategy and Leadership* 27, pp. 4–9.

ISO 9231-1998. *Part 11: Ergonomic Requirements for Office Work with Visual Display Terminals (Vdts) – Guidance on Usability*. ISO, Geneva, Switzerland.

Leuf, B. & W. Cunningham (2001). *The Wiki Way: Quick Collaboration on the Web*. Addison-Wesley Longman Publishing Co.

Mader, S. (2008). *Wikipatterns: A Practical Guide to Improving Productivity and Collaboration in Your Organization*. Wiley.

McKinsey & Company (2007). *How businesses are using Web 2.0: A McKinsey Global survey*. McKinsey Quarterly.

— (2008). *McKinsey Global Survey Results: Building the Web 2.0 Enterprise*. McKinsey Quarterly.

Wood, L. (2005). "Blogs & wikis: Technologies for enterprise applications". In: *The Gilbane Report: Content Management Technologies & Trends* 12.10, pp. 2–9.

du Plessis, M. (2008). "What bars organisaitons from managing knowledge successfully?" In: *International Journal of Information Management* 28.4, pp. 285–292.

Ågerfalk, P. & O. Eriksson (2006). "Socio-instrumental usability: IT is all about social action". In: *Journal of Information Technology* 21, pp. 24–39.

Online references

Palmisano, S. J. *IBM Values at Work*. Accessed 14 November 2008. URL: `http://www.ibm.com/ibm/values/`.

— (2003). *Speech delivered at the Council on Competitiveness Annual Meeting*. Accessed 12 November 2008. URL: `http://www.ibm.com/ibm/sjp/10-30-2003.html`.

Szybalski, A. (2005). "Why it's not a Wiki World (Yet)". Publised as a report online. Accessed 14 November 2008. URL: `http://andy.bigwhitebox.org/papers/wiki_world.pdf`.

Wikipatterns.com. Webpage on `http://www.wikipatterns.com`. Accessed 19 November 2008.

Wikipedia: Design pattern (computer science). `http://en.wikipedia.org/wiki/Software_design_pattern`. Accessed 12 November 2008.

Empirical material

Interviews

Interview with AIS Global wiki practitioner (2008). Interview with Dan Manning on the 15 October. Oct. 2008.

Interview with AMS practitioners (2008). Interview with Christina Fritzell and Leif Lindmark on the 18 August. Aug. 2008.

Interview with BlueIQ practitioner (2008). Interview with Luis Suarez on the 13 October. Oct. 2008.

Singer, D. (2008). Private communication.

Glossary

AIS

    Application Innovation Services, a service line within GBS.

AMS

    Application Management Services, a service line within GBS.

BM

    Business Manager. The BMs in AIS is the managers with personnel responsibility.

CEO

    Chief Executive Officer

CIO

    Chief Information Officer

FOSS

    Free and Open Source Software

GBS

    Global Business Services, an IBM business unit.

HTO

    Human Technology Organisation

IOT

    Integrated Operating Team – A geographically distributed subdivision of a service line.

Lotus Sametime

> Lotus instant messaging application.

TAP

> Technology Adaption Program – An IBM program for introducing and managing access to new technologies within the IBM enterprise.

W3

> IBM's Intranet

WikiCentral

> IBM's central wiki platform based on the Confluence engine by Atlassian. It is runned inside the firewall on W3.

Appendix A

AIS Sweden Information Site implementation strategy

1. Was the previous wiki project unsuccessful? If so, how come? Which requirements was gathered and how was the project implemented and rolled out?

2. Find a suitable name that explicitly doesn't contain the word wiki. A suggestion is AIS Information Site. Therefore the system is an information site which uses wiki technology, not a wiki per se. (n this way people haven't their minds set in a strict, and maybe wrong, way from the start.

3. Develop requirements and purpose for the wiki by interviewing BM's and other stakeholders.

4. Conduct the first survey.

5. Create a basic structure and content and run a pilot with different users – it is of high importance that the users in the pilot not only are early-adopters.

6. Present the system to the AISers.

7. After some time – conduct the second survey.

Appendix B

AIS Sweden information survey

This questionnaire was distributed by e-mailed as a link to an online form to the whole AIS group on the 26th of August and the respondents had 1 week to reply. The questionaire differs slightly in design compared to the original since it was an online form.

1. How many years have you been working for IBM?

- ◯ [0-2)
- ◯ [2-5)
- ◯ [5+

2. What is your main location?

- ◯ Stockholm
- ◯ Other
- ◯ Not applicable

3. What do you think about the availability of internal information on AIS Sweden?

- ◯ Very good
- ◯ Good
- ◯ Not very good
- ◯ Not at all good
- ◯ Don't know

4. How well do you know where to find information, relevant for you as consultant, regarding AIS Sweden?

○ Very well

○ Well

○ Not very well

○ Not at all well

○ Not applicable

5. Is there today good ways to share AIS information relevant to other AISers?

○ Very good

○ Good

○ Not very good

○ Not at all good

○ Don't know

6. How well do you feel that you can keep updated on news concerning AIS Sweden?

○ Very well

○ Well

○ Not very well

○ Not at all well

○ Not applicable

7. If you want to, please feel free to comment on this survey or on the AIS Sweden information topic: