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Social Media Changing the Competitive Intelligence Process: Elicitation of Employees' Competitive Knowledge

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Social Media Changing the Competitive Intelligence Process: Elicitation of Employees' Competitive Knowledge

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”Nobody in life gets exactly what they thought they were going to get, but if you work really hard and you're kind, amazing things will happen.”

- Conan O'Brien -

ABSTRACT

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Keywords: Competitive intelligence, Competitive knowledge, Social media, Knowledge sharing, Employees, External business environment

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Competitive intelligence process aims to provide actionable information about the external business environment to back up decision-making in companies. The affects that the rise of social media may have on competitive intelligence is a topic of interest to both practice and theory. The main objectives of this dissertation are to understand how social media changes the competitive intelligence process and how can it enhance the elicitation of employees' competitive knowledge. The research questions are studied using both theoretical and empirical research approach. Empirical study consists of three data sets complementing each other, adopting several methods and perspectives.

The results of the dissertation suggest that social media has an effect on companies' information environment, as the widespread use of social media produces more volume and more versatile information than before. In the competitive intelligence context this influences information gathering especially: social media for its part increases the available information sources, but it also offers technologies to automate some parts of information gathering and processing. In addition, use of suitable social media tools can have affects on the elicitation of employees' competitive knowledge and making competitive knowledge more visible in a company. Social media provides an opportunity to implement the competitive intelligence process as participative and collaborative and engaging employees in the process. The role of the employees shifts to that of more active participants shaping the collaborative understanding by contributing their competitive knowledge to the process as well as better benefiting more from others' competitive knowledge. However, the success of using social media in better utilising and sharing employees' competitive knowledge relies heavily on utility, perceived usefulness and affordance of the tools as well as how motivated the employees are to use it for knowledge sharing. The main motivating factors and barriers are in line with those regarding general knowledge sharing.

The main contributions include increasing knowledge on the connection between social media and competitive intelligence: how the emergence of social media affects carrying out the competitive intelligence process and especially sharing of employees' competitive knowledge. In addition, the research reveals the motivational factors and barriers related to employees' willingness to use social media for sharing competitive knowledge. The findings also have practical managerial implications for companies planning to adopt social media for competitive knowledge sharing, as they provide means for them to prepare the conditions for successful utilisation and active employee participation.

TIIVISTELMÄ

VUORI, Vilma. 2011. *"Social Media Changing the Competitive Intelligence Process: Elicitation of Employees' Competitive Knowledge*". Tiedonhallinnan ja logistiikan laitos, Tampereen teknillinen yliopisto.

Asiasanat: Kilpailutiedonhallinta, kilpailutieto, sosiaalinen media, tiedon jakaminen, henkilöstö, ulkoinen liiketoimintaympäristö

Sosiaalinen media tarjoaa sekä mahdollisuuksia että haasteita kilpailutiedonhallinnalle: se muokkaa yritysten ulkoisesta liiketoimintaympäristöstä saatavilla olevaa tietoa, mutta myös tarjoaa keinoja hyötyä tiedosta entistä paremmin. Sosiaalisella medialla on annettavaa myös yhteisöllisemmän työympäristön kehittämisessä. Se mahdollistaa henkilöstön osallistumisen kilpailutiedon hallinnan prosessiin ja henkilöstöllä olevan kilpailutiedon paremman jakamisen.

Väitöskirjan keskeisinä tavoitteina on ymmärtää, kuinka sosiaalinen media muuttaa kilpailutiedonhallinnan prosessia ja kuinka se voi edistää henkilöstöllä olevan kilpailutiedon entistä parempaa hyödyntämistä. Tutkimuskysymyksiin vastataan sekä teoreettisen että empiirisen tutkimuksen keinoin. Empiirinen tutkimus koostuu kolmesta toisiaan täydentävästä osiosta, joissa hyödynnetään useita metodeja ja näkökulmia.

Tutkimuksen tulokset osoittavat, että sosiaalinen media voi tehostaa tiedon hankintaa sekä yrityksen ulkoisista että sisäisistä lähteistä. Lisäksi käyttämällä sosiaalisen median työkaluja yrityksen henkilöstön kilpailutietoa voidaan paremmin jakaa ja hyödyntää. Sosiaalisen median hyödyntäminen kilpailutiedonhallinnassa vaikuttaa mm. työntekijän rooliin prosessissa muokaten sitä aiempaa aktiivisempaan ja osallistuvampaan suuntaan. Sosiaalisen median käyttöönotossa onnistuminen riippuu suuresti siitä, miten henkilöstö kokee tarjottujen työkalujen hyödyllisyyden, soveltuvuuden ja käytettävyyden. Onnistumisen edellytyksenä on myös henkilöstön motivaatio käyttää sosiaalista mediaa kilpailutiedon jakamiseksi. Tulosten mukaan sosiaalista media käytettäessä kilpailutiedon jakamisessa motivaatiotekijät ovat yhteneviä yleisen tiedon jakamisen motivaatiotekijöiden kanssa.

Tutkimuksen keskeinen kontribuutio on uuden tiedon tuottaminen aiemmin varsin vähän tutkitusta alueesta: sosiaalisen median vaikutuksista kilpailutiedonhallintaan, ja etenkin sen potentiaalista edesauttaa henkilöstöllä olevan kilpailutiedon jakamista ja hyödyntämistä. Tuloksilla on myös käytännön merkitystä, sillä niiden avulla yritykset voivat luoda paremmat onnistumisen edellytykset sosiaalisen median implementoinnissa kilpailutiedonhallintaan.

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wearing his student of technology cap with the fancy black tassle. As a child my lullaby was the sound of my mother's fingers dancing on the typwriter, and later on the computer keyboard, as she wrote her licentiate and doctoral dissertations. I am ever grateful to her for showing me that doctoral studies are nothing impossible; just a normal part of everyday life and nothing to be afraid of. The same goes for my big sister, Nelli. After years of acting as each other's opponents and sparring partners in a sisterly manner it is no wonder that both of us ended up writing a dissertation. I admire Nelli for showing the example of how to combine work and family without ever compromising the success or happiness of either one.

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Tampere, October 11th 2011

Vilma Vuori

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PART I: INTRODUCTION

1 INTRODUCTION

The first chapter of the dissertation is an introduction to the research. The background and motivation for the research are presented, followed by a brief summary of the literature and hence the research gap. The chapter presents the research problem and questions the dissertation aims to answer. It also concisely explains how the research questions and the empirical data sets are connected to each other. In addition, the scope of the study is defined. Moreover, the research strategy applied in the dissertation is introduced. The structure of the dissertation is presented at the end of the chapter.

1.1 Motivation for the research

Continuous scanning of potential threats and opportunities arising from the external business environment, understanding their meaning to the company and acting upon that knowledge is one major factor defining a company's success (Porter, 1980; Kamensky, 2008). According to the knowledge based theory of the firm (Grant, 1996), a company's knowledge resources determine its competitiveness. The knowledge that can create the best competitive advantage contains relevant substance in the company context, is obtained before other possible benefiters, is interpreted correctly and is used in decisions guiding the company's actions. Knowledge related to competitive issues can have a significant affect on a company's success by helping to understand, for example, how the price of a competitor's product is formed, how the company should approach a certain customer, what the most beneficial way would be to enter a new market area or how will the merger of two competitors affect the company's competitive position. This competitive knowledge constitutes the understanding of a company's overall competitive situation and factors affecting it (Stoffels, 1994; Choo, 2002; Fleisher and Bensoussan, 2007).

Competitive intelligence is a support function that aims to provide actionable competitive knowledge to back up decisions that further the company's business goals (Badr et al., 2006; Fleisher and Bensoussan, 2007). Such issues as future economic situation, competitors' actions, customer needs and consumer trends, changes in legislation etc. are in the focus of competitive intelligence. Competitive intelligence is often described as a continuous process consisting of several sequential phases (see e.g. Collins, 1997; Kahaner, 1997; Probst et al., 2000; Choo, 2002; Vitt et al. 2002), including identifying information needs, gathering information from several sources, processing, analysing and sharing information, and finally, using information to support decisions.

The knowledge sources of competitive intelligence vary from personal human contacts to the Internet and other media. The most used sources are often the explicit ones, such

as reports from a database, news service feeds or consultant analyses, because due to their definite form they are easier to acquire and utilise. Nevertheless the sources more difficult to reach are often more advantageous and human sources are especially valued (see e.g. Collins, 1997; Butcher, 1998; Pirttilä, 2000; Fleisher, 2001; Frishammar, 2003; Erickson et al., 2003).

A company's own employees are important sources of competitive knowledge (Choo, 2002; Frishammar, 2003), and Collins (1997) even names them as the biggest intelligence asset of a company. Employees, especially those working in the customer interface, acquire lots of knowledge concerning the customers and markets, and competitors as well. They can interpret the knowledge and give explanations (Drott, 2001; Choo, 2002; Frishammar, 2003), for example, for why the competitors' price in a certain market area is formed following a certain logic. This kind of competitive knowledge cannot be bought from a consultant and it is not visible in company's market share pie charts. However, it helps the company to better understand the best way to compete and how to decide its pricing on that market. Employees can therefore have a valuable role in piecing together a puzzle that reveals a clearer picture of what is going on in a company's business environment: they create and posses competitive knowledge.

Getting employees' competitive knowledge to benefit the company is a central target for development when trying to find new sources of knowledge-based competitive advantage. In order to benefit from employees' knowledge, it has to be shared (Nonaka and Takeuchi 1995), that is, made available to others within the company (Ipe, 2003). Efficient sharing and using of knowledge is a source for sustainable competitive advantage (Spender and Grant, 1996; Stewart, 1997; Nahapiet and Ghoshal, 1998; von Krogh et al., 2001; Bock and Kim, 2002; Riege, 2005; Renzl, 2008). Engaging employees in the competitive intelligence process to share their competitive knowledge is recognised to be worthwhile, even though not an easy task (Hannon, 1997; Drott, 2001; Koskinen et al., 2005a). Fuld (1991), Herring (1991) and Bernhardt (1993) state that the potential of employees as information sources has been underutilised due to a lack of communication and coordination. Employees do not know that the knowledge they possess might be of value to the company or there is no coordination or channel to share knowledge to others in the company (Hannon, 1997). In addition, a central question is how to motivate the employees to contribute their knowledge to competitive intelligence process (Hannon, 1997).

Furthermore, today's complex business environment creates additional challenges for carrying out the competitive intelligence process. Companies' business environment is broader than before, and it has become more and more geographically dispersed (Kalkan, 2008). Many companies' locations are scattered ever wider and suppliers, customers and markets have become global. Expanding and dynamic business environment requires more attention what comes to following developments in it (Tan

Tsu Wee, 2001; García and Vaňó, 2002; Blenkhorn and Fleisher, 2005). It is no longer enough to keep up with just the company's own customers' needs; the company has to understand the customer's customer's needs as well. Following main competitor's actions in a certain market area is a given, but how about on those market areas where the company does not operate, but an important customer does, and so does the competitor?

Technological development, faster connections and globalisation have also increased the volume of knowledge available (Coakes et al., 2008). Moreover, the type of knowledge available has also changed. Since its introduction in 2004 (O'Reilly, 2005) the term Web 2.0 has been a buzzword that has been increasingly present in today's society. Social media (i.e. using Web 2.0 technologies to create and use content and to interact with others) is another term that frequently pops up in everyday conversations and news. Social media has changed the situation by giving individual Internet users free authorship and publishing rights, enabling anyone to share information through blogs, discussion forums and social networking sites (see e.g. Bonsón and Flores, 2011). For competitive intelligence this provides more opportunities to gather interesting information and identify possible knowledge sources. At the same time, the ability to find the right information as well as the reliability of information poses challenges for competitive intelligence.

Today changes occur faster than before, or at least, news travel fast and changes can be detected earlier than before (Collins, 1997; Cook and Cook, 2000; Choo, 2002; Rajaniemi, 2005). Consequently, the secondary effects also accumulate faster. This sets requirements for quick and efficient decision-making: the ability to react to the changes quickly and wisely defines in its part a company's success and competitive position (Grant, 2008). Companies want to be proactive, that is, to act before the change has even occurred, and thus be able to manage and control the effects of the change. In order to be able to be proactive and make felicitous decisions, information and knowledge is needed to support decision-making.

In addition, the complex environment sets requirements for managing the company's knowledge resources (García and Vaňó, 2002; Karimi and Konsynski, 2003). A geographically dispersed working environment sets challenges for the sharing and utilisation of employees' competitive knowledge. When a company's operations and employees have been scattered over a wide area, common challenges include, for example, the fragmentation and dispersion of knowledge within the company, knowledge silos between departments and locations (Linden et al., 2002), incoherent organisational culture and the lack of suitable channels for communicating.

All in all, although the potential of utilising employees' competitive knowledge is understood, benefiting from this knowledge is not often very efficient, and the mechanisms to share and obtain it for the use of the company are not yet very

developed. The complex business environment, rate of changes, volume of knowledge and geographical dispersion multiply the challenges even more.

Computer Supported Cooperative Work (CSCW) (see e.g. McCarthy, 1994) has provided some solutions for information sharing and collaboration regardless of spatial and geographical limitations more efficient. Groupware, such as email or videoconferences, has made it easier to communicate and share knowledge (Gunnlaugsdottir, 2003; McAfee, 2006), but has still failed to meet all the knowledge sharing needs regarding competitive intelligence. One central problem is that the participants or recipients of a groupware session (e.g. multi-participant phone meetings or email thread) have to be predetermined, which may exclude some valuable people from the knowledge sharing situation. The individuals having the most up-to-date knowledge concerning the issue discussed may not be in those meetings or on email lists, or their being possible knowledge sources in the issue may even not be known. In addition, traditional knowledge sharing channels and groupware require synchronism, that is, the participants need to be present at the same time in order for a meeting or a discussion to take place (see e.g. Pirttilä, 1997). This is not very effective in a global company operating at multiple locations and timezones, and often the solution is to travel from one location to another in person to discuss the issues.

The emergence of social media brings potential benefits that may fill in some gaps of competitive knowledge sharing left void by groupware. People are accustomed to use social media in leisure activities. They are blogging about their hobbies, sharing vacation photographs in Flickr, updating their status in Facebook and uploading music videos in YouTube. Most of the young people entering job markets today can be called “digital natives”, people who have grown up with computers, Internet and mobile phones. For them digital technology is part and parcel of life, and it can be assumed that they are willing and even eager to adopt the use of social media also in the job context. Additional motives for this are the perception that using social media will make performing their everyday tasks easier, it is believed to have a positive impact on the career (Technorati, 2009).

Companies are still more careful about adopting social media (see e.g. Avanade, 2008). Social media is acknowledged to have potential in the business context, but companies do not quite seem to know how to realise the potential (eMarketer, 2009). Social media use in the business context has been discussed amply in the literature. In addition to general use of social media in the company context (Tredinnick, 2006; McAfee, 2006), the perspectives include, for example, the opportunities social media tools provide for companies (Wyld, 2008; Chui et al., 2009; Kaplan and Haenlein, 2009; Bonsón and Flores, 2011), how value is gained from using the tools (Porta et al., 2008), how the tools are used by companies (Lee et al., 2006) as well as the risks they may pose (Alkhateeb et al., 2008; Ferreira and du Plessis, 2009).

The potential benefits of social media are constantly noted in the media, and companies may feel pressure as well as interest to somehow utilise the alleged potential. One area where the business potential of social media has gained rather a lot of interest is knowledge management. Levy (2009) compares the basic principles of knowledge management and social media, and Grossman (2008) discusses social media use for managing knowledge and enhancing collaboration and innovation. Razmerita et al. (2009) have studied how social media could be used for managing personal knowledge in organisational context, while Grace (2009) focuses on evaluating wikis as a knowledge management tool. All of the aforementioned find potential in utilising social media in knowledge management and see that it offers more flexible and usable technological support for knowledge management than traditional information systems. Especially the benefits social media tools can provide for enhancing knowledge sharing have gained interest among researchers (see e.g. Hew and Hara, 2007a; Patrick and Dotsika, 2007; Paroutis and Al Saleh, 2009; Schneckenberg, 2009; Boella and van der Torre, 2010; Kang et al., 2010; Jeon et al., 2011; Majewski et al., 2011).

It should be noted that even though social media could provide a more usable channel for knowledge sharing than traditional information systems or groupware, the central question defining the value and success lies in how to get employees to share knowledge in the first place. Motivational factors and barriers to knowledge sharing in general are widely discussed in the literature (see e.g. Bock and Kim, 2002; Ipe, 2003; Riege, 2005; Bock et al., 2005; Lin, 2007; Barachini, 2009; Gagné, 2009; Holste and Fields, 2010; Suppiah and Sandhu, 2010). In addition, the motivational factors and barriers to knowledge sharing when using social media are increasingly researched (see e.g. Ardichvili et al., 2003; Hew and Hara, 2007b, Paroutis and Al Saleh, 2009; Zhou, 2011). However, the research has not specified the focus and subject of knowledge, and whether it has any impact on the knowledge sharing. It is still unknown whether the nature or focus of competitive knowledge affects the motivation and barriers to knowledge sharing.

Social media is also a hot topic in competitive intelligence. Competitive intelligence professionals are keen to find ways to use Twitter, LinkedIn, Facebook, blogs and other social media applications to competitive intelligence purposes (Competitive Intelligence Magazine, 2009; Society of Competitive Intelligence Professionals, 2009). Competitive intelligence has been researched increasingly since the 1990s (Fleisher et al., 2007; Calof and Wright, 2008). The early academic discussion focused on defining the concept and practices of competitive intelligence (McGonagle and Vella, 2003). In the early of 2000s, the focus of academic research articles shifted to a more practical perspective introducing case examples and lessons learned from practical applications of competitive intelligence (see e.g. Prescott and Miller, 2001). This was followed by a series of articles reporting the state and practice of competitive intelligence in different countries (Journal of Competitive Intelligence and Management; 2004a; 2004b;

2004c[1]). Trying to measure the value (Pirttimäki et al., 2006; Lönnqvist and Pirttimäki, 2006) and show the impact of the competitive intelligence activities on competitive advantage (Hughes, 2005; Bou-Llusar and Segarra-Ciprés, 2006) and business performance (Badr et al., 2006) were other themes that were under discussion in the mid 2000s. Moreover, discussion on technological solutions and tools for competitive intelligence professionals took academics' interest from the mid 2000s onwards (see e.g. Bouthillier and Jin, 2005; Decker et al., 2005; Sauter, 2005: Brouard, 2006; Fleisher, 2006), concentrating especially on visualisation tools towards the end of the decade (Eldridge, 2006; Fischer and Lalyre, 2006; Yang et al., 2008; Atzmüller and Landl, 2009).

The current stream of competitive intelligence research seems to deal with how to rediscover the core of competitive intelligence (Gilad, 2011) and making the practice of competitive intelligence more effective. Competitive intelligence has established its position in companies as an important function backing up decision-making. However, companies are constantly looking for ways to make it more effective, and the question of how to better utilise employees' knowledge has long been in the air (see e.g. Hannon, 1997; Drott, 2001).

Even though it can be argued that social media can significantly affect the execution of the competitive intelligence process, the academic research discussing social media in the competitive intelligence context is yet rather limited. Of the 85 articles focusing on competitive intelligence[2] that have been published since 2004, only five have discussed social media to some extent (Fleisher, 2008; Chung et al., 2009; Vaughan et al., 2010; Vaughan and You, 2010; Xu et al., 2011). Instead of academic discussion, the contemplation of social media in the competitive intelligence context has been prominently present in practitioner articles and consultant companies' surveys and reports (see e.g. Competitive Intelligence Magazine, 2009; Kiplinger, 2009; Rice, 2010; Van Luik, 2010), not to mention discussions in social media, for example, practitioner blogs and professional social networks.

Based on both academic and practitioner discussion, there seem to be two approaches to social media in the competitive intelligence context. First, the information gathering approach considers how social media applications can advance information source identification and information gathering from the company's external business environment (see e.g. Carpe, 2007; Fleisher, 2008; Jackson, 2009; Vaughan et al., 2010; Xu et al., 2011). The focus is on how information gathering can be made more effective and efficient with the use of social media. Second, the information sharing approach

[1] All these three issues of the Journal of Competitive Intelligence and Management consist of special articles concentrating on country-specific implementation and state of competitive intelligence.
[2] The literature review included journal articles with the term "competitive intelligence" as a keyword available in Elsevier, EBSCOHost and Emerald databases and all the articles published in Journal of Competitive Intelligence and Management between years 2004–2011.

looks at social media as a means to share information and knowledge and as an enabler of collaborative analysis in the company (see e.g. Rothwell, 2009). This approach sees competitive intelligence as a united effort of the whole organisation: social media is considered as a way to empower employees and get them to participate in the competitive intelligence process as information sources, analysers and users. So far social media in the competitive intelligence context has been mostly discussed from the viewpoint of gathering information and identifying information sources. The viewpoint of using it to share competitive knowledge within the company is somewhat lacking in academic research. As noted, prior research has discussed the potential of social media as a knowledge management tool and a knowledge sharing enabler. The question of how social media can be used in enhancing utilisation of employees' competitive knowledge (i.e. the benefits it could provide for sharing employees' competitive knowledge and thus be used in competitive intelligence) provides an interesting issue for research.

This dissertation discusses how social media can change the competitive intelligence process and furthermore, how employees' competitive knowledge can be harnessed to benefit the company better than before by utilising social media in intra-organisational knowledge sharing.

The research rests on the knowledge based theory of the firm (Grant, 1996). The premise of the theory is that knowledge is the most important resource that companies have, as it is context bound, difficult to copy, and can thus be a source of sustainable competitive advantage (Grant, 1996). This applies particularly well to the competitive knowledge of the employees: it is interpreted in the company's context, and the company has the best, and possibly sole, access to it, if it is kept safe from the competitors. This dissertation contributes to the knowledge based theory of the firm by exploring how employees' competitive knowledge can benefit the company.

1.2 Research design

1.2.1 Research questions

This dissertation argues that social media influences the competitive intelligence process. The main interest is in understanding how social media affects the competitive intelligence process and how can it enhance the elicitation of employees' competitive knowledge within a company. In order to shed light on the phenomenon, the study focuses on solving the following main research question:

How can social media change the competitive intelligence process?

The answer to the main research question is generated by finding answers to the following, more detailed research questions (RQ):

RQ1: What is the current implementation of the competitive intelligence process in companies?

RQ2: How is employees' competitive knowledge currently utilised in companies?

RQ3: What is the potential of social media in the competitive intelligence context and how is it perceived by companies?

RQ4: What are a) the motivating factors enhancing and b) the barriers impeding employees' competitive knowledge sharing by using social media?

Answering the research questions sufficiently requires both theoretical and empirical research. The empirical study consists of three data sets, the role and purpose of which are the following:

I. Competitive intelligence study: describes the current situation of the competitive intelligence process in companies, reveals problems and challenges in the process.

II. Social media study: examines how the potential of social media in the competitive intelligence context is seen; companies' motivation and prerequisites to use social media and the potential benefits of social media in the competitive intelligence context.

III. Case study: combining aforementioned themes; discussing them in two specific cases and examining the utilisation of employees' competitive knowledge more in depth.

Figure 1 illustrates how the research questions relate to the theoretical and empirical parts of the dissertation.

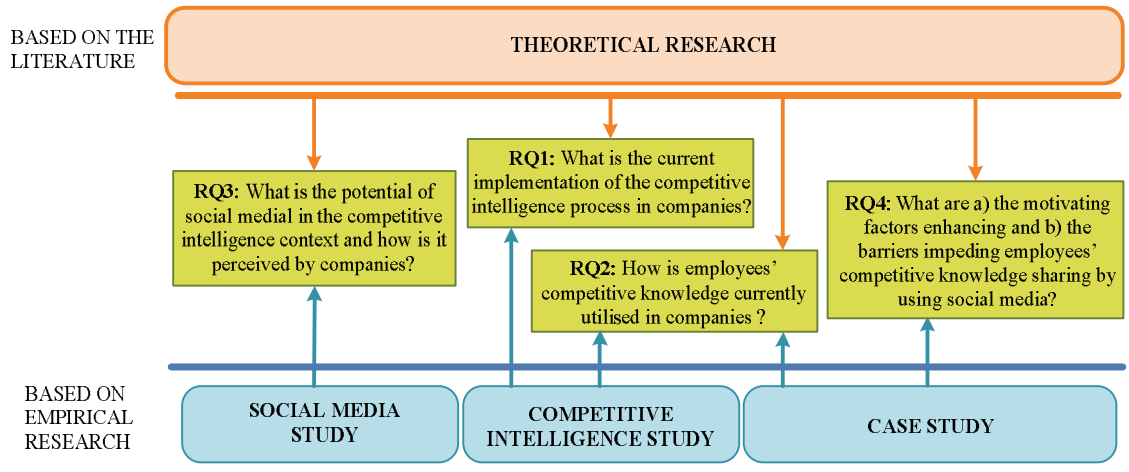


Figure 1. Answering the research questions with theoretical and empirical research.

In order to describe and understand the changes in a certain phenomenon, it is crucial to understand its status quo; the current situation, where the problems lie, and so on.

Competitive intelligence has gained a firm foothold among other support functions in companies. The value of the support it brings to the decision-making has been acknowledged and the competitive intelligence processes of companies have become more established. Research question 1 aims to describe how competitive intelligence is currently carried out in companies. The question is answered by reference to the existing literature and the data from the competitive intelligence study.

The underlying assumption of this dissertation is that a company's employees acquire knowledge from different sources concerning the company's external business environment (i.e. competitors, customers, markets, legislation etc.) and that this competitive knowledge is important to the company and may not be accessible via other sources. Even if the company could get the same knowledge from other sources, the hypothesis is that knowledge gained through employees is more valuable, because employees act as knowledge filters who put the original message in context and give it more meaning from the company's point of view. The assumption is based on the existing literature suggesting that employees are a valuable source of competitive knowledge (see e.g. Drott 2001) and that personal contacts are often seen as themost valuable sources of knowledge (see e.g. Collins, 1997; Butcher, 1998; Pirttilä, 2000; Frishammar, 2003). Research question 2 regarding the utilisation of employees' competitive knowledge is answered by reviewing the relevant literature as well as empirical research, especially the competitive intelligence study and the case study.

Social media has been a buzzword for some years now, and its alleged potential in business use has been said to bring companies many benefits. It is no wonder if companies not yet using social media feel pressure to go with the flow. Social media management and development seems often to be located in the marketing and communications departments (see e.g. Johnson, 2011). This is only natural if social media is seen as a way to communicate with the customers and consumers or a way to promote the company or its products. Social media can also have an effect on a company's competitive intelligence efforts. Research question 3 investigates the potential of social media in competitive intelligence context. The question is answered by reference to the literature and empirical data from the social media study.

Research question 4 aims to understand the motivating factors that encourage employees to share their competitive knowledge using social media, as well as the barriers preventing and discouraging them from doing so. However much potential social media is believed to have and however willing a company is to invest in it, the potential will never be realised if the intended users, that is, employees, are not motivated to use the technology to share their knowledge. Therefore it is important to understand the factors affecting the employees' motivation and how their motivation could be encouraged. Research question 4 is answered through theoretical research and the case study.

Together research questions 1–4 elicit answers to the main research question. The answers reveal, for example, what the role of employees in the competitive intelligence process could be if using social media, and how social media could be used in competitive intelligence.

1.2.2 Scope of the research

Every research project has its scope that defines the area of study. The first framing of this dissertation is related to the extent to which competitive intelligence is studied. Competitive intelligence aims to develop understanding of the company's external environment (see e.g. Badr et al., 2006; Fleisher and Bensoussan, 2007). This understanding cannot be built without input from external sources, from which information and knowledge is obtained (Stoffels, 1994; Choo, 2002; Fleisher and Bensoussan, 2007). However, the value creating part of the competitive intelligence process happens only after the external information is obtained for use within the company: only by analysing, sharing and using the knowledge enables the creation of competitive advantage, and subsequently value, for the company (Spender and Grant 1996; von Krogh et al. 2001; McGonagle and Vella, 2003).

The study is limited to focus on the competitive intelligence process; specifically gathering, refining and sharing knowledge within the company. The interest is particularly on employees' role and utilising their competitive knowledge in the competitive intelligence process. The study does not discuss employees' social media use in the non-work context, in which the interest is more specifically limited to intra-organisational competitive intelligence.

The second framing sets boundaries for the scope in which social media in business context is researched. There are different types of information flows where a company can apply social media, as presented in Figure 2. For example, a company can use social media to disseminate information from the company to the external environment (e.g. using social media as a channel for marketing and communications, or to promote company brand and image) (see e.g. Lee et al., 2006; Bonsón and Flores, 2011). In addition, social media applications can be used to enhance information flows between companies (e.g. a joint product development wiki between a company and its suppliers) (see e.g. Grossman, 2008). A company can also utilise social media applications to obtain information from external environment into the company (e.g. using RSS technology to automate scanning of the web or extracting information from social media sites) (see e.g. Casaló et al., 2008; Antikainen et al., 2010). Lastly, a company can utilise social media applications in intra-organisational information flows (e.g. an internal platform utilising technologies enabling a more social interaction within the company) (see e.g. McKelvie et al., 2007; Kaplan and Haenlein, 2009).

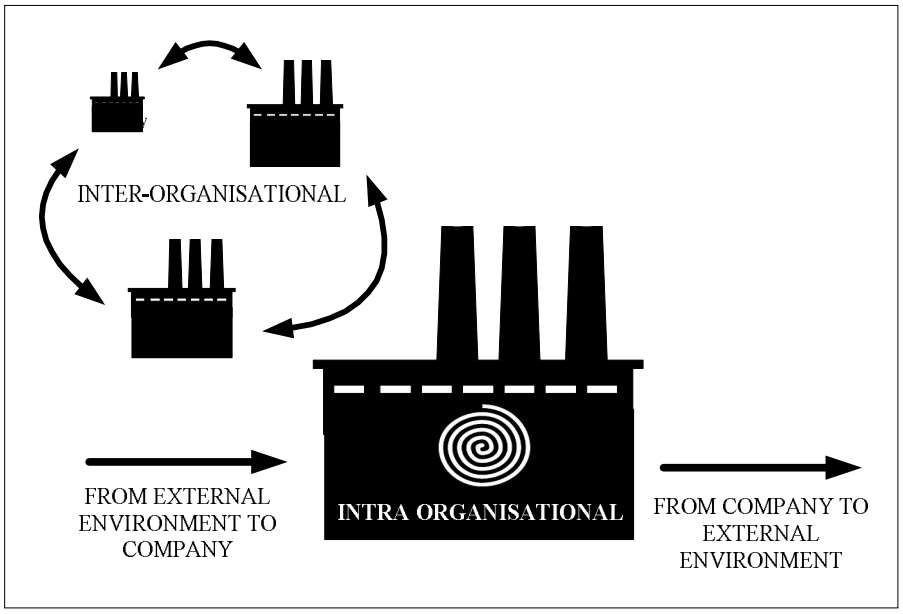


Figure 2. Information flows where social media can be used.

In this research the interest is mainly focused on the last one, since the study is interested in the intra-organisational part of the competitive intelligence process and especially the employees' role in it. However, as the aim is to find out how social media affects the competitive intelligence process in general, the effects of social media on the external information environment are touched.

Social media is a vast and so far poorly defined concept. Several technologies, tools and applications have been categorised under the concept, and their applicability in business use is yet to be determined. This dissertation does not discuss individual tools or applications in detail, but rather considers social media from a macro perspective, as a phenomenon.

To summarise, the research focuses on how social media could be utilised in a company's competitive intelligence process to enhance the utilisation of employees' competitive knowledge. The external sources of information are excluded, as well as other uses of social media except for those that could be used within a company in a competitive intelligence context to enhance the role of employees as knowledge sources.

1.3 Research strategy

The dissertation aims to add to the knowledge about the relationship between competitive intelligence and social media. The objective is theory elaboration by simplifying, reconnecting and redirecting (Lee et al., 1999) the discussion on how social media affects competitive intelligence. The research elaborates the theory of the competitive intelligence process by simplifying the so far ambiguous relationship

between competitive intelligence and social media; by reconnecting the two aforementioned, and by redirecting the competitive intelligence process towards a more human centric approach. This theory elaboration is done by building a theoretical framework based on prior research on competitive intelligence and social media and conducting a multidimensional empirical study investigating the issues.

The empirical data is contemplated using the theoretical framework as a lens to help to pinpoint relevant findings. The research strategy is constructed on choices of paradigm, research approach, methods and techniques (see e.g. Lähdesmäki et al, 2011). It is the outline of choices guiding and defining the research process and knowledge generated through it (Saunders et al., 2009). Figure 3 presents the research strategy of the dissertation, and is explained more thoroughly as follows.

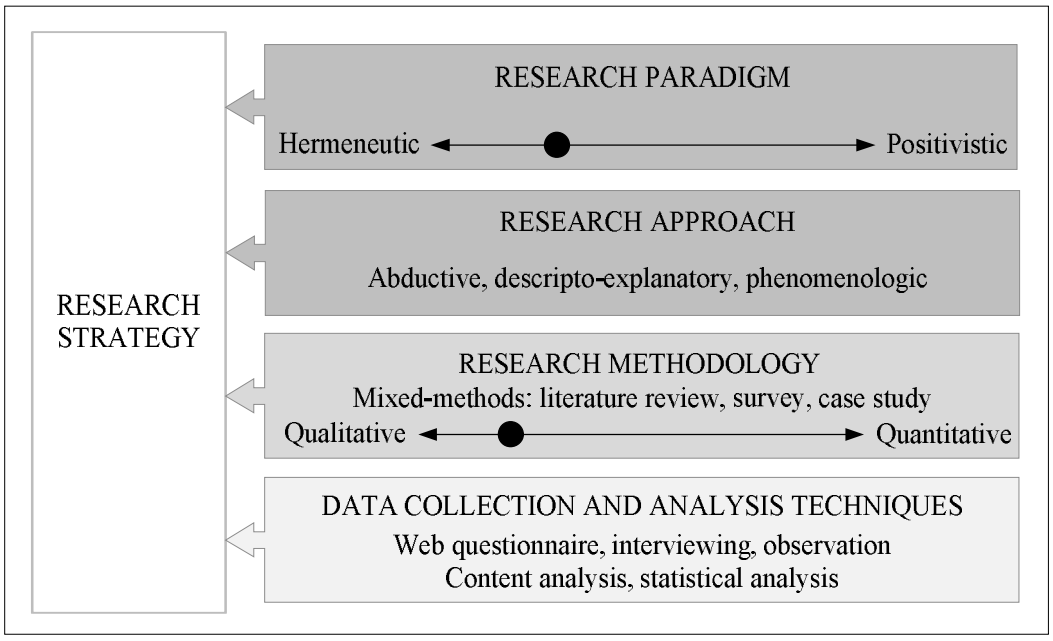


Figure 3. Research strategy of the dissertation.

The two main paradigms determining the world view of the research are hermeneutic and positivistic (Bernard, 1994). The hermeneutic paradigm aims to understand, interpret and explain and is highly subjective, whereas the positivistic paradigm aims to find "one objective truth" (see e.g., Bernard, 1994; Metsämuuronen, 2005). Positivistic research focuses on causalities and generalisations and often uses hypotheses and measurement to test the research data (Saunders et. al, 2009). Research in the area of natural sciences, such as physics, is usually positivistic by nature: the aim is to find the disputable facts and laws that determine, for example, what forces affect masses and how. Social sciences falls into the category of hermeneutics, as they are interested in human nature, and accepts the existence of many versions of truth. For example, whether the taste of garlic is good or bad depends on whom you ask, and both opinions are equally true. Hermeneutic research acknowledges the possibility of multiple conceptions of the same issue and is thus context-bound (see e.g. Bernard, 1994). The

hermeneutic research process is an interactive dialogue between the researcher's general view and the details emerging from the research data (see e.g. Metsämuuronen, 2005). Hermeneutical research can be depicted as a spiral or a funnel that progressively narrows and becomes more focused and ultimately reaches the final "right" conception (Turunen 1978).

From these two paradigms this dissertation is positioned closer to hermeneutics, as it aims to investigate, describe and explain the phenomenon from several, equally justified perspectives. However, as the competitive intelligence study and questionnaires used in the case studies aim to generalisation and abstraction, these parts of the dissertation are predominantly based on the positivistic research paradigm. In Figure 3 the black dot depicts the positioning of the dissertation on the hermeneutic-positivistic continuum.

Scientific research can generate knowledge using either theory or data as its starting point. These two basic aspects are called deduction and induction (see e.g. Creswell, 2003; Ghauri and Grønhaug, 2005; Eriksson and Kovalainen, 2008; Saunders et al., 2009). Deduction approaches the research subject progressing "from theory to data" (Saunders et al., 2009, p. 127), that is, developing a theoretical framework that is then tested using empirical data. Induction moves "from empirical research to theoretical findings" (Eriksson and Kovalainen, 2008, p. 22) starting the research process from collecting the data and then reflecting their findings to existing literature. In practice immaculate induction is impossible, since the researcher's background and persona always affect the interpretation of the data. In addition, theory has usually somehow been involved in the process of data collection and analysis. Although deductive approach is often associated with quantitative research and inductive correspondingly with qualitative research (see e.g. Saunders et al., 2009), they neither are not mutually exclusive alternatives nor is the division so clearcut. Both approaches can be applied regardless of the research being predominantly quantitative or qualitative, and the choice should be guided by the objectives and purpose of the research (Hammersley, 1992). In addition, deduction or induction can be applied in different phases of the same study, so that the research is iteratively moving between deduction and induction (Eriksson and Kovalainen, 2008). This kind of combination in one research project creates third approach, called abduction (ibid). In abduction knowledge is generated by an iterative dialogue of data and theory.

When collecting and analysing the empirical data for this dissertation both the data itself as well as the phenomenon under research guided the process. The data was collected in chronological order and it cumulatively and deductively led towards the answers. Therefore it markedly affected the path of the research. On the other hand, the phenomenon has led the data collection, and thus induction also had a central role in guiding the research process. Hence, this dissertation is abductive as it builds knowledge from the interaction of empirical data and the literature.

The research can also be seen to follow the emic-etic approaches introduced by Kenneth Pike in 1954 (Headland, 1990) and used in multiple ways in different research areas (see e.g. Headland, 1990; Hodder, 1994; Berry, 1999; Sedmak and Longhurst, 2010). In the context of this research emic, that is, the subjective insider approach to the phenomenon, is represented by looking at the research subject through the empirical data. The theoretical part of the study represents the etic, that is, the objective outsider approach.

The purpose of the research may be exploratory, descriptive or explanatory (Saunders et al., 2009). This dissertation aims to provide a clearer view of the status quo of the phenomenon, and is thus partly descriptive. It can also be classified as explanatory, because it tries to find reasons why things are as they are. The descriptive part lays the foundation for the explanatory part of the research, and thus the research can be categorised as a descripto-explanatory study (Saunders et al., 2009). As some of the conclusions include recommendations for companies wanting to adopt social media in competitive intelligence the dissertation can also be partly classified as normative.

The dissertation has features of phenomenology and phenomenography, as it aims at a better understanding of the context and logic of the phenomenon under study rather than developing universal laws explaining the phenomenon (Sandberg, 2000; Carlsnaes et al., 2002; Budd, 2005; Küpers, 2008;). Phenomenology can be defined as "the study of phenomena as they appear in human experience" (Küpers, 2008, p. 390). Phenomenology seeks to understand a phenomenon in light of empirical evidence from people's perceptions of the phenomenon (Carlsnaes et al., 2002; Metsämuuronen, 2005). Phenomenography takes account of cultural aspects that may affect the conceptions: it aims to find and systematise aspects of reality that are shared (or supposed to be shared) by the members of a society (Marton, 1981), for example, employees of a company. Metsämuuronen (2005) notes, that, for example, a person's education, age and sex may have a significant effect on how they perceive the phenomenon. In addition, these conceptions are dynamic and subject to change (Metsämuuronen, 2005). The social media study especially follows the phenomenographic strategy, as it aims to identify different persons' and companies' standpoints and experiences on using social media in competitive intelligence context. The data from which these conceptions are extracted was collected by semi-structured interviews and observation, which enables a relatively free-form and narrative expressions of conceptions and experiments.

In order to explain and understand the phenomenon, this study applies several research methods. The concept of method can have many meanings and interpretations (see e.g. Laine et al., 2007). It can refer to the strategy or philosophy that guides the way the research is conducted (Ghauri and Grønhaug, 2005) as well as to a specific technique of collecting or analysing data (see e.g. Crotty, 2010; Eriksson and Kovalainen, 2008; Saunders et al., 2009; Metsämuuronen, 2005). This research follows the definitions of

Ghauri and Grønhaug (2005) stating that method refers to *what* to do or *why* to do things whereas techniques are about *how* things are done. Following the same logic, in this dissertation methodology refers to the combination of chosen methods. The methodology of the study consists of literature review, survey and case study.

An exhaustive review of the relevant literature is the starting point for any research that aims to develop a theory, create new knowledge and contribute to the academic debate (Webster and Watson, 2002; Järvinen, 2008). "In order to create future one must understand the past" is a well-known phrase that holds good in this context as well. Thorough research on the prior literature gives the researcher an understanding of what has been researched, how, and with what results (Webster and Watson, 2002). By providing this information a literature review helps to reveal research gaps, that is. the areas where further research is needed. Yin (1994) states that, in addition to finding unexplored areas of research, another purpose of the literature review is to develope more focused research questions concerning the topic. Edmondson and McManus (2007) continue by stating that a literature review helps to identify relevant constructs and "areas of low agreement". That is, the body of knowledge and "infrastructure" of theories relevant to the research. The areas of low agreement are those where academic debate has not yet found a consensus, thus welcoming contributions to the discussion. A literature review can be conducted using, for example, the concept-centric approach recommended by Webster and Watson (2002) or the lens-directed approach by Järvinen (2008) to help the classification of the material. In the concept-centric approach the literature is classified according to the concepts it contains (Webster and Watson, 2002), whereas the lens-directed approach uses classes with one or more dimensions (i.e. lenses) (Järvinen, 2008). In an effort to cover the relevant literature and avoid selective use of references and bias, the technique of systematic literature review can be used to collect the theoretical data (Metsämuuronen, 2005; Petticrew and Roberts, 2006). The literature review lays the foundations for the theoretical part of this dissertation, using traditional and systematic literature reviews as data collection techniques.

In this dissertation the literature review regarding competitive intelligence was conducted by following the systematic literature review procedure, as presented by Petticrew and Roberts (2006). The systematic review was conducted using search functions in Elsevier, EBSCOHost and Emerald databases. In addition, all the articles published in Journal of Competitive Intelligence and Management between years 2004–2011 were included in the search, as the journal is a focal arena for competitive intelligence research. Petticrew and Roberts (2006) consider systematic review to be an advisable method, for example, when an overall picture of a certain topic area is needed in order to direct further research. In order to gain as concise and vast picture of the research on the field of competitive intelligence, the systematic literature review included journal articles with the term "competitive intelligence". Other keyterms were

not used as search terms, as they could have limited the scope of the search unnecessarily. The review resulted in 85 articles, as reported in Chapter 1.1 (p. 7).

In addition to the systematic literature review descired above, the dissertation utilised purposeful sampling (Patton, 1990) and snowball sampling (Patton, 1990; Saunders et al., 2009) as methods to produce relevant data from the literature. In purposeful sampling the literature was searched from different sources (e.g. databases, libraries, the Internet) according to the need and using the search terms deemed relevant. Snowball sampling was conducted by discovering new sources (e.g. articles, authors) from other sources. For example, reading an article referring to other interesting sources led to acquiring the relevant articles used as references in the primary source.

The literature review also forms a solid basis for the survey method (Ghauri and Grønhaug, 2005). The survey method is mainly used in research that aims at exploration or description, since it is mainly used to provide answers to who, what, where, how much and how many questions (Saunders et al., 2009). The method can utilise several data collection techniques, but usually emphasising those more quantitative in nature, for example, questionnaires, structured interviews or structured observation (Ghauri and Grønhaug, 2005; Saunders et al., 2009). The two main alignments of the method are analytic survey and descriptive survey. Analytic survey aims to test theory with empirical data, thus being deductive and emphasising the importance of preceding literature review (Ghauri and Grønhaug, 2005). It can be described as positivistic and quantitative technique as it emphasises the importance of specification of the independent, dependent and extraneous variables which are subsequently analysed with statistical techniques (Ghauri and Grønhaug, 2005). The aim of a descriptive survey is to identify and describe the variances of a phenomenon. This is done by studying a representative sample of relevant population either at a certain point in time or, if the aim is to compare, at varying times. (Ghauri and Grønhaug, 2005) Using a representative sample the survey method enables findings that are typical of the whole population, but still generated at a lower cost than if the data was collected for the whole population (Saunders et al., 2009). In order to obtain valid results, the sample should be representative, the data collection instrument should be piloted, and efforts to increase the response rate should be made (Saunders et al., 2009). In this dissertation the survey method is applied in the competitive intelligence study, where the data is collected with structured telephone interviews.

In addition to studying large groups of people, research can elicit findings by studying specific, limited cases. Case study research examines the theory in light of practice. It focuses on the question “what can be learned about the single case?” (Stake, 2005, p. 443). Case study is a suitable method when the research aims to answer how or why questions, when the researcher has little control over events and when the research focuses on a current phenomenon in a real-life context (Yin, 1994). It is a useful method for theory development and testing (Ghauri and Grønhaug, 2005). Stake (2005)

classifies case study research into three categories: intrinsic, instrumental and multiple case study. An intrinsic case study is conducted in order to understand the particular case itself, not because the case represents a holistic state or is similar to other cases. An instrumental case study by contrast aims to provide insight on the issue with the single case serving in a supportive rather than a focal role, and facilitating a broader understanding than just the case itself. In other words, the case is examined because it helps to pursue an external interest beyond the single case in hand. A multiple case study is created when an instrumental study is extended to several cases. Studying more than one case simultaneously can be done in order, for example, to understand a phenomenon or general condition of an issue. The single cases are chosen not because of their similarity but because their findings are believed to enhance the understanding of the general issue in hand. (Stake, 2005)

This dissertation uses the embedded multiple case study method (Yin, 1994): it examines two companies, and within them several units of analysis. The units refer to the respondents of a company-wide questionnaire and interviewees from different departments and organisational levels. A case study can collect data using multiple sources and techniques, e.g. interviews, surveys and observation (see e.g., Yin, 1994; Stake, 2005; Laine et al., 2007; Spurlock et. al, 2008), that may be both qualitative and quantitative (Eisenhardt, 1989). In this dissertation the data was collected using questionnaires and semi-structured interviews, subsequently resulting in both quantitative and qualitative data.

The methodological literature traditionally often uses the clearcut dichotomy dividing qualitative and quantitative research approaches (Brannen, 1992; Hammersley, 1992; Sandelowski, 2000). The aim of qualitative research is to gain insights and to understand a phenomenon (Ghauri and Grønhaug, 2005) in context-specific settings using a naturalistic approach (Hoepfl, 1997). Quantitative research seeks to test hypothetical generalisations by using quantitative measures and experimental methods (Hoepfl, 1997). Quantitative research seeks causalities, predictability and generalisations, whereas qualitative research looks for enlightenment, understanding and extrapolation (Hoepfl, 1997). Hence, it is obvious that quantitative research is often based on the positivistic paradigm whereas qualitative research is charasteristic of hermeneutics.

Qualitative methods are appropriate when researching a phenomenon that is relatively unknown or novel, and the objective of the research is to gain more understanding of that phenomenon (Strauss and Corbin, 1990). Hoepfl (1997) adds that they are also useful when the aim is to get new perspectives on a well-known phenomenon, or in a situation where more in-depth information is difficult to gain by using quantitative methods.

Qualitative and quantitative research differ from each other in many ways in the procedures used in the research process. For example, the role of the researcher is different in quantitative and qualitative research: in qualitative research the researcher is often in close contact with the data source when collecting the data (e.g. the researcher personally interviews the data source), while in quantitative research the relationship may be non-existent (e.g. the researcher uses secondary statistical data) (Hirsjärvi and Hurme, 2000; Brannen, 1992). They also differ in their ways of making the analysis: in qualitative research data collection and analysis are simultaneous, thus initiating new questions and further data collection, whereas in quantitative research data is first collected and then analysed sequentially (Ghauri and Grønhaug, 2005). In addition, in qualitative research findings are obtained with in-depth interviews and analysing their content, whereas quantitative research often uses measuring and statistical methods in order to reach conclusions (Ghauri and Grønhaug, 2005). Figure 4 illustrates the methods and techniques utilised in qualitative and quantitative research. The positioning of the choices in this dissertation is illustrated as an ellipse that cuts through both qualitative and quantitative methods and techniques. The methods and techniques used in the dissertation are underlined in the Figure 4.

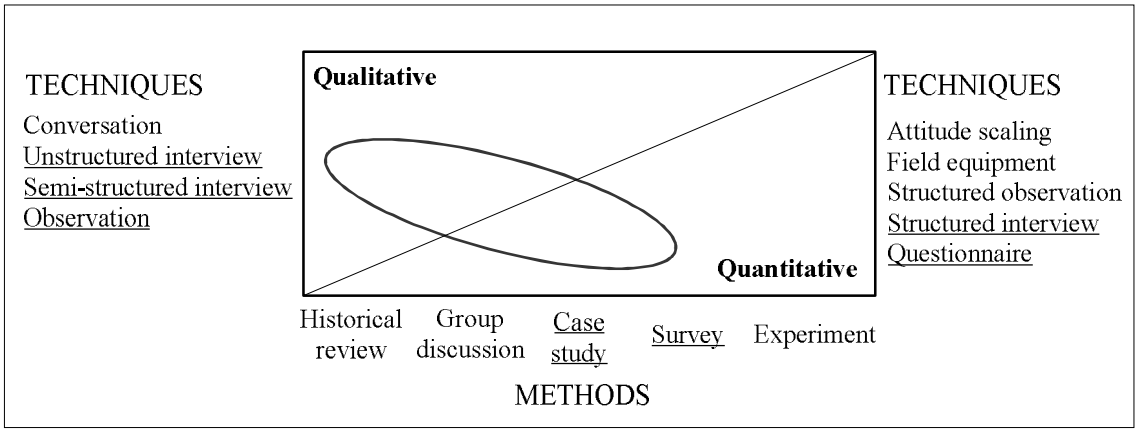


Figure 4. Methods and techniques used in qualitative and quantitative research (adapted from Ghauri and Grønhaug 2005; Jankowicz, 1991). The positioning of this dissertation is illustrated as an ellipse, and the used methods and techniques are underlined.

Combining a qualitative and quantitative approach is seen as an effective means to carry out research (Strauss and Corbin, 1990; Patton 1990). This so-called mixed methods approach has become popular among researchers because it does not force them to dichotomise the two, but enables benefit from both. According to Bryman (1998) the three basic ways of combining qualitative and quantitative methods are 1) qualitative facilitating quantitative, 2) quantitative facilitating qualitative, and 3) both are given equal emphasis. Depending on the emphasis between the two and the purpose of the study, "qualitative and quantitative approaches may be used sequentially, concurrently and iteratively, or in a sandwich pattern" (Sandelowski, 2000, p. 248). A mixed methods approach therefore offers the researcher multiple ways of applying qualitative and quantitative methods and techniques.

Saunders et al. (2009) have categorised the different methodological choices, that is, how to apply quantitative and qualitative methods in a research project. The first choice is whether the research uses only one method (*mono method*) or several different methods (*multiple methods*) to carry out the research. Multiple methods are then divided according to whether the research uses a set of purely quantitative or qualitative methods (*multi-method*) or a set consisting of both qualitative and quantitative methods (*mixed methods*). The research is a *mixed-method research*, if quantitative data is analysed quantitatively and qualitative with qualitative analysis techniques. If quantitative data is analysed qualitatively, or vice versa, the research is a *mixed-model research*. (Saunders et al., 2009) Figure 5 presents this categorisation and the choice of this dissertation.

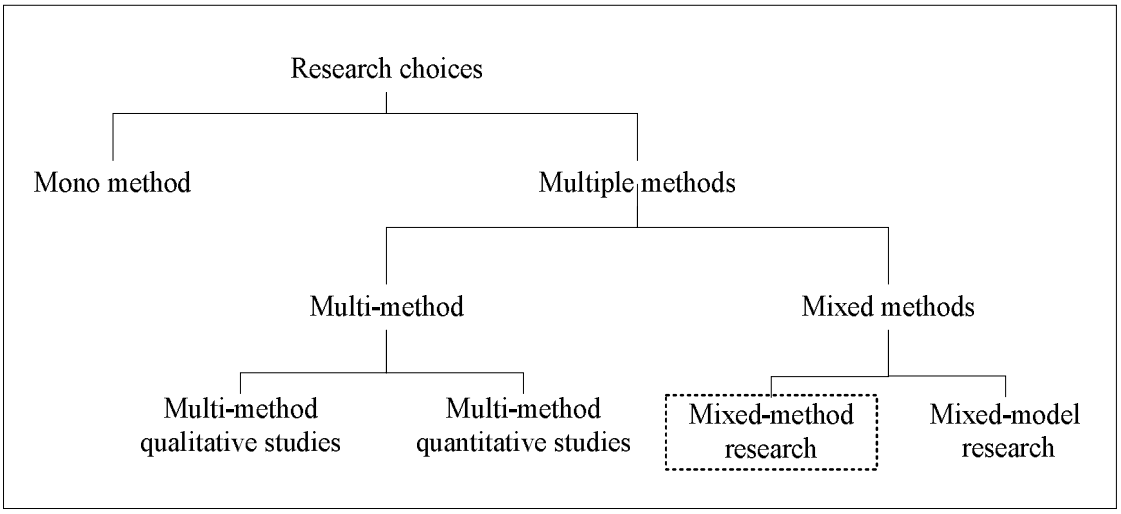


Figure 5. Different research choices (Saunders et al., 2009) and the choice of this research.

This research seeks to answer the research questions by applying multiple methods, as explained earlier in this section. This choice was made because one method would not have generated data adequately from the different data sources used, and since method triangulation (Denzin, 1978) improves the validity of the results (Jick, 1979). The methods used include both qualitative (case study, literature review) and quantitative (survey) ones, thus positioning the research to the mixed-methods branch. Further, the research is a mixed-method study since it uses both qualitative and quantitative techniques in collecting and analysing data, but does not mix the analysis methods (e.g., qualitative data from the interviews are not quantified).

Methods and techniques are not specifically linked, that is, using a specific research method does not require using a specific data collection or analysis technique (Bernard, 1994; Sandelowski, 2000). Techniques to collect and analyse data should be chosen based on what technique is best suited to capture the data in that particular situation (Hammersley, 1992; Sandelowski, 2000). In addition, many data collection and analysis techniques can be used simultaneously, complementing each other. For example, questionnaires are often used as tools paving the way for interviews or vice versa. The

techniques used in this research to collect and analyse the data are discussed in Chapter 5, together with the data sets they were applied in.

1.4 Structure of the dissertation

The dissertation consists of four parts. Each concentrates on a particular theme: introduction, theoretical discussion, empirical study and conclusion. Figure 6 presents the structure of the dissertation.

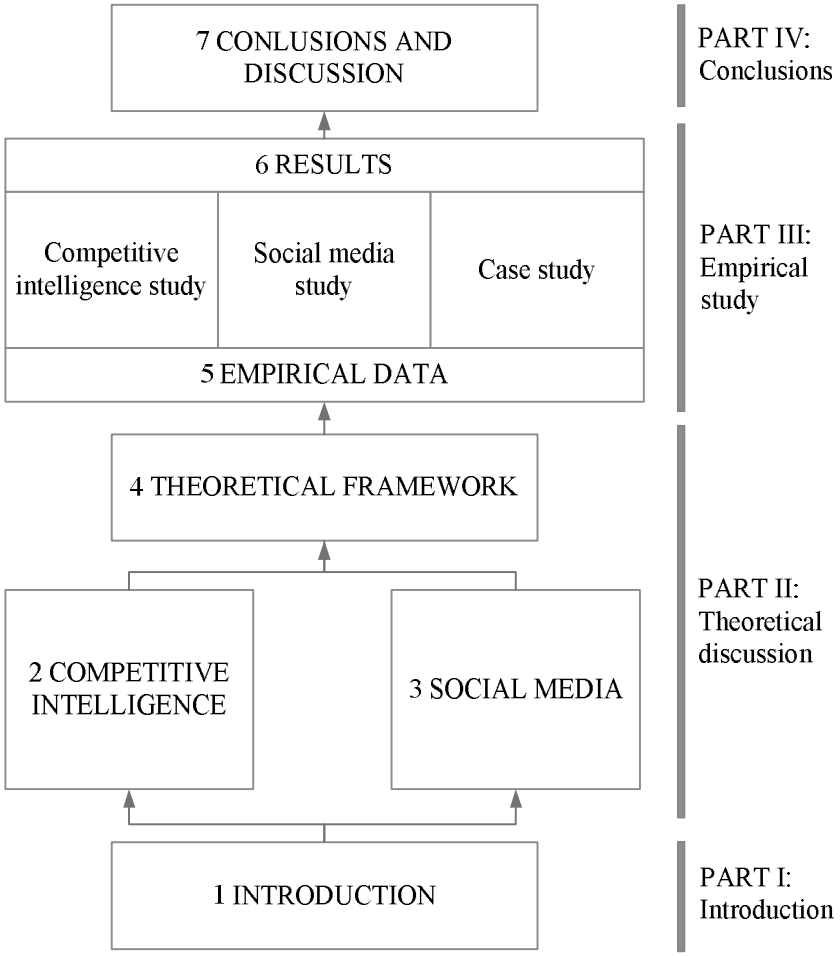


Figure 6. Structure of the dissertation.

Part I consists of Chapter 1, which defines the research problem and presents the research questions. It introduces the motivation, scope and strategy of the research. In the end of Part I an overview of the dissertation is provided to clarify its structure and composition.

Part II holds the theoretical discussion of the dissertation. Chapter 2 focuses on the role of competitive knowledge in decision-making and the concept of competitive intelligence. The chapter addresses the competitive intelligence process and its implementation in companies. In addition, the role of employees in the competitive intelligence process is discussed. Chapter 3 defines social media and introduces social

media tools. It also discusses social media's potential in business context also touching the risks and challenges its utilisation may hold. At the end of Chapters 2 and 3 a brief summary is presented of the main content.

Chapter 4 draws together the theoretical framework of the dissertation. It builds on the two previous chapters and concludes their findings into a framework that gives the basis for the empirical analysis. Chapter 4 combines the viewpoints of competitive intelligence and social media. It explains how social media affects the information environment and consequently competitive intelligence actions. Based on the theoretical discussion, Chapter 4 also presents the outlook of how social media could change the theoretical competitive intelligence process model. In addition, the chapter discusses employees' influence on the success of using social media for sharing competitive knowledge by discussing the motivating factors and barriers.

The empirical study is presented in Part III. In the interests of good scientific procedure, Chapter 5 thoroughly explains the nature and volume of the empirical data and also how the data were gathered and analysed. Chapter 5 ends with a summary presenting the entity of the three data sets. The results of the empirical study are presented in Chapter 6. The results of the competitive intelligence study, social media study and case study are discussed separately in their own respective subchapters. At the end of each subchapter a summary of the results is given in the light of the research question that the studies seek to answer.

Part IV is devoted to the final conclusions and discussion. The research questions are answered in Chapter 7. The chapter presents and discusses the key findings and contribution of the dissertation from both theoretical and practical viewpoints. In addition, the chapter includes the assessment of the research and gives some suggestions for further research.

PART II: THEORETICAL DISCUSSION

2 COMPETITIVE INTELLIGENCE

This chapter discusses knowledge as a concept and its implications for decision-making. Successful decision-making relies on relevant and timely knowledge, and competitive intelligence activities are one means to connect this knowledge and decision-makers. The chapter covers the concept and practice of competitive intelligence, and the challenges of carrying it out successfully. In addition, the employees' role in the competitive intelligence process is addressed.

2.1 Knowledge and competitive position

2.1.1 The idea of knowledge

The concepts of information and knowledge are often used as synonyms in everyday life, whereas the academic approach distinguishes between these two. A common approach is a hierarchical categorisation into data, information and knowledge (see e.g. Davenport and Prusak 1998; Thierauf, 2001; Awad and Ghaziri, 2004).

The lowest level of the categorisation, data, consists of text, numbers, code or other marks or symbols that do not necessarily include any meaning per se (see e.g. Thierauf, 2001). For example, an Excel sheet with several columns and rows filled with numbers will probably not tell its reader anything; they are just numbers. When the columns are labelled as "purchases", "prices" and "products" and rows as "customers", the data is given a context making it more informative, that is, information. It has a meaning, purpose and value for its receiver and usually tells something new (Awad and Ghaziri, 2004). When a person receives information his brain immediately starts to interpret it according to his existing knowledge and beliefs, and thus converts information to knowledge (Barachini, 2009). For example, the person reading the aforementioned Excel sheet understands what products a customer has bought, how much and at what price. Knowledge can have different meanings for different people, and therefore it is closely connected to and created by individuals (Nonaka and Takeuchi, 1995). Vitt et al. (2002) note that human input is the key ingredient in creating knowledge, because knowledge cannot be generated through mere technology.

It is impossible to determine absolutely where data ends and information begins and when it is turned into knowledge. As the concepts of data, information and knowledge are abstract and intangible in nature, the terms used and their contents are not coherent and the interpretations depend on the author and context. In addition to this, there are several overlapping and interrelated typologies of knowledge alone in the literature. A non-exhaustive summary of different viewpoints to knowledge is presented in Table 1.

Table 1. Summary of viewpoints on knowledge.

Type of knowledge	Features	Examples
Explicit	Can be codified in writing or some other form of systematic language or code (Nonaka and Takeuchi, 1995)	Report that is stored in a database and can be transferred as an email attachment.
Tacit	Personal (Polanyi, 1966), context-specific (Nonaka and Takeuchi, 1995), hard or even impossible (Von Krogh & Roos 1995) to express or codify (Nonaka and Takeuchi, 1995; Gupta and McDaniel, 2002).	"We can know more than we can tell" (Polanyi, 1966, p. 4). Intuition, rule-of-thumb, gut feeling, personal skills (Haldin-Herrgard, 2000), e.g. the ability to perform calmly in front of a big audience.
Implicit	Expressible knowledge that has not yet been expressed (Wilson 2002; Li and Gao, 2003; Meyer and Sugiyama, 2007)	The person who knows something does not see the reason why he should share the knowledge with others, or he is bound by a cultural code forbidding him to do so.
Embedded	Explicit, context-specific, narrowly applicable, narrowly applicable, personal (Ipe, 2003)	Personal notes about how an individual performs a specific task
Embodied	Action oriented, only partly explicit, acquired by doing (Blackler, 1995)	Problem solving techniques that require verse understanding of the situation in hand
Embrained	"Dependent on conceptual skills and cognitive abilities", "knowledge applied to knowledge" (Blackler, 1995)	Understanding causalities and implications of information
Encultured	Shared understandings within an entity (Blackler, 1995)	Common understanding of how to solve a problem in a specific culture
Encoded	Explicit, transported with signs and symbols (Blackler, 1995)	Books and codes of practice that have been enriched and transmitted by electronic means
Rationalised	Explicit, general, context-independent, standardised, public (Weiss, 1999)	Instructions on how to perform a generally known task, e.g. how to bake a cake
Individual/personal	Created through individual learning, located in individuals, cannot extend beyond the physical limits of human beings (Simon, 1991; von Krogh, 2009)	Person's way to walk and mime
Collective	Accumulated through social learning, resides in collective entities. (von Krogh, 2009)	The established order in which to proceed in the work place cafeteria line from the beginning to the cashier

Knowledge exists at multiple levels. DeLong and Fahey (2000) defines the levels as individual, group and organisational, while von Krogh (2009) uses the terms individual and collective. Huber (1991) however argues that organisations do not have the cognitive capabilities required to turn information into knowledge, and thus knowledge can exist at individual level only. Actually, all DeLong and Fahey, von Krogh and Huber are right: groups and organisations, that is, collectives, consist of individuals, and thus their knowledge creates the body of collective knowledge. This is supported by Ipe (2003), who states that in order to create, share or manage knowledge at these levels sharing individuals' knowledge is imperative.

For the sake of clarity in this research information is used as an umbrella concept for data, information and knowledge. The term knowledge is used when specifically wanted to emphasise the connection to people.

2.1.2 External business environment and competitive knowledge

Companies are dependent on understanding and acting upon the changes occurring in their business environment, that is, the surroundings the company operates in. A company's business environment can be divided into internal, that is, the company, and external, that is, everything outside the company (Grant, 2008). Bensoussan and Fleisher (2008) further divide the external business environment into operating level and general level: changes on the general level can have long-term implications and affect the company indirectly, while operating level changes influence the company in a more immediate and direct manner. According to Johnson et al. (2005) the levels of business environment are the company itself, competitors, industry, and macro level. Porter (1980) emphasises industry as the key aspect in external business environment, for the changes influencing it affect all companies competing in that industry. In addition to the industry the company itself operates and competes, the company must understand that substitute products and competitors may also come from other industries (Porter 1980; Bensoussan and Fleisher 2008), thus widening the horizon of the external business environment even further. In addition, the network perspective has also been taken into account for some time now when discussing organisations' business environment (see e.g. Håkansson and Snehota, 1989; Möller and Halinen, 1999; Osarenkhoe, 2010).

In this research the external business environment refers to all outside factors and players that may influence the company's performance and success (Choo, 2002). These factors can be divided according to PESTEL categories (see e.g. Johnson et al., 2005) presented in Table 2, and all the players that affect these are included in the external business environment. They are, for example, competitors, customers, suppliers, government, consumers, and the industries and markets where the company operates.

The categories as well as the players can be interlinked and overlapping and their significance is company-specific.

Table 2. PESTEL categories and the key drivers of change (see e.g. Johnson et al., 2005).

Category	Key drivers of change
Political	Taxation policy, trade regulations, subsidies.
Economic	Economic situation, unemployment, labour force mobility, Gross Domestic Product (GDP), inflation, interest rates, currency swings, monetary policy
Social	Attitudes and values, political atmosphere, education level, demographic trends, social trends
Technological	Production technology, speed of technological transfer, research and development
Environmental	Environment protection regulations, environment protection trends, noise reduction, pollution, waste, energy consumption
Legal	Legislative changes and developments, competition regulations, labour laws, health and safety, product safety regulations

Information can also be categorised according to the internal-external dichotomy (see e.g. Hannula and Pirttimäki, 2005), that is, what is the subject and focus of information. Internal information refers to information within the company walls: information about the company itself that is generated in its business processes, for example, financial figures and product information. External information focuses on things that lie outside the company walls, that is, the external business environment. External information is needed to answer questions such as what is going on in the market, what are competitors doing, are there new interesting technologies available, are there political changes affecting the company's operations in certain areas, are customer needs shifting towards something new and so on. In the internal-external dichotomy it is important to underline that while the subject of information may be external, the source of it may be found within the company. For example, salesmen usually have thorough knowledge on customers and research and development department keeps up with emerging technologies.

The internal information obtained from the company's own information systems and processes is important to the company. Knowing the company's resources and capabilities helps to recognise the strengths and weaknesses of the operations and how to develop them to respond to the threats and opportunities in the external business environment. However, the external information can be seen as even more crucial to the company's competitiveness. As Kamensky (2008) states, a company must at least acknowledge when a significant change occurs, understand its implications and adjust the company's actions accordingly in order to succeed in competition in the long run.

Competitive knowledge comprises the understanding of a company's overall competitive situation and factors affecting it. Competitive knowledge is knowledge

related to competitive issues: knowledge that helps to understand, for example, how the price of a competitor's product is formed, how the company should approach a certain customer, what the most beneficial way would be to enter a new market area or how the merger of two competitors will affect the company's competitive position. Competitive knowledge is by default generated and interpreted by the individual or collective having the knowledge. They give the knowledge a meaning and an explanation in the company context (e.g. "what does this mean to our company and how should we act in this situation?") and the decision based on it may sharpen the company's competitive edge.

2.1.3 Knowledge steering decision-making

Companies can control the happenings in the external business environment only to a certain limit, and therefore their only option is to try to understand these (Stoffels, 1994). Understanding the opportunities and threats arising from the external business environment forms the foundation on which decisions concerning a company's strategy and operations are built (Kodoma, 2006). Deciding the company's strategy for the next five years has substantial significance for all the company's operations, and these decisions and consequent actions can make or break the company's competitive position. For example, such decisions as what product will be manufactured, how much, when and to which markets affect among others the manufacturing and marketing operations.

Information has an important role in decision-making. With the help of relevant and well-timed information a company can identify alternative courses of action, evaluate their pros and cons and finally make the best choice for the prevailing situation. Information enables to build up understanding of the situation and its opportunities and therefore it enables making more informed decisions. Without well-grounded decisions the company's operations resemble firing random pot shots in the dark: if the company is in lucky might hit something, but there is no assurance whether the catch is of any use.

In a highly competitive situation the company must aim ahead in order to hit a moving target. Reacting to a change after it has already happened can mean being crucially late. The company that is able to predict changes or at least quickly adapt to them is most likely to gain competitive advantage over slower moving competitors (Grant, 2008). In practice it is often impossible to predict forthcoming events or the precise consequences of decisions. Decision-making is almost always surrounded with some amount of uncertainty and suspense, and it is most difficult and often even impossible to find out all the factors and circumstances affecting the decision (Collins, 1997). However, it would be relevant and timely information about the matter in hand can reduce or remove the uncertainty thus consequently enabling making better decisions (Frishammar, 2003).

Even though information is needed in the decision-making process, information as such does not necessarily improve competitiveness or create any value to the company. In the worst case it can lead to information overload; a situation where the amount of information input in the system (e.g. person, company, information system) exceeds its processing capacity (Speier et al., 1999). In such situation information hinders rather than helps a company's activities, such as decision-making (Wilson, 2001). The cumulative amount and easier availability of information has increased the risk of information overload. It is easier to obtain information, but at the same time it is harder and harder to find the desired information. A large amount of information may encumber the personnel in a company having to wade through it and waste other resources. It is important to understand, that having a lot of information does not mean being better informed (Marti, 1996).

Information, and especially knowledge, is said to be the most important resource and a source of competitive advantage (see e.g. Spender and Grant, 1996; Nahapiet and Ghoshal, 1998; Erickson et al., 2003; Liu and Liu, 2008). However, information as such has no value. In order to create even potential competitive advantage information should meet certain criteria. Summarising several authors (Gilad and Gilad, 1985; Lackman et al., 2000; Tan Tsu Wee, 2001; Choo, 2002; Rouibah and Ould-ali, 2002; Erickson et al., 2003) information can create competitive advantage if

- the value of information is understood
- the information is relevant, timely, reliable and cost effective
- it makes the company perform better than its competitors or the company obtains and uses information faster than others.

Ultimately, information is valuable only if it is actually used in decision-making (see e.g. McGonagle and Vella, 2003).

In addition to information overload, information disconnection is also a challenge. Companies need information from different internal and external sources, but identifying and locating sources and obtaining information from them can be difficult (Rajaniemi, 2005). In large companies especially the situation may be that different departments are uniwittingly doing overlapping information gathering and analysis without knowing it thus wasting money and time. In order to benefit from information, it should be managed and used effectively (Tan Tsu Wee, 2001; Grant, 2008).

2.2 Competitive intelligence as a way to support decision-making

Companies apply different kinds of intelligence activities to provide decision-makers with information that helps them build as solid an understanding as possible of the prevailing situation and what may lie ahead. Intelligence is often included in the hierarchical categorisation of data, information and knowledge: understanding the

effects and significance the knowledge may have in a given situation turns it into intelligence (see e.g. Thierauf, 2001). The word intelligence is also often used to describe the actual end products provided by the activities, such as reports and analyses containing the information. Intelligence does not here refer to personal attributes, but should be understood as information that enables intelligent actions. It enables users to understand the connections of things and so to build a bigger picture, thus helping to decide on action (Thierauf, 2001).

Intelligence activities are rooted in the military, and go back as far as Sun Tzu's *The Art of War* written in 500 BC and describing intelligence activities in warfare (see e.g. Calof and Wright, 2008). Although intelligence activities per se are nothing new (see e.g. Juhari and Stephens, 2006; Wright et al., 2002; Fleisher et al., 2007; Calof and Wright, 2008) in the business context they have only been studied for a few decades, and only since the mid 1990s have they become more of an academic interest (Fleisher, 2001; Pirttimäki, 2007; Calof and Wright, 2008).

The relative novelty of the discipline explains the incoherent terminology used to describe intelligence activities (Pirttimäki 2007). In addition, competitive intelligence cuts through many disciplines (e.g. knowledge management, information systems, information sciences), and therefore the terminology for similar actions differs according to the context. Companies, consultants and academics use terms such as business intelligence, competitive intelligence, competitor intelligence, market intelligence and environmental scanning, and the prevailing term and its definition vary depending on the author and region. For example, in North America the prevailing term is competitive intelligence, whereas in Europe the same activity is usually called business intelligence (Hirvensalo, 2004; Koskinen et al., 2005a; Lönnqvist and Pirttimäki, 2006; Buchda, 2007). In Europe competitive intelligence is defined as a sub-term of business intelligence focusing on external information and mainly competitive issues, whereas business intelligence is seen as a more comprehensive issue with broader scope (see e.g. Buchda 2007). To make it even more confusing, in North America business intelligence is understood as a group of technological solutions to support competitive intelligence, referring to data warehousing and data mining, and so on (see e.g. Liautaud and Hammond, 2000; Kalakota and Robinson, 2001; Burns, 2004; Raisinghani, 2004) and focusing on internal information (Bose 2008).

Despite of the motley terminology, there seems to be a fairly general understanding of the objective of intelligence activities, although the scope of information and means of processing it may differ. The objective is to provide information that helps the organisation to understand what is going on in its business environment, identify possible threats and opportunities that may affect the organisation in some way and act accordingly. The ultimate goal is to stay ahead of competition by reacting to changes faster than competitors and thus maintain a competitive edge (see e.g. Collins, 1997; Cook and Cook, 2000; Vitt et al., 2002). In addition, the ethics and legality of

information gathering are also stressed (see e.g. Collins, 1997; Fleisher, 2001; Erickson et al., 2003), likewise the quality, reliability and accuracy of the information (see e.g. Tan Tsu Wee, 2001; Hannula and Pirttimäki, 2005)

This research follows the European terminology by defining business intelligence as an umbrella concept for all intelligence activities aiming to enhance a company's business information management and supporting decision-making. Competitive intelligence is understood as its subterm focusing on external business environment, especially competition related external issues. In this research competitive intelligence is defined as continuous scanning of the external business environment, gathering and linking bits and pieces of information and analysing them to provide insights to back up decisions that further the company's business goals (Badr et al., 2006; Fleisher and Bensoussan, 2007; Fleisher 2008). Moreover, competitive intelligence is defined here to include the concepts of customer intelligence and competitor intelligence which are more narrowly focused.

According to Gilad and Gilad (1985) the key tasks of competitive intelligence are:

1) acquiring information from different sources
2) evaluating the quality, reliability and usefulness of the information
3) indexing and storing the information
4) analysing the information
5) delivering the information to decision-makers.

These information management functions can be executed separately regardless of each other. For example, a company may gather information and store it in a database without ever knowing whether the information was useful or utilised in the first place. Another example is that an individual employee may gather and analyse a lot of information necessary to perform his tasks, but he never shares it with others in the company. However, when these functions are carried out consistently together they formulate a systematic way to carry out intelligence operations in a company, that is, competitive intelligence process.

2.3 Competitive intelligence process

Competitive intelligence is often described as a continuous process consisting of several sequential phases. The literature presents many different but only slightly varying process models (see e.g. Collins, 1997; Kahaner, 1997; Probst et al., 2000; Choo, 2002; Vitt et al., 2002). Pirttimäki and Hannula (2003) state that the most significant distinctions between the process models occur in the number of phases, structure of cycles, and sources of information. According to several authors (see e.g. Gilad and Gilad, 1985; Collins, 1997; Cook and Cook, 2000; Thierauf, 2001; Vitt et al., 2002;

Bose, 2008; Saayman et al, 2008), the process typically consists of the phases and tasks listed in Table 3.

Table 3. Phases of the competitive intelligence process and their key tasks.

Phase	Key tasks
Identifying information needs	- Defining the most important information needs - Reducing the accumulation of excess information - Promoting the use of relevant information - Keeping critical information safe from those who do not need it to perform their tasks
Information gathering	- Acquiring information from different sources - Evaluating the quality, reliability and usefulness of the information
Processing and analysis	- Evaluating the quality, reliability and usefulness of the information - Indexing and storing the information - Analysing the information
Dissemination and sharing	- Delivering the information to decision-makers - Sharing information and insights with others
Utilisation	- Doing actions based on the understanding given by the received information - Giving feedback whether the information satisfied the need or created new ones

First, what information is needed in the organisation needs to be identified. Second, information from multiple sources according to the needs is gathered. Third, the information is processed and analysed applying suitable analysis tools and methods. Fourth, information is disseminated and shared in form of analyses, presentations, reports and so on, and stored in databases or other suitable places. Finally, the information is used to make decisions that steer the organisation towards its goals. This competitive intelligence process is often illustrated as a cycle (Figure 7).

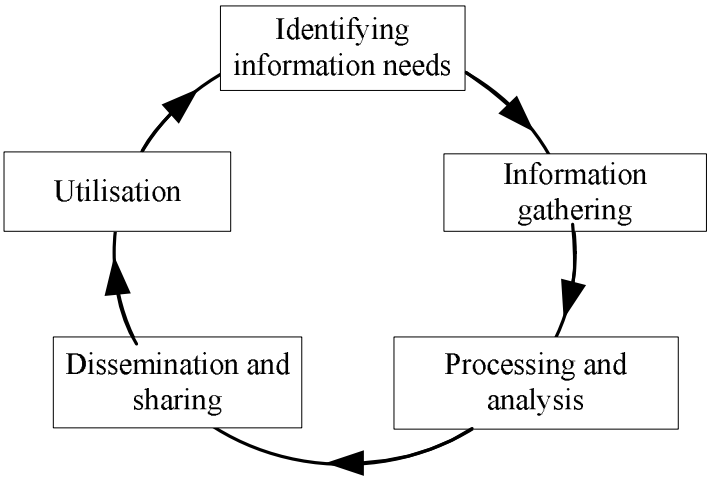


Figure 7. A general cyclic competitive intelligence process.

In the kind of cyclic process model presented in Figure 7, the last phase of the process leads to the very first phase, thus starting it all over again. The following subsections discuss the phases in more detail.

2.3.1 Identifying information needs

The competitive intelligence process starts by identifying information needs i.e. what information is really needed, when, and in which format in order for the company to make sound decisions. This is the base of a successful competitive intelligence process, since without it it is not possible to understand what information is useful, making it impossible to acquire it (Fuld, 1991; Choo, 2002). The key tasks of this phase are

- defining the most important information needs
- reducing the accumulation of excess information
- promoting the use of relevant information
- keeping critical information safe from those who do not need it to perform their tasks.

Case (2002) defines information need as recognition of the existing knowledge being insufficient to reach the target. Nicholas (2000) states that it is the information a person should have in order to perform his tasks or solve a problem in a satisfactory way. A company's information needs can be described on macro level: the company needs information regarding anything affecting for the pursuit of the goals. As a company's collective knowledge consists of individuals' knowledge (see Chapter 2.1.1, p. 25–26), so are the company's information needs derived from individuals' needs: what information the sales department needs about a competing product, or what information a marketing manager needs in order to decide on how to promote a new service to customers.

According to Frishammar (2003) less experienced people need more information to back up their decisions and rely more on the information gathered by the organisation than the more experienced colleagues. Wright and Ashill (1998) find that experience increases the predictability of information needs, but does not correlate with how well the needs are or can be met. The factors affecting information needs can be described by asking what, what kind, and when:

- the job description and responsibilities affect the topic (what)
- the type of decisions being made affects the subject and focus (what kind)
- the business cycle of the company and industry affect the timing (when)

The fourth factor, that is not directly to do with information needs as such but more with meeting them, are the hopes and wishes regarding in which form the information is preferred to be received (how).

After identifying the need a request for the missing information is made and it can be assigned, for example, to an internal information provider (e.g. an analyst), an external information source (e.g. a research institution) or an information system (e.g. a data warehouse, Internet search engine). However, before making efforts to get the information the need should be evaluated and prioritised. Not all information needs can or even should be satisfied: despite the fact that the information is considered to be essential to decision-making its acquisition may be far too expensive or simply impossible. For example, a personnel manager would surely need to know which employees will be on sick leave in the coming week in order to recruit the necessary stand-ins or allocate the assignments, but there is no way of knowing who will fall sick and when. Wright and Ashill (1998), followed by Leonidou and Theodosiou (2004), suggest the following questions for evaluating information needs:

- *Availability:* is it possible to make the information needed available in time to support the decision?
- *Cost vs. benefit:* are the costs of acquiring the information proportionate to the benefits gained from it?
- *Time:* how urgent is it to provide information in order to make the decision?
- Uncertaint*y:* how do changes in the business environment affect the life span of information?
- *Cost of error:* what will be the consequences and costs of making a bad decision without adequate information?

Before endoavouring to satisfy the need for information the concerned must consider if it is possible to do so in time, will it be worth the price, when does the information have to be acquired and what will happen if the information need is not satisfied.

As the business environment generating information needs does not stand still and remain constant (Collins, 1997), neither do all information needs. They are dynamic and

change over time (Choo, 2002). Therefore identifying information needs goes on throughout the competitive intelligence process, not only at the beginning (Bensoussan and Fleisher, 2008).

2.3.2 Information gathering

The next phase is to gather information from suitable sources according to the needs identified. The key tasks of the information gathering phase are

- acquiring information from different sources
- evaluating the quality, reliability and usefulness of the information.

Choo (2002) states that information sources should be chosen carefully and their observation and evaluation should be continuous. This is important in order to ensure the reliability of information. Criticality is crucial especially when the information is obtained from an external source. Depending on the source's own interests the information's truthfulness can be questioned. For example, companies may deliberately spread erraneous information, that is, misinformation in order to mislead their competitors. According to Choo (2002) information should be acquired from many different sources so that the company can choose the information that is most relevant and best suited to its purposes. Using multiple sources also helps in corroborating information and therefore gives more certainty in using the information.

The sources of competitive intelligence are various: from informal and personal human contacts (e.g. colleagues, customer representatives) to formal and impersonal (newspapers, marketing reports) (Butcher, 1998). The most used sources are often the explicit ones, such as reports from a database, news service feeds or consultant analyses, because due to their definite form they are easier to access and utilise. For example, using a search engine to find information in the Internet is cheap, quick and brings abundant answers related to the search terms used. However, the search results, though numerous, may not be very accurate or useful in any way. In addition, information obtained from a source available to everyone, such as a public database, does not bring much of an advantage to a company, because the competitors can equally obtain the same information from the same source. Therefore unique sources that possess relevant knowledge are of great value, even though they may be more difficult to reach.

Often impersonal sources and human sources can be overlapping or used to complement each other: information obtained from a personal source may originally be from an impersonal source. For example, a subordinate has read a consultant report and tells his peers and superiors in a meeting about its core content and implications . Such human sources are especially valued, as in addition to an actual piece of information they can provide in-depth knowledge and interpretations regarding it (see e.g. Collins, 1997; Butcher, 1998; Pirttilä, 2000; Erickson et al., 2003; Frishammar, 2003). Fuld (1991) and

Fleisher (2001) promote the importance of human sources and state that they are the best sources to acquire the most critical pieces of information in competitive intelligence. Wright and Ashill (1998) note that the volatility, uncertainty, diversity of the situation and cost of error affect the information gathering and analysis: the more complex the situation is, the more frequent and formal the information gathering should be. Consequently, increasing diversity calls for more analysed and summarised information (Wright and Ashill, 1998).

Wright and Ashill (1998) have summarised the most common ways of information gathering, which are simultaneously ways of reporting the gathered information, illustrated in Table 4.

Table 4. Gathering and reporting information (Wright and Ashill, 1998).

Type	Level of forward planning	Frequency	Examples
Regular reporting	preset conditions, specific needs, sources determined	at regular intervals	daily competition news, monthly market reviews, quarterly financial analysis of competitors
Formal investigations	specific needs	once	one-off competitor profile
Informal investigations	specific needs, only the purpose determined	occasionally	phoning around to understand why sales are down
Routine encounters	only the source determined	continuously	attending meetings, discussing with colleagues, reading weekly reviews

As the table shows, the information gathering phase is in practice overlapping with the information processing and analysis.

2.3.3 Processing and analysis

Information gathered from different sources is not usually in such a form that it can be utilised as such in decision-making and therefore it needs to be processed. The key tasks of processing and analysis phase are

- evaluating the quality, reliability and usefulness of the information
- indexing and storing the information
- analysing the information.

Accordingly, information is evaluated for its reliability, validity and timeliness, and information not meeting the criteria is discarded (Gilad and Gilad, 1985). The remaining information is analysed in order to understand its meaning from the point of view of the company or the situation in hand. Analysis can be defined in many ways (see e.g. Fleisher and Bensoussan, 2007), but it is basically performing different activities and

applying suitable techniques to interpret information to understand its implications for a given situation.

Many companies have people called analysts, whose job it is to analyse information in a certain context. In the competitive intelligence context their job revolves around three central questions they try to answer: "what?", "so what?", and "now what?" (Fleisher and Bensoussan, 2007). However, it can be argued that analysis is an essential part of all decision-makers' work in a company. Even though they are provided with a concise analysis of information, they interpret it from their own viewpoint, adding their own experience and knowledge to it. This way analysis (i.e. the knowledge it holds) can also be input for another analysis.

Analysing information may include performing activities such as conceptualising, describing, explaining, extending, forecasting, hypothesising, illustrating, modelling, predicting, re-organising, synthesising, visualising (Johnston, 2005). Quantitative information can be analysed by statistical means or data mining techniques to aggregate meaningful patterns. Data mining techniques can quickly rake through massive amounts of data searching for hidden patterns that reveal predictive information (Folorunso and Ogunde, 2004) and summarise it in a useful form for decision-making (Fleisher et al., 2008). Well-known analysis tools, such as SWOT, PESTEL, Five-Forces, scenario technique etc., can be applied to make sense of the external environment (see e.g. Porter, 1980; Stoffels, 1994; Fleisher and Bensoussan, 2007; Bensoussan and Fleisher, 2008).

A good analysis also calls for insight and seeing beyond the obvious (Bose, 2008), which derive from personal experience and knowledge. In addition, objectivity, expertise on the issue in hand and ability to use the chosen analysis methods are required (Kamensky, 2008). The analysis should lead to an interpretation and prediction of the content and significance of the original information: "What does this number mean to us? What might be the consequences of this change in the market?" Analysis does not always require rigorous use of formal analysis methods or tools; so-called educated guesses are as good analyses as others.

As noted earlier, information is assessed for its usefulness and necessity as it is gathered. Often it is also analysed to some proportion at the same time. The end product of analysis is some sort of synthesis and increased knowledge and understanding of the issue. Analysis can be made by the person gathering the information or, if that person is not the end user, it can be disseminated as such to users. In any case, from their own point of view decision-makers make their own analyses based on the information received. If there are designated personnel responsible for competitive intelligence, they usually brief the conclusions to the decision-makers as some sort of information products.

2.3.4 Dissemination and sharing

As stated in the preceding section, if the analysis is made by someone other than the end user, it needs to be delivered to the end users so that they can act on it. In addition, the phase includes sharing one's interpretations and insights derived from the information with others in the company, for example, by discussing it at meetings and in coffee breaks. Accordingly, the key tasks of the dissemination and sharing phase are

- delivering the information to decision-makers
- sharing information and insights with others.

In order to benefit from the information analysed it needs to be made available to those who may find it useful in their work. This can be done by delivering information products or giving oral presentations, having phone discussions and so on.

Information products produced by competitive intelligence personnel vary from regular newsletters, memos, presentations and market reviews to personalised ad hoc reports (Pirttimäki, 2007). Information products in explicit form can be delivered by technological means, such as intranet, email and webcasts, or whatever is the suitable channel or media for each occasion. Disseminating information within companies is increasingly linked to technology, even though it can be argued that the most valued way of sharing competitive knowledge is through personal, informal human interaction. For example, discussing the figures and implications of a market report during lunch is actually collective analysis of the information. This creates insights and new knowledge between the participants of the discussion which they can use in their work. However, this kind of informal and oral sharing of information does not guarantee that information reaches the users sufficiently and in time. Therefore, enabling wider discussions in explicit form that enable their sharing to a wider audience often requires the use of suitable technological means.

2.3.5 Utilisation

The most sophisticated and accurate analysis or crucially important information delivered in time is of no value if it is not taken into account, that is, if it is not used. In order to benefit the company, information needs to have an impact on the decision-making. Therefore, a focal part that clinches the value of the competitive intelligence process is the utilisation phase. The key tasks of the phase are

- making actions based on the understanding given by the received information
- giving feedback whether the information satisfied the need or created new ones.

Decision-makers evaluate the information they receive for its usefulness and benefits and decide whether it should have any impact on their actions. Even though the information is timely, accurate and very valuable, the decision-maker may ignore it or

decide to not act as the information indicates (Hannabuss, 1987; McKenzie et al., 2011). Whether this decision of not to act accordingly is utilisation of information is debatable: if the decision-maker has taken the information into account but still decides to act against it, the information has still had an effect on the decision. Thus even if information is utilised to back up decisions, it does not necessarily mean that the information always leads to the best decision. Using information leads to action, and this again creates change that affects its surroundings. When information is used to form a decision that guides the activities, it therefore simultaneously gives input for the information gathering and analysis phases.

Using information and knowledge to back up decision-making is a part of a larger discussion that borders on many other discourses than just competitive intelligence. For example, human information behaviour (see e.g. Case, 2002), information sciences (see e.g. Wilson, 1987; Bouchet et al., 1998), and strategy (see e.g. Frishammar, 2003) are fields where information use in decision-making plays a central part. However, as competitive intelligence is a support function that does not as such determine the wider context (i.e. the company or industry) it is utilised in, competitive intelligence itself also borders on many discourses and organisational activities.

Finally, to complete the cyclic process, there is usually a perception of how useful or accurate the decision-maker found the information that the process produced and delivered. This feedback may be as simple as noting that the original information need was not satisfied, that is, the ultimate question could not be answered with the information gathered and analysed, and that additional information is needed to solve the problem. The feedback may lead to new information needs or gathering extra information, starting the cycle all over again.

2.4 Implementation of competitive intelligence

Carrying out competitive intelligence process and benefiting from it is not as straightforward and simple as the theory might suggest. It can even be argued that the competitive intelligence process described above is not even applicable as such in everyday business life. Not all companies have a systematic and organised competitive intelligence function such as a competitive intelligence unit or full-time analysts dealing with external information. However, it can also be argued that every company does at least perform some of the phases of the competitive intelligence process (i.e. defining information needs, information gathering, processing, analysing and utilisation). Competitive intelligence activities are not always conducted consciously and ain a businesslike manner; they are rather ad hoc and non-systematic in nature. In many companies intelligence processes and activities are not formally documented or acknowledged. To call these actions competitive intelligence the efforts must be

conscious and organised at least to some extent. The implementation of competitive intelligence is impacted at least by

- how the operations are organised within a company
- the methods used to carry out the activities
- the company's features.

Competitive intelligence can be implemented in various ways depending on the company. For example, a competitive intelligence process can be carried out by each individual as a personal information management process (McGonagle and Vella, 2003). In this case each individual, after recognising that he needs more information to complete a task, finds the sources, acquires the information he can and combines the bits and pieces to increase his understanding of the issue in hand. This is often the case in small and medium sized companies, where information dissemination and sharing is often irregular and intuitive (Groom and David, 2001). In addition, in small companies information storing is frequently inconsistent: decision-makers store information in random places in documents and information systems. On the other hand, small company size may enable information to flow quite freely and openly.

As the company grows and becomes more international so often does the need for a more formal structure of implementing competitive intelligence (Groom and David, 2001). Many companies have a designated personnel or a competitive intelligence unit or department responsible for carrying out and coordinating the competitive intelligence activities. These units usually consist of several analysts and in many cases their own manager (McGonagle and Vella, 2003). Competitive intelligence units, if not having a complete department for themselves, are often located under marketing, sales or corporate development departments, or directly under the top management. The unit acts as a screen between information overload and decision-makers by preventing unnecessary information from getting into the decision-making process. Correspondingly, the main job of such a unit is to ensure that the information needs are met by providing decision-makers with relevant information (Choo, 1998), often in the form of different kinds of information products. Authorising competitive intelligence personnel to carry out the process can be justified by cost efficiency (Murray, 2005): it enables other employees to focus on their core duties instead of having to satisfy their information needs individually. It also eliminates overlapping information acquisitions by centralising, for example, the purchase of consultant reports.

A lighter version of such a unit is having full-time analysts located under different departments. Tyson (2005) states that this kind of de-centralisation is preferable since it enables involving more employees in the activities. Often an analyst can be assigned to serve a certain department, focus area, market or part of the company (Giese, 2002). Companies also use part-time analysts, that is, personnel who are doing competitive

intelligence activities in addition to their "core duties" (McGonagle and Vella, 2003; Murray, 2005).

One approach is to outsource competitive intelligence activities totaly or partially. The first is rather unusual, and arguably even impossible, since the last phases of the process, the final analysis and using information, are always done within the company. Outsourcing some parts on the other hand is quite common. Usually these are regular and routine tasks, such as newsletters, market reports or other information gathering and analysis strictly defined (McGonagle and Vella, 2003).

Competitive intelligence software and portals are often used to support other functions. They act as storage for information and information products and help in processing the information. Competitive intelligence software offers tools such as data mining or text visualisation to help identify patterns of data or summarising and communicating the significance of information. Competitive intelligence portals are used to centralise the storage and exchange of competitive knowledge and also restrict access to those who need it in their job.

The choice of how to implement competitive intelligence depends on several features of a company. These are, for example, company's:

- *Structure*: Is the company independent or is it part of a larger corporation whose policies affect the company's decisions and operations, e.g. are there personnel assigned for competitive intelligence (Egan, 2004) and where are they located within the company (Murray, 2005).

- *Size and resources:* Information is usually able to flow more freely in small companies (Broome, 2001), whereas large companies need more organised ways. Resources allocated to competitive intelligence have a great effect on the activities and scope: with smaller personnel and finances the activities are not as extensive as they could be with more generous resources (see e.g. Hohhof, 1998; Somerville, 2001; West, 2001).

- *Organisational culture and managers' attitudes:* Organisational culture has an impact on the personnel's attitude towards information sharing and competitive intelligence (Pook and Füstös, 1999; Moffatt and Fleisher, 2003; Manjarekar, 2004; Kokkinis, 2005) Especially managers' attitudes towards information as a resource are crucial to competitive intelligence success, as it needs to have the top executives' support in order to thrive (see e.g. Sawka et al., 1995; Kahaner, 1997; Martins, 2001; Moffatt and Fleisher, 2003; Murray, 2005).

- *Products:* How quickly they outdate, how sophisticated they are, the length of the production chain and need for subcontractors etc. affect information needs and the lead time of competitive intelligence process. In the case of a high

competition product with a short life cycle the cycle of product development is also rapid. Therefore competitive intelligence plays a large role in providing the information helping to forecast future trends in order to create a successful product (Noori et al., 2001; Mockus, 2006).

- *Markets:* The geographical breadth of the company's markets, the difference in customers and company's market share affect information needs and the scope of information gathering (see e.g. Broome, 2001).

- *Competitive strategy:* Whether a company's strategy is to be the leader or the follower guides the type, focus and use of information gathered (Broome, 2001). The choice of strategy determines the scope and speed of information needs (Henderson, 1998) and thereby also the objectives and operation mode of competitive intelligence.

- *Industry:* Clock speed (Guimaraes, 2011), competitive situation and culture set the framework and requirements for competitive intelligence, as explained below.

The industry the company operates in has a major influence on the implementation of competitive intelligence. According to Fishwick (2005), the more uncertainty and risk there is in the industry the more the value of competitive intelligence in distinguishing between winners from losers is emphasised. One factor is the industry's clock speed: the rate of the changes occurring in the industry, how fast the market situation changes and how fast a company therefore has to react to the changes. The faster the market changes the faster a company needs to make decisions adjusting to the changes. Another component is the industry's overall competitive situation in the industry: how many competitors there are in the branch, their relative strengths, how easy it is for new players to access the market etc. Thirdly, culture, traditions and the nature of the industry affect how competitive intelligence is implemented: whether the industry is traditional and sluggish or modern and high speed, and what the general prevailing attitudes are towards information as a resource within the industry.

The textbook example of how to deal with competitive intelligence most effectively and efficiently, promoted for the last decade, is a centralised, professional and organised competitive intelligence unit (see e.g. Butcher, 1998; Dutka, 1998; Pirttilä, 1998; Fleisher, 2001). As already noted, the unit usually consists of a competitive intelligence manager and analysts, whose responsibility it is to provide the needed information to decision-makers at the right time in a suitable form. In other words, carrying out the competitive intelligence process and serving the needs of information users. Regardless of the advantages of such an efficiently organised unit, it does not suit every company and all situations. Alternative approaches, such as competitive intelligence networks,

have started to gain more attention in recent years. Some companies do very well even without any organised competitive intelligence activities.

During the last few decades competitive intelligence has evolved from informal and tactically oriented data-gathering into formal competitive intelligence units serving strategic decision-making as described above (Pirttilä, 1998; Fleisher, 2001). However, organising competitive intelligence according to the Taylorian principles of labour and on the premise that centralising the operations is the most efficient and beneficial way of implementation has been found to have shortcomings (Gilad, 1989; Pirttilä, 1998). These include, for example, the users' lack confidence in the competitive intelligence personnel's ability to understand business and deliver relevant results (Pirttilä, 1998). The next evolutionary step of competitive intelligence is that it is no longer the prerogative of the top management practised by competitive intelligence experts. Instead, competitive intelligence is demystifying, decentralising and shifting "from serving the few to empowering the many" (Kinsinger, 2008). The new stage of competitive intelligence emphasises the value and significance of human input in the competitive intelligence process over information systems and engages employees in the process.

2.5 Fulfilling the promises of competitive intelligence is challenging

Competitive intelligence is at best proactive support for decision-making giving the decision-makers early warnings among others about competitors' actions, trends and changes in the business environment and by so doing competitive intelligence enables the decision-makers to predict possible events in the future that may affect the company critically (Collins, 1997; Prescott, 2001; Pirttimäki, 2007). The reasons for implementing competitive intelligence activities have been much discussed in the literature (see e.g. Tyson, 1986; Collins, 1997; Cook and Cook, 2000; Thierauf, 2001; Thomas, 2001; Tyson, 2005).

Companies expect competitive intelligence to help them to provide early warnings of opportunities and threats (Ellis, 1993; Westervelt, 1996, Fuld, 2006; Nasri, 2011), avoid surprises (Tyson, 2005), diminish the blind-spots of decision-making (Gilad, 2004) and gain a better understanding of players in the external business environment (Harkleroad, 1993; Westervelt, 1996; Badr et al., 2004). In addition, the competitive intelligence process puts into practice should result in a more accurate understanding of information needs, and consequently gathering and using relevant and timely information, which enables faster and more effective planning and decision-making (Tan Tsu Wee, 2001; Pirttimäki, 2007). Hill and Scott (2004) state that competitive intelligence and its effective management advance efficiency, improve the quality of outputs and decision-making, and thus reduce the risk of business failure. Moffatt and Fleisher (2003) suggest that competitive intelligence creates competitive advantage by

enabling companies to make products that are superior to those of their competitors. In all, competitive intelligence is expected to provide companies with information that helps them to make better decisions and thus head towards the most profitable direction.

According to Cavalcanti (2005), there is a significant positive relationship between competitive intelligence and business success. McGonagle and Vella (2003) note that the amount or quality of the information gathered and analysed does not measure the success of competitive intelligence; only what is done with the knowledge determines its value. The benefits and competitive advantage gained by using competitive intelligence are quite easy to discover intuitively, but their actual measuring is relatively difficult (Lönnqvist and Pirttimäki, 2006). This is due to the fact that competitive intelligence activities and their results are intangible in nature, and the benefits are often scattered throughout the company (Pirttimäki, 2007).

In real life competitive intelligence may not live up to expectations, because being proactive is difficult. Predicting the future accurately is hard, and in many cases downright impossible. In practice being proactive actually means acting upon a piece of information or a hunch before its consequences have realised. For example, a manufacturing company continuously follows possible changes in the legislation regarding the raw materials needed to manufacture its products. Thanks to this, the company finds out that in a certain market area one of the chemicals needed in manufacturing one of their products is considered to be banned. This may not happen, but nevertheless the company starts to develop altered modified product that can be produced without using that certain chemical. When the decision on banning the chemical is made, the company already has a product in accordance with the new legislation, unlike those competitors that only now realise they have to adjust their products to the new legislation. Hence, reacting to information can generate proactive actions, and by providing this information competitive intelligence can be a proactive support for decision-making.

It is important to remember that having a function called competitive intelligence does not make a company successful. Competitive intelligence can make a good support function for business decisions as long as this is done for the right reasons and it delivers. Ultimately the success of competitive intelligence can be seen only when the right information is in the right place at the right time and it is used to make a decision that furthers the company efforts (see e.g. McGonagle and Vella, 2003). This entails understanding what is relevant, and further, which information is needed and which is not. This, however, can be a very complex task. It is often very hard for decision-makers to articulate their information needs and a frequent reason for this is that they do not know what information is available or they do not understand how it is obtained or used (Butcher, 1998). One of the problems in defining information needs is that the information needs may also be subconscious (Pirttilä, 2000). These subconscious needs cannot be assessed even with the best methods because they usually surface only in a

decision-making situation (Pirttilä, 2000). The fact that decisions are made inside a person's head and therefore the information needs are also generated in the human brain makes their defining challenging. Consequently Wilson (1997) states that no-one but the person himself can know his information needs unless the person articulates them. This indicates that no-one can identify a decision-makers's information needs on his behalf, complicating the situation for, for example, competitive intelligence personnel trying to anticipate the needs to meet them in time. Harmon and Ballesteros (1997) state that if only the conscious and explicit information needs are addressed the actual need is ignored or only partially satisfied. This leads to only partially solving the problem or making the decision to which the information need is related.

Although ideally decision-making should be based on reliable, accurate and timely information, which the competitive intelligence aims to deliver to decision-makers. In reality, decisions are often made in a small time-window and under pressure. As stated, decision-makers' information needs often surface only in the moment the decision has to be made and providing accurate and highly analysed information for such ad hoc needs in time is in most cases impossible. Especially if the needs should be met by an outsider, for example, a competitive intelligence unit: making the request for information, explaining to someone else for what purpose it is needed and to answer which questions, can take even more time than there actually is to make the original decision. It is therefore understandable that the smaller the time window to perform a task, the greater anxiety it occasions and this can ultimately lead to poor decision-making (Schick et al., 1990). Despite all competitive intelligence efforts, decisions are therefore usually made relying on a limited amount of unconfirmed information making the decision-making risky.

Yet another challenge of a successful competitive intelligence process is related to the implementation, where the process is carried out by someone other than the individual himself. Namely, the information products produced on a regular basis and defined in advance (e.g. market reports, newsletters) and other analyses made by competitive intelligence personnel are often designed to satisfy the needs of so many people that the reports have to be kept to a very general level. Having to compromise on the depth of the knowledge in order to serve as many as possible with the same report decreases the value of the knowledge (Pirttilä, 1998). It is therefore no surprise that the users often find their own information sources and analysis better than those provided by the competitive intelligence personnel (see e.g. McAuley, 1993). It is not likely that managers' information needs can be satisfied with merely market research reports done by a competitive intelligence unit, but they need to use their own informal sources as well (Wright and Ashill, 1998). Subsequently the users are also valuable sources of knowledge and it would be advantageous to make wider use of their knowledge in the company.

2.6 Human input in competitive intelligence

2.6.1 Employees as knowledge sources

A great deal of competitive knowledge is latent inside the company (Fuld, 1991; Herring, 1991; Bernhardt, 1993). A company's own employees are important knowledge sources, and when it comes to competitive knowledge, they can be seen as the most valuable sources for competitive intelligence (Fuld, 1991; Collins, 1997; Fleisher, 2001). All the company's employees participate at some level in producing data, information and knowledge that are used in decision-making. Most of this information concerns the company's own processes, for example sales figures and productive capacity, and is typically in the form of data or information as it is automatically gathered and processed by the company's information systems. Therefore, the employees are not usually used as primary sources of this information.

The employees often have valuable information not only on the company's own operations but also on competitors, customers and external market situation, and they should not be overlooked as a source of external information. Especially such boundary positions (Pirttilä, 1997) as the marketing and sales force often have direct contact to customer, competitor and market information that is extremely valuable and needed in the organisation's decision-making (Simon, 1993). Even though the sales force is identified to be a great possessor of competitive knowledge many companies do not have the means or ability to utilise them in the competitive intelligence process (Broome, 2001). Prescott (2001) states that in addition to the sales force virtually all employees can be significant information sources: as an intrinsic and natural act they acquire and interpret information that they need to perform their tasks. The company's employees' competitive knowledge is not homogenous, as every boundary group and even every employee may see the external environment and define the key drivers of competition differently, according to their tasks (Pirttilä, 1997). For example, research and development personnel may regard a small technology firm as being a potential competitor worth keeping an eye on, whereas the sales and marketing department prioritises companies producing similar kinds of products operating on the same markets (for different patterns of how competitors are defined see e.g. Porter, 1980; Porac and Thomas, 1990; Chen, 1996; Pirttilä, 1997).

Hannon (1997) states that employees are neglected as competitive intelligence assets because of over-emphasising the role of formal competitive intelligence units and analysts. Although the company's competitive intelligence unit may gather information from the same sources as the employees, the information obtained by the employees may be of more value: they can provide in-depth explanations and interpretations of information based on their own experience and knowledge (McLeod and Jones, 1987; Drott, 2001; Choo, 2002; Erickson et al., 2003; Frishammar, 2003). Liu and Liu (2008)

find that even though the external information obtained by the employees is valued, the external sources usually have more novelty value. That is, the employees' competitive knowledge does not usually reveal surprising news, but it rather deepens and refines the understanding of a given situations or issue.

Employees can therefore have a valuable role in piecing together a puzzle that reveals a clearer picture of what is going on in a company's business environment: they create and possess competitive knowledge. The best source of potential competitive advantage is in knowledge that makes a difference, and is obtained and acted upon before competitors can access it. A company has the best and possibly exclusive access to its employees' competitive knowledge. By better integrating employees into the competitive intelligence process their knowledge can be shared and used more effectively and wider within the company (Hannon, 1997).

2.6.2 Sharing employees' competitive knowledge

Engaging employees in the competitive intelligence process is recognised to be worthwhile, even though not always an easy task. Actually, successfully obtaining and utilising employees' knowledge is said to be one of the most difficult tasks in competitive intelligence (Koskinen et al., 2005a), and so far companies do not consider themselves successful in incorporating it into the process (Halonen and Hannula, 2007). The potential of employees as information sources has been underutilised due to a lack of communication and coordination (Fuld, 1991; Herring, 1991; Bernhardt, 1993). Putting employees' knowledge to work for the company depends on the success of knowledge sharing and knowledge transfer.

Knowledge sharing is "the act of making knowledge available to others within the organization" (Ipe, 2003, p. 341). It is a voluntary, conscious act between two or more individuals resulting in joint ownership of the knowledge between the sender and the receiver (Davenport, 1997; Ipe, 2003). When this shared knowledge is used, for example, in decision-making, the process is called knowledge transfer (Darr and Kurtzberg, 2000; Bircham, 2003). In short, knowledge sharing is imparting knowledge to others, and knowledge transfer is sharing and using knowledge. Knowledge transfer is essential for the competitive intelligence process success: if the knowledge is not used, it does not have or create any value for the company. However, knowledge transfer cannot take place if knowledge is not shared. Although acknowledging the importance of knowledge transfer, this research focuses on knowledge sharing, that is, how the employees' competitive knowledge can be made available for others to use, as it is the premise for knowledge transfer.

According to Ipe (2003) the major factors influencing knowledge sharing are the nature of knowledge, motivation to share, opportunities to share and organisational culture. Hannon (1997) states that the problem in engaging employees to share their competitive

knowledge is three-fold: first, employees may not know that the knowledge they possess may be of value to the company. Second, in line with Ipe (2003), even if they recognise the importance of the knowledge, they may not be motivated to share it. Third, again agreeing with Ipe (2003), even if the employees are motivated, there may be no medium to share knowledge to others in the company. Combining Hannon's (1997) and Ipe's (2003) views, the factors influencing competitive knowledge sharing are:

1) Understanding the value of knowledge
2) The motivation to share knowledge
3) The organisational culture
4) The nature of knowledge
5) The opportunities to share knowledge

Some of the factors are somewhat overlapping and interrelated, as can be seen in the following subsections discussing the factors in more detail.

Understanding the value of knowledge

Not all the knowledge employees have is relevant for competitive intelligence purposes, and therefore it is important to identify and communicate what kind of knowledge is interesting and indispensable for the company and should therefore be shared. Drott (2001) suggests that the awareness of what information is needed could be raised by communicating the company's information needs to the personnel. However, a downside in this is that if the specific interests of competitive intelligence are widely circulated it can be seen as too revealing and risky (Drott, 2001). It is important to note that knowledge sharing should be used selectively (von Krogh et al., 2001), and it also entails risks. One is the risk of drowning in useless information and the other is increasing the risk of knowledge spills and leaks by making critical information available to those who do not need it or understand the need to protect it. As von Krogh et al. (2001, p. 425) say "not everybody in the company needs to know everything at all times." Sharing competitive knowledge and keeping it secure are the two sides of the same coin, and the key to success in both activities is the employees' awareness about what knowledge is valuable to the operations of a company.

Motivation to share

Employees' motivation is a key success factor in engaging them in the competitive intelligence process. A common reason for employees not wanting to participate in competitive intelligence activities is the fear of losing something when compelled to share their knowledge (see e.g. Hannon, 1997). Knowledge that is considered valuable for the company is also a valuable personal resource of the employee, and an employee may equate sharing it with sharing power (Mintzberg, 1973). Pirttilä (1997) suggests

that sharing competitive knowledge is not losing something but actually doubling it, since then both parties have the same asset. In any case, the perceived value of knowledge impacts the motivation to share it (Barachini, 2009); valuable and important knowledge is often horded and jealously protected, not shared (Davenport, 1997). Jones and Jordan (1998) find that emotional ownership to highly valued knowledge is strong. This indicates that the owner is willing to share knowledge as long as he gets credit for it.

To motivate the employees to share their knowledge they should be able to trust that by sharing their knowledge they promote their own and the company's success (Sydänmaanlakka, 2004). The level of trust within the company correlates with the employees' willingness to cooperate (Huemer et al., 1998), and is an important prerequisite for knowledge sharing (Rowatt, 2005; Holste and Fields, 2010) and its success (Barachini, 2009).

Summarising several authors (Davenport, 1997; Davenport and Prusak, 1998; Huemer et al., 1998; Nahapiet and Ghoshal, 1998; Weiss, 1999; Ipe, 2003; Barachini, 2009) the key motivational factors that enhance knowledge sharing are:

- Contributing to the company's success
- Getting incentives and rewards
- Feeling empowered
- Gaining knowledge in return i.e. reciprocity
- Boosting own reputation
- Adding value to knowledge
- Trusting that sharing is worthwhile

Motivational factors can be divided into intrinsic and extrinsic (see e.g. Ryan and Deci, 2000; Lin, 2007), that is, those internal and those external to an individual. According to Ryan and Deci (2000) intrinsic motivation is a drive to do something that is self-rewarding and extrinsic motivation is a drive to do something for external sanction. In the case of extrinsic motivation the issue is either to avoid negative sanction or to gain positive sanction. However, even if extrinsic motivation is more obvious, and easily comprehended, there are also some underlying intrinsic factors as well, for example someone wanting financial rewards for altruistic reasons.

Intrinsic motivation is derived directly from the work itself (Frey 2002), for example altruism as in feeling good about doing the work in the first place, regardless if there is no extra reward. Knowledge self-efficacy and enjoyment in helping others are also distinct motivational factors (Lin, 2007). Moreover, the main point in intrinsic motivation is to do something that externally may seem utterly pointless, but leads internally to fulfilment and is thus self-rewarding.

Extrinsic motivation is influenced by indirect or instrumental needs that bring satisfaction independently of the outcome of the actual work, for example, getting financial or social rewards (Jeon et al., 2011). Frey (2002) mentions self-promotion, expected reputational advantages or other advances in social or organisational status as drivers for extrinsic motivation. Lin (2007) underlines expected organisational rewards and reciprocal benefits as key sources of extrinsic motivation. Compared to intrinsic motivation, extrinsic motivation is directly interconnected with sanction, thus it also makes sense externally. It is debatable whether a motivational factor is intrinsic or extrinsic. Some factors are overlapping, and it depends on the interpreter whether it is seen as internal or external.

It is not enough to grant permission and prerequisites for knowledge sharing; the motivational factors need to be actively fostered and enhanced (Bock and Kim, 2002). Not all the motivational factors are straightforward to use. For example, offering a tangible reward for employees who actively share knowledge is seen as a good way to motivate them to share (Ipe, 2003; Swart and Kinnie, 2003; Jeon et al., 2011). However, research (Kohn, 1993; Bock and Kim, 2002) also shows that rewards only work temporarily, as long as they are provided, but do not permanently change the attitude towards knowledge sharing. In fact, using rewards is a double-edged sword: rewards may even impede knowledge sharing (Kohn, 1993). According to Kohn (1993) explanations for this are following:

- Rewards may be manipulated and can therefore have a punitive affect
- Not getting an expected reward is counterproductive and the reward acts as a punishment
- Rivalry for rewards disrupts relations between people
- Managers use rewards to susbstitute for the important feedback and social support, that the employee needs to perform his job
- Rewards may increase the feeling of being controlled and thus decrease willingness to perform the initial activity, i.e. knowledge sharing

In many cases employees are willing only do their core duties or “what they are paid for” and nothing more. Therefore, Rajaniemi (2005), Hannon (1997) and Sydänmaanlakka (2004) suggest making sharing of competitive knowledge a part of every employee’s job description. However, knowledge sharing is by definition voluntary (Davenport, 1997; Ipe, 2003) and, considering the findings of Kohn (1993), may be harmed if made obligatory and controlled. Also, monitoring and measuring the implementation of orders regarding such an intangible issue is complex and may only further impair the employees’ attitude towards knowledge sharing. A more fruitful way would be fostering such an organisational culture that encourages people to willingly share their knowledge.

Organisational culture

Knowledge sharing is influenced by the company's organisational culture, that is, the basic pattern of assumptions, values and beliefs and the practice of how the members of a company perform their tasks, and act on problems (see e.g. Schein, 2004; Leidner and Alavi, 2006). Rather simple behavioural choices affect the formation of organisational culture. For example, keeping doors open and thus inviting collegial interaction or enabling hallway discussions promotes a more symbiotic organisational culture (Liebowitz, 2006) and creates more opportunities for knowledge sharing. Conversely a culture where personal advantage is emphasised over collective efforts and helping others is not valued does not create a favourable setting for knowledge sharing. Organisational culture also influences the understanding of what knowledge is important and valuable (De Long and Fahey, 2000).

Al-Adaileh and Al-Atawi (2011) find that knowledge sharing within a company can be enhanced by promoting an organisational culture supporting teamwork and information flow between employees. Ho (2009) adds that strategy and leadership supporting knowledge management functions, for example knowledge sharing, have even more substantial positive effects on the success than organisational culture alone.

The nature of knowledge

In addition to the aforementioned motivation factors the nature of competitive knowledge also creates challenges for knowledge sharing. Employees' competitive knowledge may be fragmented pieces of knowledge, weak signals or personal interpretations of rumours and their implications and reliability. The uncertainty and in-completeness of the knowledge may create a barrier for employees to share their knowledge to others. They may worry about being correctly understood, about the consequences if the knowledge proves to be unreliable or even if it is in anyone's interests to receive in the first place (Ardichvili et al., 2003; Riege, 2005). Another element of knowledge posing challenges for its sharing is its stickiness (Liu and Liu, 2008). Sticky knowledge means that the knowledge is inert, difficult to imitate and in all, hard to isolate from its source (Szulanski, 2003; Turban et al., 2001), and it is thus often an attribute of tacit knowledge.

The competitive intelligence literature mainly discusses how the employees' knowledge could be obtained from the employee to the company (see e.g. Zack, 1999), not so much how it could be shared. Drott (2001) states that the information does not actually have to be obtained from the employee, but the information may remain with the individual and still be made available for the company's use. These opposite viewpoints represent the two main strategies of knowledge management: codification and personalisation (see e.g. Hansen et al., 1999; Wyatt, 2001). In codification strategy information systems are at the core: they are utilised to codify and store knowledge in a way that enables

accessing it widely within a company. In other words, codification strategy aims to provide people with efficient ways to access knowledge that has been documented and stored in databases. Personalisation strategy on the other hand relies on network approach, where knowledge can be shared from one person to another. The role of information systems is that of a tool that connects people and does not act as storage of knowledge. (Hansen et al., 2001). Table 5 presents some differences between the elements of information depending on whether it is in the form of employee's knowledge (i.e. personalised) or company's information (i.e. codified).

Table 5. Employee's knowledge compared to company's information (adapted from Drott, 2001).

Employee's knowledge	Company's information
Individually integrated	Corporately integrated
Dispersed	Distributable
Low-cost	Expensive
Accidental	Structured
Open	Closed
Temporary	Permanent
Knowledge	Information

Codifying the employees' knowledge into company information is problematic in many ways. First, the nature of knowledge poses challenges, since, as described earlier (Chapter 2.1.1, p. 26), it may be difficult to articulate and codify. Drott (2001) proposes that in order to put employees' knowledge at the disposal of the whole company, it needs to be converted into a more easily transferrable form. This in practice means writing it down or summarising it so that it can be sent by email or stored in a database, and simultaneously it loses some of its dimensions relegating it back to information.

Second, the methods actually used by companies to do this are not coherent or systematic (Koskinen et al., 2005a). Koskinen et al. (2005a) mention that common methods are e.g. enabling the feeding of information into a portal tool or intranet and using forms developed for this purpose. This leaves open the question of who should be the active party responsible for obtaining and disseminating the information possessed by the employees. If a company has competitive intelligence personnel they would seem to be an obvious choice to act as these kinds of knowledge stewards (see e.g. Leistner, 2001; Karhu, 2002), that is, be the ones to collect and coordinate the employees' competitive knowledge. However, Drott (2001) points out that not only is setting down information properly challenging, it is also time-consuming and can be expensive. Rajaniemi (2005) adds that is not usual to employ people to write down and document the information of other people, especially because companies consider it too expensive. Therefore, this kind of "pull technique", in which some other party would "pull" the information out of the employee and be in charge of its processing, does not seem very efficient. Conversely, using a "push technique" would mean that the employee would be

the one to take the initiative and "push" his information for company use, for example, by writing it down and feeding it into an information system, discussing the knowledge in a meeting or delivering it to an analyst. In other words, the employee would be a proactive information source. As the initiative to share the information would be in the hands of the employee, again, if the employee does not realise his knowledge could be useful for the company or is not motivated enough to share it, the information will not be shared.

Hansen et al. (2001) emphasise that the choice between codification and personalisation strategies depends on the company in question, and that a mix of the two may in many cases work better than relying solely on one or the other. Companies that emphasise personalisation strategy to manage knowledge can use several supportive methods and tools. For example, expert databases or "expert yellow pages" are simple tools where a person's area of knowledge and expertise is listed accompanied by his contact information, so that anyone can contact him and ask specific questions (see e.g. Drott, 2001). Locating and listing this "knowledge about knowledge" would require some kind of knowledge stewards, if obligating employees themselves to do it does not seem efficient.

Opportunities to share

In order to fully realise the potential of employees' competitive knowledge the company must provide adequate opportunities for knowledge sharing (Weiss, 1999). The nature of knowledge sets conditions for what kind of opportunities should be provided for knowledge sharing. The motivation will not be increased, quite the contrary, if the channel indicated for sharing competitive knowledge does not work properly for this purpose.

Ipe (2003) divides knowledge sharing opportunities into formal and informal channels. Formal channels provide structural environment and tools for knowledge sharing in the form, for example, of training programmes, structured work teams and technological solutions (Ipe, 2003). They enable connecting a large number of people and fast sharing of knowledge (Ipe, 2003), although knowledge shared through formal channels is mostly explicit (Nonaka and Takeuchi, 1995). Informal channels include personal relationships and social networks (Nahapiet and Ghoshal, 1998). Ipe (2003) states that as informal channels facilitate face-to-face connections they subsequently further trust building and therefore also knowledge sharing.

When provided with optional channels for knowledge sharing people naturally choose the channel that seems most appropriate for the task at hand (Huber, 1990). In the case of competitive knowledge it is understandable that individuals prefer to share it orally and through informal channels (Pirttilä, 2000; Sydänmaanlakka, 2004), as it is the easiest way to articulate personal knowledge and accompany it with metaknowledge,

that is, explanations about the underlying issues so that the knowledge is correctly understood. This kind of knowledge sharing is, for example, colleagues discussing in the hallway or coffee break, giving a presentation at the department's weekly meeting, or a telephone discussion between a manager and his subordinate. Although informal channels are often the most preferred channels for sharing and obtaining knowledge from personal sources (see e.g. Mintzberg, 1973; Davenport, 1994), the problem with them is that others than the participants of these situations do not get the information, or they get it by coincidence or too late. This information could be needed by many people for many decisions within the company, but it will not without a doubt and unnecessary delay reach the person in need if there is no suitable channel connecting the source and the user. Pirttilä (2000) notes that especially in the case of competitor information the sources are usually informal and oral and therefore the information obtained from them is often unorganised and unstructured, which makes it difficult to store by technological means.

Technological solutions can facilitate sharing of explicit knowledge, and there are knowledge management tools and systems designed to incorporate stickier knowledge. However, prevalent knowledge management tools that are designed to facilitate knowledge sharing have not quite met the expectations of companies (McAfee, 2006; Spanbauer, 2006; Levy, 2009; Kaiser et. al., 2010). Spanbauer (2006) states that knowledge management systems are not appreciated by companies; they put the burden of management on the users, demand a great deal of server space and IT support, and force users to take extra steps to upload and locate knowledge. In addition to these complaints on the technological downsides of knowledge management systems, their ability to actually enable the sharing of knowledge can be questioned. Razmerita et al. (2009) point out that rather than facilitating collaboration by which knowledge can be exchanged the knowledge management systems focus on capturing knowledge (i.e. codification).

Traditional collaboration tools, that is, groupware, such as emailing, video conferences, multi-participant phone meetings or document sharing (Gunnlaugsdottir, 2003; McAfee, 2006) have become more popular, but they do not meet all the knowledge sharing needs regarding competitive intelligence. One pervasive problem is, again, that only a limited number of people are actually able to participate in the groupware sessions: the individuals having the best up-to-date knowledge concerning the issue discussed may not be present at those meetings or on those email lists, or may not be known as possible knowledge sources. The participants or recipients have to be predetermined, which may exclude some valuable people from the knowledge sharing situation. In addition, traditional knowledge sharing channels and groupware require synchronism, that is, the participants need to be present at the same time in order for a meeting or a discussion to take place (see e.g. Pirttilä, 1997).

Therefore it would be advantageous to have a medium via which all essential employees could share their knowledge related to competitive issues and accumulate the company's competitive intelligence assets and where everyone could proactively search for interesting knowledge and opportunities to share their own knowledge.

2.7 Chapter summary

The definitions of information and knowledge are various, but it is agreed that they can have a significant role in forming competitive advantage. Competitive knowledge especially can help a company make well-grounded and profitable decisions that may create a competitive edge. This, however, sets requirements for the information, as sheer quantity does not bring advantage as such. For competitive knowledge to act to the advantage of the company it needs to be effectively managed and used in decision-making. Competitive intelligence aims to manage competitive knowledge and fulfill the information needs of the company.

The role of competitive intelligence is to support decision-making by providing relevant, timely and reliable competitive knowledge and information. Competitive intelligence is a process consisting of several phases: identifying information needs, information gathering, processing and analysis of information, dissemination and sharing of information, and using the information to support decisions. The implementation of competitive intelligence (i.e. how the process and tasks are carried out) depends on the situation and company in question. For example, the company's organisational culture, competitive strategy and the resources available affect the implementation. Performing competitive intelligence activities can be assigned to a specific unit or department consisting of a manager and analysts, or it can be done by individuals themselves. In any case, the value of human input in competitive intelligence is acknowledged.

Engaging employees to be more active participants in the process, as knowledge sources, analysers, and users, is attracting increasing attention. Putting employees' competitive knowledge to work for the company requires effective knowledge sharing. This, however, can be very challenging, as successful knowledge sharing assumes that the employees understand what knowledge is needed and are motivated to share their knowledge with others. In addition, organisational culture and the nature of the knowledge affect the outcome of the efforts. Finally, there need to be opportunities to share knowledge, which entails that the channels and media are suitable. In large or geographically dispersed companies other than face-to-face channels are needed for effective knowledge sharing in a wider scale. However, the technological means, such as groupware, do not sufficiently facilitate the sharing of competitive knowledge. New and more sophisticated technological solutions could enhance and aid in eliciting employees' competitive knowledge.

3 SOCIAL MEDIA

Since its introduction in 2004 (O'Reilly, 2005), the term Web 2.0 has been a buzzword that has been increasingly present in today's society. Social media is another term that frequently occurs in everyday conversations and news. Despite their frequent use in many contexts, these concepts and their contents are not clearly defined in academic discussion. Web 2.0 is often used alongside social media, but they are not definite synonyms, as the following chapter explains. This chapter introduces what is meant by Web 2.0 and social media and how they are interlinked. In addition, different social media tools are briefly introduced. Finally, the chapter discusses the implications for companies and the novelty value of social media tools in the business context.

3.1 Defining Web 2.0 and social media

In the first generation of Internet, which can be referred to as Web 1.0 or read-only-Internet, the applications and systems allowed only static and channelled content (Schneckenberg, 2009), for example, web pages with permanent contents, emails to predetermined recipients and intranets as information storage places with predefined structure. According to Schneckenberg (2009) in Web 1.0 content was generated by the providers and pushed towards the web users, who had to settle for the rather passive role of mere recipients. In addition, especially regarding web pages, those providing content were quite a small minority compared to the masses reading it at the other end, since publishing something in the Internet required some technological savvy and access to suitable software.

In the new Internet era users have a more active role and the power to pull selected content for their use (Schneckenberg, 2009). This is made possible by a developed set of technologies and software that together can be referred to as Web 2.0 (Tredinnick, 2006). This technology has changed the traditional ways of publishing in the Internet to be more dynamic and sensitive to users' actions (Tredinnick, 2006). It enables people to interact with each other over the Internet, to take part in conversations and express their opinions, and to download content to other places, systems and devices (Bonsón and Flores, 2011).

Bonsón and Flores (2011) describe Web 2.0 to represent a "technological democratisation", and are supported by Eijkman (2009), who states that Web 2.0 enables a more egalitarian and democratic way of accessing, using and creating knowledge collectively. Levy (2009) agrees and summarises that Web 2.0 empowers the masses and individuals to be active participants letting them give added value to contents in the Internet.

Nail (2006) compares the change in the users' role to human evolution. According to him (ibid.) "The principles and technologies of Web 2.0 evolve the user experience from hunting and gathering to creation and social connections". That is, in Web 1.0 people had to settle for what was available for being hunted down or lying around in the Internet and make the best use of it as such. Web 2.0 surroundings empower them to be active participants who can affect the appearance and contents of the Internet. Looked at human evolutionary perspective, from merely gathering berries in the woods or throwing spears at wildly galloping horses, the early humans gained the knowledge to grow crops and to herd and breed animals to use in their daily life and nourishment. In Web 2.0 individual Internet users create, update and use content in the Internet, providing it for others to use and re-create altruistically and often free of charge (Kaplan and Haenlein, 2009). They simultaneously produce and use the content. This is referred to as produsage (see e.g. Bruns, 2006), and subsequentially people in Web 2.0 are produsagers instead of being divided according to the dichotomy of producers or users. Internet users therefore make and mold the Internet.

The mere existence of Web 2.0, that is a set of constantly developing technology enabling new kinds of Internet use, is nothing unless it is used by people. When people interact using Web 2.0 technologies, the setting can be referred to as social media. Social media is closely related to human interaction, social networking and publishing information, whereas the term Web 2.0 itself does not necessarily include the media aspect or any social activity (Lietsala and Sirkkunen, 2008). The driving forces, which are simultaneously the premises, of social media are interaction between users, usability of tools, and relevance of content (Downes, 2007), as Figure 8 illustrates.

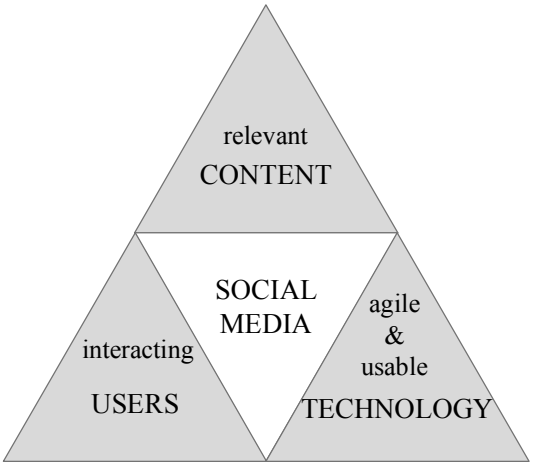


Figure 8. The premises and driving forces of social media (Downes, 2007; Kangas et al., 2007).

According to Hintikka (2007) the three cornerstones presented in Figure 8 all need to be present in order for social media to work: without relevant content users do not have a reason to use technologies or anything to discuss with each other. Without user participation there is no social media, merely the first generation read-only-Internet. Without easy-to-use and agile technology, users cannot interact, produce or use content.

Social media has been described with multitudes of adjectives that mainly stress the changing role of people as users, interaction and diversity. Erkkola (2008) has summarised the terms featuring social media and divided them into five categories according to their implications, as presented in Table 6.

Table 6. Social media features divided into five categories (Erkkola, 2008, p. 22–38).

Category	Features
Differs from traditional media	user-originated, interactive, two-way, many-to-many communication, not a mass medium, personal, open, social, human-related, opinion and perspective related, democratic
Different perspective to knowledge	Uncontrollable, fragmented, global, local, fast, real-time, groupable, linkable, knowledge-intensive
Technology-related	Instrumental, uses the Internet, technology-based
Collective	supports shared meanings and their building, based on collective intelligence, supports collective intelligence, collective, individual peer-production supportive, community-supportive, supports peer-action and peer-production, content-centered, intermedial challenges traditional operating modes
Interwoven	Diverse, modular, editable, multimedial, structured, intricate

The terminology and content of the terms Web 2.0 and social media are still ambiguous and under discussion: they evolve and grow as do the technologies and actions linked to them. In this research Web 2.0 refers to the technological features of the new generation of Internet, whereas social media is used to describe the technologies accompanied by the actions performed by people and enabled by web 2.0 applications.

As the dissertation discusses social media use in competitive intelligence context within companies, the term Enterprise 2.0 (McAfee, 2006) needs to be discussed. Levy (2009, p. 125) defines Enterprise 2.0 to symbolise the "implementation of the Web 2.0 infrastructure and/or tools by organizations". In recent years there has been a trend to append almost every concept with "2.0", indicating that it has advanced to the next level (see e.g. Porta et al., 2008; Greenberg, 2010; Christopher and Holweg, 2011). Marking version history with numbers is widely used, for example, in software development, but after introducing Web 2.0, the 2.0 terminology has been adopted everywhere. At the same time, it has inflated the meaning as people are overwhelmed with everything being "2.0". As Enterprise 2.0 per se does not have any other reference to Web 2.0 than the number and even less linkage to social media, people not familiar with the concept will not intuitively connect it with them. Therefore, even though this research focuses on the intra-organisational use of social media, also known as Enterprise 2.0, the generally more familiar and accepted term social media is used in this meaning as well.

3.2 Social media tools

There is no coherent categorisation of social media tools, although several classifications have been presented in the literature (see e.g. Lietsala and Sirkkunen, 2008; Razmerita et al., 2009; Rudman and Steenkamp, 2009; Lehtimäki et al., 2009). The tools and application of social media are versatile and can be used in several contexts and for many purposes, which explains the challenge of definite classification. However, this research attempts to contribute to the challenge by identifying five categories under which tools can be divided. Realising the potential of social media in different contexts requires understanding for what purposes different social media tools are applicable, that is, what purpose they serve and how they can be used. The following categorisation introduced by this dissertation aims to facilitating the efforts to understand the jungle of social media tools. This categorisation of 5Cs is based on the actions enabled by the tools:

- Communicating: publishing and sharing content
- Collaborating: collective content creation
- Connecting: networking people
- Completing: adding, describing and filtering
- Combining: mixing and matching for different purposes

These categories are discussed in the following subsections. Some central tools from each category are briefly discussed in more detail to illustrate the purpose and use of the tools in the category. In addition, some examples of their use in a company setting are alsogiven to demonstrate their use in business context.

3.2.1 Communicating: publishing and sharing content

Content publishing and communicating tools, such as blogs, media sharing systems and microblogging, offer a way to communicate or share information with a broad audience. They are used, for example, to discuss, share views, create joint meanings, express opinions as well as for sharing music, videos or photographs. Examples of tools, their purposes and well-known commercial applications are presented in Table 7.

Table 7. Examples of social media tools for communicating.

Tools	Purpose	Examples of commercial applications
Blogs, media sharing systems, podcasts, videocasts, discussion forums, microblogging, instant messaging	Publish, discuss, express oneself, show opinion, share, influence, store	Blogger, WordPress, Flickr, YouTube, Twitter, SlideShare, Prezi

Blogs are probably the most used social media tools regarding publishing information in the Internet. Blog, short for "web log" or weblog" (see e.g. Tredinnick, 2006; Wyld, 2008) provides an easy way to publish content on the Internet. Blogs are managed by one or many specified authors, who publishes entries (i.e. posts) that are dated and shown in reverse chronological order (Bonsón and Flores, 2011). Blog differs from traditional Web 1.0 webpages, as they are dated, easily created, and continuously written by publishing new posts instead of remaining a static page (see e.g. Levy, 2009). Anyone can create a blog without knowing very much about the technological details behind it.

Blogs allow using embedded collection of tools that make it possible to aggregate and re-publish content from elsewhere in the Internet (Tredinnick, 2006). They usually provide a commenting opportunity, allowing blog's readers to share their opinion of the contents. Blogs can be depicted as a one-to-many communication medium, even though teams and groups of several people can also have a joint authorship of the same blog. In addition, when a commenting option is placed, it enables conversation and thus becomes a two-way medium for authors and readers. The word blog can also be used as a verb, meaning publishing text or other content in a blog (Wyld, 2008), that is, blogging.

In a company setting blogs can be used for multiple purposes and in various ways: promoting products to customers, informing shareholders, or sharing knowledge within the company, to name a few. Lee et al. (2006) propose five types of company blogs, as shown in Table 8.

Table 8. Types of company blogs and their characteristics (Lee et al., 2006).

Blog types	Characteristics
Employee	Maintained by a rank-and-file employee Varies in content and format
Group	Operated by a group of rank-and-file employees Focuses on a specific topic
Executive	Featuring the writings of high-ranking executives
Promotion	Promoting products and events
Newsletter	Covering company news

Other widely used tools for communicating are media sharing systems and microblogging. Media sharing systems (e.g. Flickr, YouTube, Prezi) let users share videos, photographs, documents or presentations and allow others to evaluate and comment them. Micro-blogging (e.g. Twitter, Jaiku) is a form of instant messaging, where short messages are published from one to many or a selected audience.

3.2.2 Collaborating: collective content creation

Collaboration focused tools facilitate co-creation of contents and collaboration regardless of participants' location. They enable collective content creation, editing and support produsage. Examples of tools, their purposes and well-known commercial applications are presented in Table 9.

Table 9. Examples of social media tools for collaborating.

Tools	Purpose	Examples of commercial applications
Wikis, shared workspaces	Create content together, collaboration, produsage	Wikipedia, TWiki, GoogleDocs, MatchWare

The main tools in this category are wikis. Grace (2009, p. 64) defines wiki as "a democratic, accessible community of users responsible for its own content, supported by an open model of knowledge creation and communication"' A wiki can be described as a dynamic database for information storing in the form of interlinked webpages that are expanded, reviewed, edited and updated freely by users (Leuf and Cunningham, 2001). It enables collaborative authoring, empowering the users to create, edit and update contents as they browse the pages (Tredinnick, 2006). Wikis are contextual and organise knowledge by topics whereas blogs are chronologically organised (Klobas, 2006). In addition, in the particular online community of a wiki authorship is open to anyone and everyone (Grudin, 2006). Wikis also provide more structure by filtering out conversation from the actual content by, in many cases, providing separate discussion areas (Grudin, 2006). The basic characteristics of wikis, according to Grace (2009), are:

- easy editing, as users do not have to understand scripting languages
- links and references to other websites, that are related to the content
- tracking changes, version history and keeping track on who has made changes
- built-in search function

Wikis are often critised regarding the reliability and accuracy of the information they withhold, but group discipline corrects the errors quickly, thus leading to very credible content (Tredinnick, 2006). If the existing content is regarded as incomplete or in need of correcting, the online community is supposed to continuously review and correct it (Bonsón and Flores, 2011). In wikis the contents are reviewed, edited and aggregated as long as necessary to reach an outcome that is satisfying and reliable (Razmerita et al., 2009). According to Grossman (2008) the theoretical premise of wikis is that the more people are working on an article, the better the quality of its content becomes, which in turn encourages more people to use it as a resource and contribute to it.

McKelvie et al. (2007) studied how wikis can be used as a knowledge management system in a company for storing key knowledge, recording interactions between

employees and capturing recent news articles and reports. They found wiki to create several benefits in this context:

- reduction of cycle times
- shortening product development time
- improvement of customer service
- empowerment of employees
- innovation
- enhancement of flexibility
- ensruing that critical knowledge stays within the company when employees leave
- a training tool for new employees (shortens the learning curve and time to becoming effective contributors)

Grace (2009) claims that wikis embody the ultimate knowledge sharing dream of a company, as they enable employees to voluntarily and altruistically collaborate and create knowledge that helps the company to achieve its objectives. In addition, Grace (2009) promotes wikis in the company setting to support communication between employees, create technical documentation or project management as well as a form of tracking meetings.

3.2.3 Connecting: networking people

The social media tools in the connecting category are used to connect people and enable interaction between them. They gather people around common interests or locations, enable them to maintain the old social networks and building new ones. Some of them provide opportunities to play or experience and live virtual environments. Examples of tools, their purposes and well-known commercial applications are presented in Table 10.

Table 10. Examples of social media tools for connecting.

Tools	Purpose	Examples of commercial applications
Social networks, communities, virtual worlds	Socialise, network, connect, play, entertain	Facebook, LinkedIn, SecondLife, World of Warcraft, Habbo Hotel

Social network sites, especially Facebook, are usually the first thing that people think of when discussing social media. This is no wonder as social networks are probably the most significant and visible social media tool that people use and identify as part of the phenomenon called social media. Social networking sites are "technology that allows people to set up profiles, link to other individuals' profiles and view, navigate and

interact with others in the social network" (Ferreira and du Plessis, 2009, p. 5). They connect people with similar interests and enable the creation of communities around shared interests (Razmerita et al., 2009). The focus of the network sites can be, for example, professional (e.g. LinkedIn), entertainment (e.g. MySpace), or relationships in general (e.g. Facebook).

Social networking also has relevance in the company setting. DiMicco et al. (2008) examined the employees' perceived usefulness and benefits of IBM's internal social networking site and found that it:

- was conducive to more free and secure data sharing between employees,
- increased communication and connected employees,
- enabled codification and sharing of personal knowledge for professional purposes,
- facilitated learning opportunities, and
- advanced careers.

Ferreira and du Plessis (2009) add that social networking encourages people to share their knowledge and expertise and Porta et al. (2008) note that they enable innovation at grassroot level. In addition, Ferreira and du Plessis (2009) found that employees believed that a social network connecting an organisation's employees would enable them to do their daily work more efficiently.

Online communities can be used to implement the company's vision, strategy and values, as the users may adopt the community's visions and values as their own (Zhou, 2011). Forming communities of practice and sharing knowledge through them can benefit a company by shortening the learning curve of new employees, enabling the company to respond to customer needs and inquiries faster and decreasing overlapping work, all of which enhance employee productivity (Ferreira and du Plessis, 2009). Companies can create virtual communities around their products, brands or the company itself. The communities can be used for promoting and communicating company's messages (e.g. product launches) and to promote brand loyalty amongst consumers (Andersen, 2005; Casaló et al., 2008). Companies can also use communities to learn and understand their customers' needs better (Ridings et al., 2002; Kozinets, 2002; Tredinnick, 2006).

Another well-known social media application is virtual environments, also known as virtual worlds. In virtual worlds users can create a virtual identity that, for example, reflects their real life situation or differs from it completely (Kaplan and Haenlein, 2009). Virtual social worlds (e.g. Second Life) and virtual gaming worlds (e.g. World of Warcraft) are mainly thought to be leisure activities. However, they can also provide noteworthy value creation opportunities for companies as well (see e.g. Porta et al., 2008; Kaplan and Haenlein, 2009; Tikkanen et al., 2009).

Using virtual worlds to further company success is not as common as using other social media tools, but it also has noteworthy potential. Kaplan and Haenlein (2009) suggest five ways for companies to use virtual social worlds to enhance their business efforts:

1) Advertising/communication: setting up stores, sponsoring events and advertising in virtual worlds
2) Virtual Product sales: selling virtual versions of real-life products and services
3) Marketing research: conducting surveys and involving users in innovation processes
4) Human resource management: organising recruiting events in virtual worlds to complement real-life recruiting campaigns
5) Internal process management: using virtual worlds as platforms for internal videoconferences and meetings

Virtual worlds also offer an environment for learning and training professionals. For example, management games and simulations (e.g. Simcountry, Perfect Competition) can gain a more realistic dimension using online virtual worlds as a platform (see e.g. Baldissin et al., 2007)

3.2.4 Completing: adding, describing and filtering

A group of social media tools are used to complete content or other tools, for example, by describing information, adding information to the primary content making it more understandable or valuable, showing a connection between contents or filtering information. Examples of tools, their purposes and well-known commercial applications are presented in Table 11.

Table 11. Examples of social media tools for completing.

Tools	Purpose	Examples of commercial applications
Tagging, social bookmarking, syndications, add-ons	Adding metadata, describing content, subscribing updates, combining, serendipity	GoogleReader, Del.ici.ous, Pinterest

Tags are widespread and popular tools used in different social media applications for creating user-generated metadata i.e. information about information (Lee et al., 2009). Tags are words or short phrases that describe the content or association of the actual information or object (Grudin, 2006). For example, a photograph of a football could be tagged as “ball”, “football”, “sport”, “play”, “hobby”, “fun” and so on. Tags are linked to objects without the word itself appearing at all in the object, whereas traditional keywords are usually present in the text they refer to (Grudin, 2006). People use tags mostly for personal information management (Vander Wal, 2005; Grudin, 2006), for

example categorising their holiday photographs according to the place they were taken or who appear in them. However, tags are used increasingly for professional purposes as well (Kipp, 2006), where they are often more closely related to the content and are not as specific to the users (Heckner et al., 2008).

Tagging is not based on hierarchy and allows an object to be classified under several categories simultaneously (Pak et al., 2007). A non-hierarchichal approach does not, however, mean that there is no order: tags can create user-generated classification or a taxonomy, often referred to as a folksonomy (derived from "folk taxonomy") (Vander Wal, 2005). Other related terms are social tagging, social bookmarking or social indexing (see e.g. Tsai et al., 2011). Folksonomy combines the collective wisdom of multiple users, who in a bottom-up manner classify objects without constraints or controlled vocabulary (Tsai et al., 2011). Freedom of choosing the terms in tagging is beneficial as tags can more accurately describe the contents as people perceive them in contrast to vocabulary or categorisation that is determined by an authority in advance. The lack of control also creates potential problems that mainly derive from users' diverse use of terms: synonymy, polysemy and overall lack of consistency in the use of terms can affect the usability of tagging when using it as indexing or searching function (Grudin, 2006; Tsai et al., 2011).

Namely another benefit of tagging is that it may be used as a search interface (Tsai et al., 2011) as it can help to identify or find information (Grudin, 2006). Tags can also be used to describe other objects than merely text on a web page and thus improve user access and finding of these objects, where general search engines (e.g. Google, Bing) can merely tap the page content, query logs or link structures of a web page (Tsai et al., 2011). In some social media tools (e.g. Flickr) navigation and search are mainly driven by user-generated tags (Levy, 2009). In addition, tags can help to show connections between different things thus enabling serendipity.

Tags can also illustrate the weight of issues in the form of tag clouds or word clouds. Clouds illustrate the frequency with which a certain word or tag is used by sizing them according to how many times they occur: the bigger the tag or word, the more it is used. This kind of visualisation, for example, of tags describing the contents of a blog gives the reader an idea of what issues are mainly discussed in the blog. As an example of how a cloud can help to gain understanding of what and object is related to at a glance Figure 9 presents the word cloud generated from Chapter 3.1 of this dissertation.

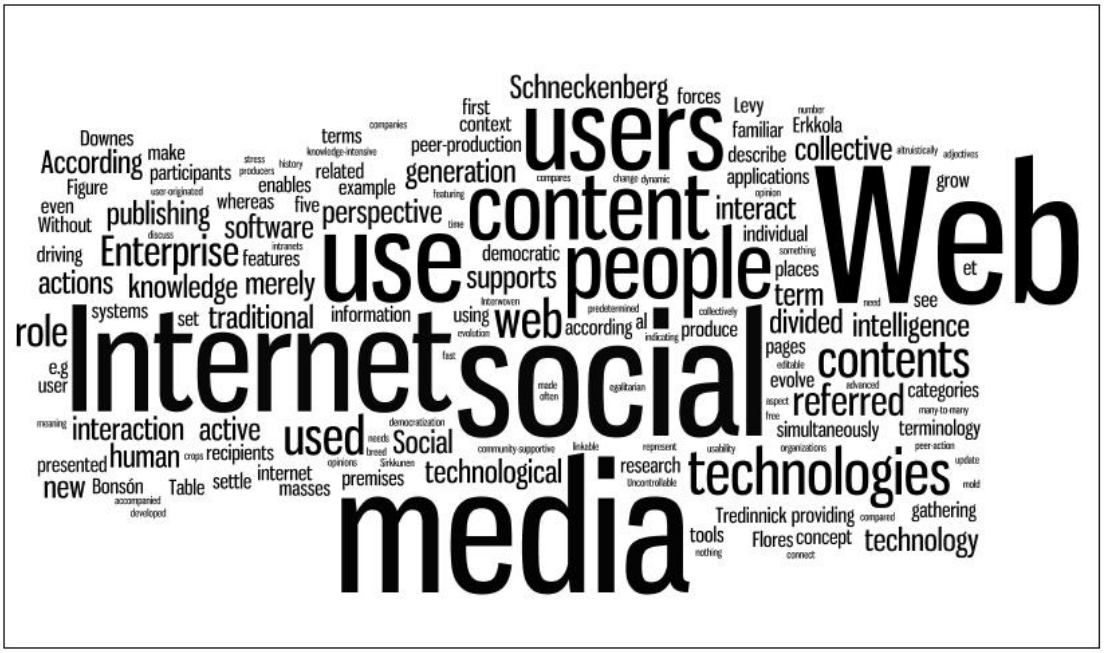


Figure 9. Word cloud generated from Chapter 3.1.

Syndications and feed aggregators are tools that help filtering and following information publishing in the Internet. Syndications, such as Really Simple Syndication (RSS) or ATOM, are ways to "syndicate" content in the Internet using content feeds (Tredinnick, 2006). Most web pages nowadays provide the opportunity to follow changes on the page by subscribing to the page's syndication feed through a feed reader or aggregator. A syndication aggregator or reader provides either the summary or the whole content of the page in a simple format, and a link to the source, thus providing the user with a centralised way of keeping up with updates of the web pages to which he has subscribed RSS feed of (Tredinnick, 2006; Levy, 2009). The reader automatically notifies of new blog entries, changes on a web page etc., whatever the content feed the user has subscribed to. This automates the monitoring of changes and centralises it to one place instead of having to visit pages on continuous basis in order to find out if any changes or updates have occurred.

3.2.5 Combining: mixing and matching tools

Social media tools can usually be combined into versatile entities according to the needs, thus forming a new group of tools, usually referred to as mash-ups or platforms. Examples of tools, their purposes and well-known commercial applications are presented in Table 12.

Table 12. Examples of social media tools for combining.

Tools	Purpose	Examples of commercial applications
Mash-ups, platforms	Combining other tools and technologies according to situation and needs	GoogleMaps

The verb mash-up means to combine different features of tools. The term mash-up again means "a coherent combination of pre-existing web services that allow a certain user within a platform to use another application, in a specific window, without the need to get out of the initial website" (Bonsón and Flores, 2011). That is, choosing the wanted actions and features needed for the specific purpose and combining them into an entity that allows their use in one, centralised place. Many social media tools are in fact mash-ups: for example, Facebook and blogs make it possible to embed videos or photographs from other locations in the web, wikis can provide RSS feeds to keep up with updates on a certain article, GoogleMaps can be used, for example, by real estate agents to geographically pinpoint the listed real estates, and so on.

3.3 Social media in the company context

3.3.1. Why should companies bother with social media?

Companies are facing several challenges derived from megatrends affecting society as a whole. For example, natural disasters, uncertainty of markets, globalisation, labour movement, ageing and the need for security affect almost every company to some extent. As discussed in Chapter 1.1 (p. 3–4), changes derived from the external business environment are occurring faster and may create surprising opportunities or threats to a company. According to Coakes et al. (2008) the key drivers of change (e.g. geographically dispersed working environment and increased volume of available knowledge) create the need for new organisational structures, enhanced collaboration and the technological means to support it. Holtshouse (2010) also emphasises the impact of collaboration by stating that collaborative work and skills will be most highly valued in future. Collaboration is "working together synergalistically" (London, 1995). Shah (2010) contributes by stating that collaboration is people working together for a common goal or solution, it is intentional and interactive and as a result it can produce a result that is more than the sum of the individual inputs. Asking help from someone else is a natural act in situations where one cannot cope alone. Enabling collaboration in a geographically dispersed company calls for technology and tools suitable for supporting it. Social media can provide usable solutions for this, and the tools are increasingly making their way from leisure to business use.

More and more people are accustomed to using social media in leisure activities. They blog about their hobbies, share holiday photographs in Flickr, update their status in Facebook and upload music videos in YouTube. Most of the young people entering job markets today can be called "digital natives", people who have grown up with computers, Internet and mobile phones (Prensky, 2001). For them digital technology is part and parcel of life, not a separate instrument. Hence, it can be argued that they are willing and eager to adopt the use of social media in the work context (see e.g. Schneckenberg, 2009). This view is supported by a survey revealing that professional and work-related blogging is growing and that professional blogging has a positive impact on the career (Technorati, 2009). In addition, Diga and Kelleher (2009) found that practitioners frequently using social networks felt empowered and that information gained from the social networking sites may help them to be promoted.

Companies are more cautious with adopting social media. Social media is acknowledged to have potential in the business context (see e.g. Holtshouse, 2010), but companies do not quite seem to know how to realise that potential (Avanade, 2008), focus on the perceived risks over the potential benefits (Coleman, 2009) or "are waiting for others to validate its use" (Holtshouse, 2010). Marketing and communication departments have been among the first functions at the frontiers of using social media in business, harnessing social media to promote products and reaching to customers and consumers (see e.g. Johnson, 2011; Lehtimäki et al., 2009). Other parts of business could benefit from social media as well. According to Tredinnick (2006) social media may bring benefits especially for companies that operate in a dynamic and fast changing competitive environment and that are knowledge-intensive and highly innovative. To succeed in the future, companies need to adopt new ways of working supporting collaboration and knowledge sharing regardless of geographical dispersion.

3.3.2 The emperor's new clothes: is there anything new in social media?

Using technology to support collaboration and interaction between people is not a new invention, and computer supported cooperative work (CSCW) has been around for a long time (see e.g. Schmidt and Bannon, 1992; McCarthy, 1994). The most common term used for CSCW is groupware, which is a collection of computer software that allows employees to communicate, share knowledge, and co-operate within an organisation (Gunnlaugsdottir, 2003). The most common features of groupware solutions are, for example, email on-line calendars, on-line catalogues of available library materials and desktop videoconferences (Gunnlaugsdottir, 2003). These tools are very familiar and in everyday use in most of today's companies, and even though they promote, for example, communication between employees, they are not very effective in knowledge sharing.

Even though users are encouraged to share their knowledge using groupware in many cases the sharing is somehow controlled, moderated and filtered before publishing.

Often there is a centralised team or personnel coordinating the sharing. Groupware emphasises and calls for standardisation and control: "the system should be based on library and information methodology which has been designed to organise information in any form in a structured and standardised manner" and "the appearance of documents should be standardised" (Gunnlaugsdottir, 2003, p. 375). Therefore, collaborating and sharing knowledge with groupware always needs advance planning and training in using the systems, making them in many cases quite rigid, heavy and time-consuming. This can ultimately lead to employees not using them. For example, Orlikowski (1992) found that Lotus Notes did not gain popularity among consultants as they felt the need for training in system use would be far too cumbersome compared to the perceived usefulness of the system. In the case of social media tools the situation is often quite the opposite: since they are intuitive and easy to use, do not require rigorous training or understanding of technology, and enable direct content publishing and sharing, their adoption rate is high (Schneckenberg, 2009).

Groupware aims to support collaboration and sharing of relevant knowledge, thus enabling employees to perform better. These actions are closely linked to knowledge management as well. Technological knowledge management solutions have been in use in companies for some time now, but they have proven to be resource intensive, counterintuitive and ultimately ineffective (Spanbauer, 2006). The reasons for this may be that they are "implemented in a top-down, highly centralized fashion" and fail to capture and make employees' knowledge visible (Grossman, 2008). In social media tools the sharing is decentralised and run by the individuals themselves: the creation, updating and managing of the content is done by individual users providing it to other users altruistically (Kaplan and Haenlein, 2009).

Knowledge management and social media can be seen to have very similar principles. Both emphasise and rely on active participation of users and collective knowledge. Knowledge management activities focus on the content, and social media must also have relevant content to succeed. In addition, both knowledge management and social media utilise technology as an enabler for users to utilise and benefit from the content instead of the technology being the core or an end in itself. (Levy, 2009)

It is no wonder, then, that when social media is used within a company it is often focused on knowledge management (Spanbauer, 2006). According to Levy (2009) the features of many social media tools originate from knowledge management tools, but where knowledge management tools are seen as heavy, cumbersome and rigid, social media tools are easier to use intuitively, easy to customise and often cost-effective or even free (Levy, 2009; Razmerita et al., 2009). In comparison to traditional knowledge management tools, social media tools focus on facilitating collaboration and supporting bottom-up knowledge sharing instead of capturing knowledge in a controlled top-down manner (Grossman, 2008; Razmerita et al., 2009). In other words, social media tools follow personalisation strategy rather than codification strategy in knowledge

management (see Chapter 2.6.2, p. 51–53). Schneckenberg (2009) states that social media tools can change the way of communicating as well as individuals' roles within a company by empowering the employees and lateralising the organisational structures and decision-making.

Otala and Pöysti (2008) list the benefits of social media tools to be, among others, enhancing internal communication, developing of open and interactive organisational culture, more efficient document management, fostering innovation and attracting young talents to the organisation. Razmerita et al. (2009) continue that the benefits achieved can be greater and obtained at lower costs than when using traditional knowledge management tools.

Social media tools enable actions that have not previously been possible in companies on a large scale, for example, harnessing crowds to contribute to achieving company goals in from bottom-up. Crowds are a form of collective intelligence that can be used to solve problems (Wexler, 2011). The so called wisdom of crowds (Surowiecki, 2005) is based on the assumption that "large groups of people are smarter than the elite few" and that solving problems, innovating and predicting the future is best done by a group of people than by individuals (Surowiecki, 2005). Asking crowds to contribute to solve a problem or evince ideas (Wexler, 2011) is called crowdsourcing (Howe, 2006) and can be a powerful tool in product development or even in finding a new strategic direction for a company by embracing the opinions of customers with open dialogue (an approach used by such large companies as Dell and Starbucks).

Using social media tools within a company empowers the employees transforming them from passive objects into active subjects contributing to the company's actions. In the words of the CIO of Nokia John Clarke, "The employee becomes the ears, eyes and voice of the organisation" (Clarke, 2009).

3.3.3 No free lunches: balancing between benefits and risks

Every medal has two sides to it, and some of the benefits of using social media tools simultaneously create risks for a company. Lietsala (2006) has listed some common risks related to social media:

- Immediate publication equals immediate copying: social media does not forgive mistakes, even if corrected in mere seconds
- Uncontrollable publicity: what is posted in the Internet stays in the Internet
- Copyright violations: even if it is free to share, it may not be free to use
- Bullying, defamation: basic courtesy and kindness go for social media as well
- Empty crowd: building a community or wiki is not enough; if it is not used it has no value

- Uncontrollability: it is impossible to control and be aware of everything at all times
- Anticampaigns and strikebacks: hostile reactions, for example, to marketing campaigns may create unwanted publicity and harm the company reputation.

All the aforementioned are relevant and noteworthy risks in the company context. The viewpoint of information security, and especially knowledge security (see e.g. Desouza, 2007), is emphasised in many of the risks. The realisation of the risks depends heavily on human actions: how they behave when using social media and how they treat knowledge. Social media enables not only beneficial opportunities for a company but can also act as an effective tool to cause harm, whether intentional or unintentional. In the competitive intelligence context the risks can be realised, for example, by employees sharing or leaking competitive knowledge to outsiders. In addition, social media can also create additional challenges for finding knowledge: as it enables more versatile and often easier ways to share knowledge than traditional information systems, the risk of information overload cannot be overlooked.

Another noticeable risk is the failure to successfully implementing social media tools within a company. If effort and resources are invested, for example, in a social media platform intended to enhance the sharing of employees' competitive knowledge, but the tool is never used and does not gain popularity among the employees, it may be counterproductive. Not only losing the money and time invested, but it can also backfire by diminishing the employees' willingness to share competitive knowledge by any technological means that may be proposed by the company in the future.

Schneckenberg (2009) names the biggest threats to the successful implementation of social media tools in companies as internal struggles for power, top-down control over decision-making and centralised allocation of resources. Levy (2009), McAfee (2006) and Grossman (2008) agree and state that managers may fear losing control. Fear of losing control may in some cases relate to companies having doubts about how their employees would behave if given the opportunity to use social media tools in the work setting. The doubts are justified, as the online practices and habits of using social media during leisure affects how they are used in the work context (Rudman and Steenkamp, 2009). There have been several cases where an employee's behaviour in social media has led to dismissals (see e.g. Simonetti, 2004; Ostrow, 2009: STT, 2011). In most of these cases the reason has been that the employee has somehow deformed the employer or done harm to its image when using their private social media accounts. The debate persists as to the employer's power to restrict the employees' conduct in their free time.

Nevertheless, there is still lack of understanding of the power of social media. It may seem trivial to post some random comment about the employer as a Facebook status visible only to friends, but as it can be copied and sent further in no time, the message can quickly be shared with thousands and millions of people. The affects of employee

conduct become more severe in cases where an employee is responsible for acting in the name of the whole company, for example being the one to author and control the company's Twitter account. A well-known example of things going wrong is the case of Vodafone, where a customer service employee broadcast an obscene message on the company's official Twitter account (Wrey and Arthur, 2010). Clear guidelines and etiquette of how to use social media in the business context can decrease such risks to some extent, although the risk is always present where people are involved.

Another common barrier to adopting social media tools is that companies may worry about the loss of productivity if some of the working time is spent using social media tools. For example, Razmerita et al. (2009) note that blogging can take a lot of the employees' time and lead to loss of productivity, and Wyld (2008) states boldly that "Blogging means less time working". Such statements, however, only depict the rather old fashioned attitude towards what working is. Namely, if publishing, reading and commenting company's blogs is done to share and create knowledge, is it not then an essential part of one's job? In many cases regarding intangible work or developing business the instant return on investments or other tangible benefits cannot be easily calculated, but benefits and value can often be perceived and assessed intuitively and indirectly. The same argument of diminishing productivity and spending less time working was said about phones a few decades ago, and even recently about email: they were at first seen as management's prerogative, as regular rank and file employees were thought to spend more time on the phone and less time doing their jobs. Considering these technological advances as enabling more effective and efficient work was perceived only over time, and today they are an inseparable part of many people's everyday work.

Therefore there is a need for a change in the way work is seen: social media tools are not an isolated set of technology, but useful tools helping people to perform better in their jobs. Just as telephones and email have enhanced communication and reduced the time to do tasks, social media tools should be considered for what they are and can be: not as a threat to productivity nor a magic wand, but tools that can help a company perform better when used appropriately.

3.4 Chapter Summary

Internet has developed from controlled, one-way communications and stable web pages into a more interactive and dynamic platform, where anyone can create and use content. The change is enabled by a set of various technologies that facilitate a new kind of Internet use, and referred to by the umbrella term Web 2.0. When these Web 2.0 technologies are used by people, the setting is called social media. Social media is the combination of users interacting with each other by producing and using relevant content with the help of agile and usable Web 2.0 technologies.

Several social media tools based on Web 2.0 technologies are available for different purposes. The tools can be categorised by the actions they enable; the 5Cs. Communicating tools enable publishing and sharing content and include tools such as blogs, discussion forums and microblogging. Collective content creation is made possible with collaborating tools, for example wikis and shared workspaces. Connecting tools help people to network with each other via social networking sites or to form communities around areas of shared interests. Some social media tools are designed for completing contents. For example, tagging and social bookmarking enable adding metadata and describing contents, and syndications help filter and follow information in the Internet. Different social media tools can also be mixed and matched together in order to create synergy. These combining tools are platforms and mash-ups that embed other tools and functionalities according to the purpose.

In the company context social media can offer several potential business benefits. Challenges posed, for example, by a geographically dispersed working environment and increased volume of available knowledge require companies to seek more efficient ways of collaborating and managing information. As social media provides versatile ways to communicate and share information regardless of location, it has potential in business use as well. In addition, social media is becoming an integral part of young professionals' everyday lives, and there may be pressure from them to be able to utilise social media to enhance their work performance as well. Despite this, companies have not so far been able to fully realise the potential of social media. They are maybe waiting to see successful business cases, are suspicious of the potential risk it may entail, or suspect that there is only little new in it in the first place.

Technological solutions intended to support collaboration have been available since before the rise of social media. Groupware, such as video conferences, email and on-line materials, are much used by companies today. However, even though groupware has succeeded in making communication more efficient and time saving, it has not proven to be very successful in all respects. The perceived usefulness of the tools is often rather low compared to the training needed to use them efficiently. In addition, the tools have been criticised for being rigid and heavy to use, and in many cases rather expensive to purchase and maintain.

Social media on the other hand is based on the premise that the tools are intuitive and easy to use, and that they enable multiple ways of instant publishing and content sharing. As social media and knowledge management can be seen to have very similar principles, it would be natural to assume that harnessing social media for knowledge management purposes would be advantageous in companies. By enabling functions such as crowdsourcing social media can enhance employee participation and let their knowledge to better benefit the company's pursuit of its goals.

It should also be noted that adopting social media for business use carries risks as well. Perceived risks are related, for example, to information security, uncontrollability or violating of company brand and image. In internal use, the biggest risk is that there are not enough active users, which ultimately leads to an inefficient and useless tool. Companies' reluctance to adopt social media tools often derives from a lack of understanding of social media in general and its potential in the business context. Social media appears to them as hype that has no business value and would only decrease productivity if employees used their working time for blogging or networking. Companies need to understand, that social media is ultimately just a tool and enabler, just like cell phones, email and Internet: when used for the right purposes, it may enhance the company's operations and bring value to the business.

4 THEORETICAL FRAMEWORK: SOCIAL MEDIA IN THE COMPETITIVE INTELLIGENCE CONTEXT

This chapter summarises the theoretical framework of the dissertation, that is, it discusses social media in the competitive intelligence context. First, the effects of social media on competitive intelligence are discussed. Then the traditional competitive intelligence process is compared to that using social media in the light of the implications of the theory. Finally, the motivational factors and barriers related to employees' use of social media in competitive knowledge sharing are contemplated. The chapter draws upon the previous theoretical chapters of the dissertation and lays the foundation for the empirical analysis.

4.1 Social media affecting the information environment

The globalisation of companies' markets and locations requires broadening the scope of information scanning (Tan Tsu Wee, 2001; Blenkhorn and Fleisher, 2005) and emphasises the need to enable collaboration regardless of spatial and temporal limitations (Coakes et al., 2008; Holthouse, 2010). As discussed in Chapter 3, social media offers potential for companies to deal with these challenges, but it also poses additional challenges of its own. In the competitive intelligence context the opportunities and challenges are related to the fact that social media changes the information environment, the kind of information is available, the speed at which information travels and causes changes, and the means to manage and exploit information. As the objective of competitive intelligence is to provide competitive knowledge to support decision-making in companies the features of the information environment significantly affect its operations.

Today more and more information is available in digital form, and it is also more versatile than before. In the Web 1.0 era digitalised information relevant to competitive intelligence was usually in the form of competitors' web pages or market reports that could be sent as an email attachment (Schneckenberg, 2009). Social media has changed the situation by giving individual Internet users free authorship and publishing rights, enabling anyone to share information through blogs, discussion forums and social networking sites (see e.g. Bonsón and Flores, 2011). For competitive intelligence this provides more opportunities to gather interesting information and identify possible knowledge sources. The informal conversations that once could be tapped into only by placing a microphone in the flower arrangement in a café are now available online. They are digitally published and stored and can be searched and found. Companies now have the opportunity for easier and faster access to customer opinions, rumours and weak signals and to acquire all kinds of informal information to guide their decisions.

Again, even though the amount of information is increasing and becoming more versatile, the share of actually useful and relevant information diminishes. In addition, the ability to find the right information as well as the reliability of information poses challenges for competitive intelligence: as social media gives authorship to anyone and nullifies pre-censorship (see e.g. McAfee, 2006), the information sharing cannot be controlled in the same way as before, also making the verification of information challenging (Tredinnick, 2006). At the same time, social media provides access to multiple sources, which on the other hand can help to assess the reliability of information. Ease of publishing creates the opportunity to make information available to the whole world with just one click, and it is forwarded and republished just as quickly. Thus, information can be available in real-time as the changes occur. Consequently, the actions and reactions to information may also occur faster than before. This sets requirements for the companies to react faster, affecting the expected lead-time of competitive intelligence: information is wanted and needed faster than before.

The availability and fast spreading of information create pressure for companies to be present at more places and monitoring even more information sources than before: Companies need to be on the pulse of their surroundings. Luckily, social media also provides competitive intelligence some means to follow and benefit from the changing information environment. As already noted in Chapter 1.2.2 (p. 11–12), a company can use social media to facilitate different kinds of information flows:

1) From external environment to the organisation (e.g. using RSS technology to automate scanning of the Internet or extracting information from social media sites)
2) From organisation to the external environment (e.g. using social media as a channel for marketing and communications, or to promote company brand and image).
3) Inter-organisational (e.g. a joint product development wiki between a company and its suppliers)
4) Intra-organisational (e.g. an internal platform utilising technologies enabling a more social technology-supported interaction within the company)

Of these four the first and the last are the most relevant for competitive intelligence purposes, even though a company can use the second approach to affect the information environment (e.g. spreading disinformation in the name of counterintelligence). Namely, social media tools can advance information source identification and information gathering from the company's external business environment. However, without an effective way to process or disseminate that knowledge within the company, the end result may be information overload (Wilson, 2001), or at least information that is not used to its full potential. Therefore, harnessing social media to share the captured information and knowledge acquired throughout the company is as imperative as capturing the information in the first place. The other essential approach in the competitive intelligence context focuses specifically on this, that is, using social media

as a means to share knowledge within the company and as an enabler of collaborative competitive intelligence throughout the company, thus facilitating employees to better share their competitive knowledge.

4.2 Using social media for knowledge sharing changes the competitive intelligence process

Based on the elements of social media and the activities of competitive intelligence described in theory it can be said that using social media in competitive intelligence enables actions that can empower more people to participate in the process in a more informal manner. Social media facilitates a collaborative setting that enables carrying out the competitive intelligence process as a joint venture. This drives the evolution of the competitive intelligence process in many ways. As noted in Chapter 2.4 (p. 39–43), the implementation of competitive intelligence depends on several factors depending on the situation and company in question, and therefore it is arguable whether the theoretical process model even exists as such in practice. Therefore it should be noted that the competitive intelligence process under discussion refers to the theoretical model, its practical applications of which may vary considerably and hence the theoretical contemplations may not be applicable to them as such.

Based on theory it can be argued that the collaborative setting affects the competitive intelligence process in terms of:

- structure,
- valuing knowledge,
- knowledge management strategies,
- implementation, and
- employees' roles.

The following subsections compare and discuss the traditional competitive intelligence process and one using social media from these perspectives.

Structure: cyclic consecutive phases vs. swirling

The traditional general competitive intelligence process model consists of several consecutive and sometimes overlapping phases, as illustrated in Figure 7 (Chapter 2.3, p. 33). The process is based on the premise that a certain actor gathers information, then the information is analysed and combined with other information and knowledge, delivered to users and utilised in decision-making. The process is usually depicted as a cycle: using the information generated in the process often elicits new information needs, and this starts the cycle all over again. The process is based on a certain predeterminism, that is, predefined information or knowledge needs determine the outcome.

In the case of using social media to facilitate competitive knowledge sharing, the competitive intelligence process is not as clearly defined nor can it be described to be the same every time since actors may vary or their input may differ. For example, McKelvie et al., (2007) and Luoma and Okkonen (2009) underline the possibility of swift adaptation of new practices, possibly more ad hoc based operations. The process can be defined as obscure and ubiquitous: obscure because of a high level of variation, ubiquitous because there are several (sub)processes within it. Competitive intelligence process enabled by social media tools can be described as multiple swirls symbolising continuous and simultaneous produsage and interplay, as depicted in Figure 10.

Figure 10. Social media enabled competitive intelligence process can be described as a set of multiple, simultaneous swirls.

The idea of such a mode of operation can be explained, for example, by collaborative argumentation (Brown and Renshaw, 2000) or sense making in business strategy (Kurz and Snowdem, 2003). When discussing social media in the competitive intelligence context this can be seen as produsage, that is, simultaneous content producing and using (see e.g. Bruns, 2006; Grudin, 2006; Luoma and Okkonen, 2009).

Valuing knowledge: end-product vs. the refining process itself

The traditional competitive intelligence process often lacks the interplay between information users and idealises the outcome as a complete and concise analysis. It aims to create a consensus or "the one and only absolute truth" in the form of a report or other information product that the whole company should base their decisions on. Namely, as competitive intelligence personnel have to disseminate the majority of the knowledge and analysis in explicit form (e.g. reports, memos, emails) they must often limit the message and have to choose which side of the story they will tell. Therefore, the information presented in the analyses and reports is a selection of what is available, chosen based on some predetermined logic or criteria.

The competitive intelligence process in a collaborative setting (i.e. using social media) plays, quite the contrary, by the rules of human – fuzzier – logic, which may contain many different truths depending on the context or people involved. It can be seen as an attribute of shared understanding as actors have third order social capital as defined by Nahapiet and Ghoshal (1998) or McElroy (2002), as common understanding on the goal or goals. Another advantage of this fuzzy logic and visibility of the process is enabling the swift testing of emerging ideas and weak signals. Instead of presenting a fully-fledged outcome of an individual thinking process that is no longer open to suggestions or modifications a budding idea or a weak signal can be introduced to others as it arises, in the early stage. This provides the opportunity to collaboratively develop and refine the idea to fruition or interpret and anticipate the possible outcome of the weak signal.

The competitive intelligence process model can be argued to understate that in addition to the output (i.e. accumulated knowledge, report) the "journey" (i.e. the process) itself has value. Reverting one step in the loop, it is an issue of experiencing and learning. The effect is twofold, as the participants in the process (i.e. produsagers, cf. verb produsage) are simultaneously information sources, analysts and even users, and thus their insight grows and is taken into account in the decision-making. On the other hand, the process is also an issue of learning. Not learning in the traditional form of "information to knowledge in a classroom" sense, but more in the sense of constructing true outlook on the issue. The journey can be seen as a form of collective argumentation or problem based learning.

Moreover, face to face, ad hoc or using a traditional collaborative tool (e.g. groupware), does not produce a clear structure and does not give explanations to others than to those participating, for example, in the email thread on how the end product has been formed. One cannot foresee the primary data or why people have decided a certain route ending to the end product. In addition, the unpredictable events during the process force more options to be kept open. Using, for example, a collaborative social media platform that provides commenting and tagging and shows version history the understanding of how the end product (e.g. market report, decision based on the information) has been created is more multifaceted and also allows other interpretations. One enabler of effective collaboration is the asynchronous nature of social media tools, and value is also added by the higher degree of freedom from chronological and spatial restraints. Due to the visibility of the process the produsagers do not have to be at the same place or online at the same time.

Knowledge management strategies: codification vs. personalisation

One can also compare the traditional competitive intelligence process and collaborative, social media based competitive intelligence process by considering them through different knowledge management strategies. The traditional process can be said to follow the logic that information (which is defined beforehand) is collected and stored

in databases or information systems, in a predefined form, and that it will produce a certain outcome (e.g. a report in explicit form). This is especially the case when authorised competitive intelligence personnel has the responsibility for the process and aims to serve the needs of many users at the same time. The process utilises information systems as storage places and means to deliver information, and consequently has an analogy to codification strategy (e.g. Hansen et al., 1999).

A social media based process, on the other hand, is bound to the individuals participating in the process (Tredinnick, 2006; Downes, 2007; Hintikka, 2007). Their knowledge, insight and information needs as well as the point in time the process takes place affect the outcome (actually make the outcome) and introduces a tacit aspect into the process. The role of social media is to connect people with each other and enable the sharing of knowledge possessed by them, hence following the personalisation strategy (e.g. Hansen et al., 1999; Wyatt, 2001). Still, some social media tools support the codification of knowledge and act as knowledge repositories: for example, blogs and wikis can contain a lot of codified knowledge that can be accessed and retrieved. However, compared to most traditional information systems, they also provide opportunities for users to interact with each other by commenting and discussing in direct connection to the actual blog post or wiki page.

Therefore the distinction between the two processes and knowledge management strategies is not clear-cut, as both contain elements of codification and personalisation strategies. However, it can be argued that the social media enabled process supports the personalisation strategy better, as the tools and technology enable more versatile and usable ways of user interaction.

Implementation

Social media provides a new way of doing competitive intelligence. It emphasises the value and significance of human input in the competitive intelligence process over information systems and engages employees in the process. Using technological solutions for information management in companies is nothing new. Information systems for this purpose have been available for decades, but it is also noted that the mere existence of information and information systems is not enough. In order to derive value from information and information systems there is a need for a fuzzy, non-binary element, that is, the human factor (Alavi and Leidner, 2001; Boddy et al., 2005). Social media applications enable employees to participate in collaboration and contributing to intra-organisational processes in a more informal manner (Wagner and Bolloju, 2005; Schneckenberg, 2009). This makes it possible to share and discuss insights in addition to factual information. In addition Schneckenberg (2009) points out a shift in organisational configuration from hierarchical pyramid shape to lateral pancake shape.

Social media can enhance the implementation of competitive intelligence operations regardless of how the operations are organised in a company. For example, if there is a competitive intelligence unit or suchlike authorised personnel responsible for the company's competitive intelligence process, the focus can be on how their work can be made more efficient with the use of social media. Again, social media can be used as a means to share knowledge within the company and as an enabler of collaborative competitive intelligence throughout the company. Here competitive intelligence is seen as a united effort of the whole organisation: social media is considered as a way to empower employees and get them to participate in the competitive intelligence process as information sources, analysers and users.

Employees' roles: authorised personnel vs. employee collaboration

In the traditional competitive intelligence process models the lack of interaction sets limitations to knowledge sharing. Often the most valuable competitive knowledge or the best refiners of such knowledge are the company's employees (Fuld, 1991; Collins, 1997; Fleisher, 2001). However, often the execution of the competitive intelligence process is only authorised to specific personnel. In the traditional competitive intelligence process the competitive intelligence personnel (i.e. analysts) gather data and information from different sources, filter and combine them into reports and deliver them to the users. Authorising competitive intelligence personnel to carry out a well defined process can be justified by cost efficiency: it enables employees to focus on their core duties instead of having to satisfy their information needs individually and also eliminates overlapping information acquisitions by centralising, for example, the purchase of consultant reports.

However, the reports and other analyses made by competitive intelligence personnel are often designed to satisfy the needs of so many people that the reports have to be kept to a very general level. Having to compromise on the depth of the knowledge in order to serve as many as possible with the same report decreases the value of the knowledge, and can lead to results that are irrelevant to most in the company (Pirttilä, 1998). It is therefore no surprise that often the users find their own information sources and analyses better than those provided by the competitive intelligence personnel. Subsequently the users are also valuable sources of knowledge and it would be advantageous to have their knowledge more widely at the company's disposal.

Figure 11 illustrates how theoretical discussion suggests the traditional competitive intelligence process to work in a company that has organised the operations by authorising competitive intelligence personnel to execute the process. Figure 11 contributes to answering research questions 1 and 2[3] based on the literature. Theoretical research indicates that this is the operation mode of the traditional competitive

[3] RQ1: What is the current implementation of the competitive intelligence process in companies?
RQ2: How is employees' competitive knowledge currently utilised in companies?

intelligence process, but the empirical results from the competitive intelligence study will describe the practical, real-life situation and reveal whether it will support this theoretical perception.

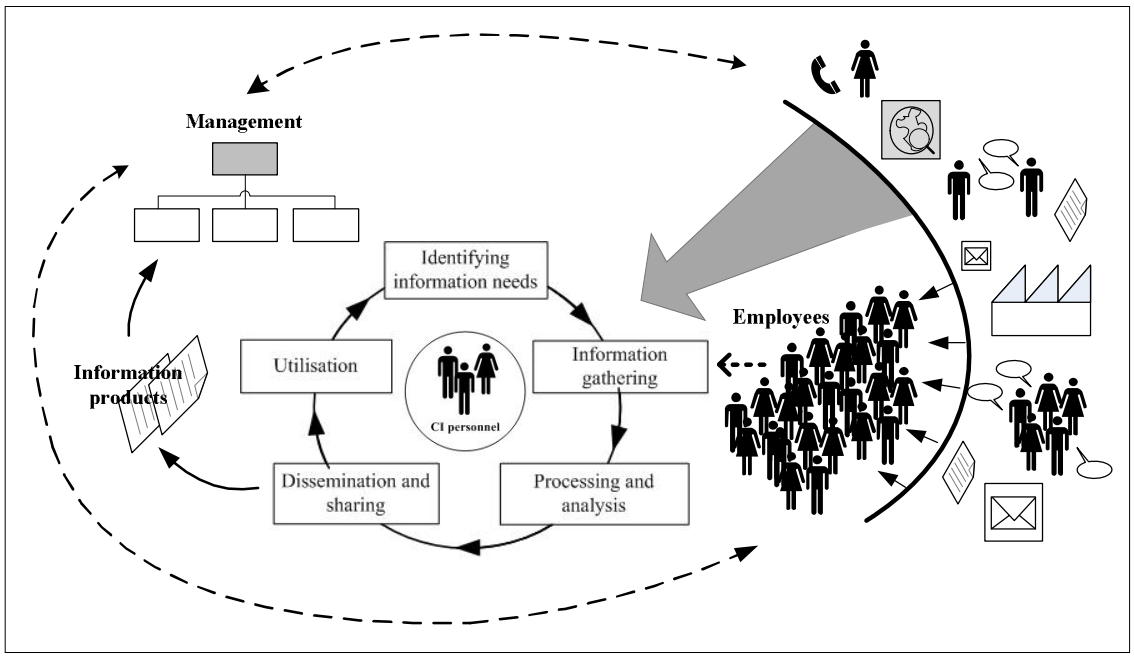


Figure 11. Modus operandi of a traditional competitive intelligence process.

The input for the process comes mainly from external sources and is gathered by the competitive intelligence personnel. Even though employees also obtain competitive knowledge from the external environment, they are not consistently used as sources for the process. The competitive intelligence personnel process the information into information products which are then delivered to management. Management also use their own external information sources, but these are mainly for individual use only. The interaction and competitive knowledge sharing between management and employees is rather coincidental than continuous.

Figure 12, again based on theoretical implications, illustrates the operation mode of a competitive intelligence process that utilises social media for both information gathering from the external business environment and for sharing competitive knowledge within the company.

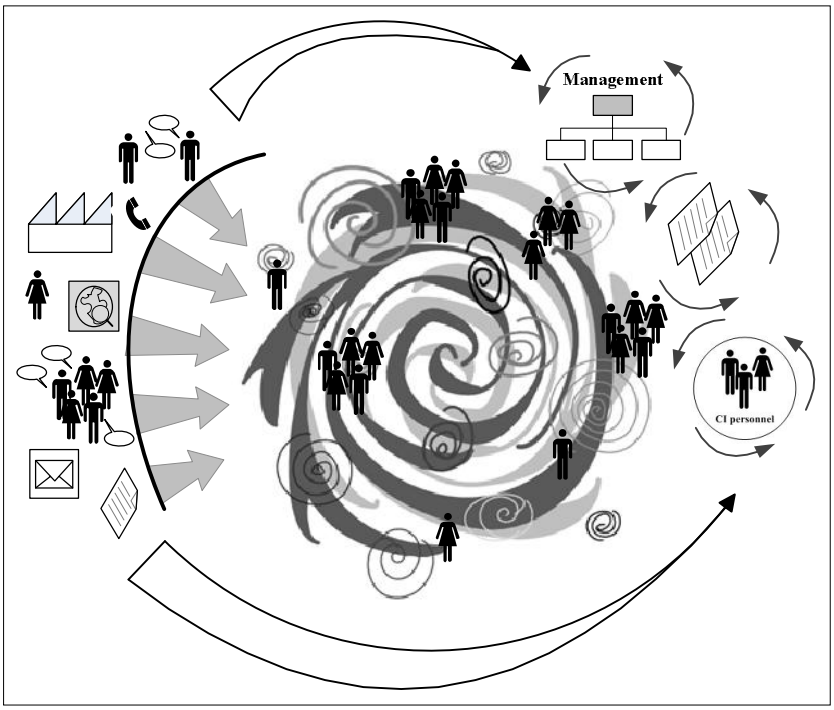


Figure 12. Modus operandi of competitive intelligence process that utilises social media.

Utilising social media as an external source of competitive intelligence provides versatile information and with the help of social media tools information gathering from the external business environment can be made more efficient. This goes for both competitive intelligence personnel and for management and other employees. Exploiting social media for competitive knowledge sharing, processing and analysing within the company empowers and involves employees to execute the competitive intelligence process. Competitive intelligence personnel can benefit from the competitive knowledge shared with social media tools and use them to enrich the information products. Management can also be present and participate in the social media environment or otherwise gain the most relevant knowledge acquired from there in the form of improved information products. Information products can also be made more readily available to the employees, who in turn can accumulate their competitive knowledge.

A collaborative setting enables the sharing of different insights on a current topic, and therefore adds value to the outcome. Sharing and combining mutual insights as well as discussion on conflicting insights helps to form a more multifaceted and accurate understanding of issues, yet one should admit that in this sense "truth" is a very relative concept. Truth, unless scientifically tested, is always relative. The point is to also take into account issues that are not sure and verified. Then the decision is at least based on a more multifaceted understanding than it would be if using only information from a static database, where often only one viewpoint is presented without elaborating explanations or background information. Utilising collaborative tools also enriches

information, as it can contain elements that are not predestined as in common business information systems.

Using social media applications to enhance employee participation and collaboration in the competitive intelligence process generates collaborative argumentation. Collaborative argumentation and sense making through social media applications takes competitive intelligence to a new level, turning it into collective competitive intelligence. On the other hand, empowering employees to use social media to share knowledge within the company may increase the information security risks (Rudman, 2010). For example, an intra-organisational social media platform for sharing competitive knowledge is a potential information source for competitors, from which information could be leaked by accident or on purpose or it could be attacked in an unethical manner (i.e. hacking, espionage). The security risks exist and are noteworthy, but will not be further discussed in this dissertation. After all, the security perspective is pointless if the most critical risk of adopting social media for knowledge sharing occurs: failure in user participation (Tredinnick, 2006) nullifies knowledge sharing and related benefits and risks. Namely, however great the potential of social media in competitive knowledge sharing is perceived to be, the potential will be realised only if social media is used by the employees.

These potential benefits of integrating social media into competitive intelligence are based on theoretical research. Whether it can work accordingly in practice is explored through empirical research. The main challenges of realising the potential seem to be related to the factors that motivate the employees to use social media for competitive knowledge and the barriers that discourage them from doing so.

4.3 Motivating factors and barriers to using social media tools in competitive knowledge sharing

In order to successfully adopt and use social media in sharing employees' competitive knowledge, a company must understand what motivates and what discourages the employees to share their knowledge this way. The motivational factors need to be enhanced and fostered, and simultaneously the barriers of use should be minimised in order to encourage employees to participate.

Participating and sharing knowledge using intra-organisational social media tools can create communities (Razmerita et al., 2009). Jeon et al. (2011) studied communities-of-practice and found that even though both extrinsic and intrinsic motivational factors have a positive effect on knowledge sharing attitudes, the intrinsic factors (e.g. enjoyment in helping others and need for affiliation) are more significant. In addition to an individual's own motivation, Zhou (2011) finds that the participation is also influenced by social processes and interaction: the actions of other users, their

motivation and how they perceive the usefulness of the community affect user participation in general. In all, the user participation in communities (e.g. consisting of the users of an intra-organisational social media platform) is influenced by perceived usefulness, commitment (Bateman et al., 2010), trust (Gefen et al., 2003), self-efficacy and outcome expectation (Bandura, 1986). All these affect the motivational factors in one way or another.

The presence of barriers that keep employees from actively using social media for knowledge sharing greatly affect the usefulness and success of the system. Hew and Hara (2007b) found eight specific barriers impeding knowledge sharing in online environments:

- No additional knowledge to add
- Unfamiliarity with subject
- Perceived inability to utilise knowledge
- Lack of time
- Technology
- Attitude
- Confidentiality considerations
- Not wanting to cause a fight

First, users do not share their knowledge if it does not hold any novelty value: they do not want to be repetitive or redundant. Second, if they are not familiar enough with the subject, they do not feel that they should share the little they know about the issue. In relation to this, if users do not consider the knowledge shared by others useful, they will not reciprocally contribute their own knowledge, either. Fourth, lack of time keeps users from contributing their knowledge. Another barrier is the perceived low usability or suitability of the technology used for knowledge sharing. In addition, overall negative attitude in a person affects his willingness to contribute, as do possible confidentiality considerations: copyright materials or classified information is not something that is easily shared online. Finally, users want to avoid conflicts that knowledge sharing might create: they do not want to cause a fight or irritate others by sharing their own ideas or comments. (Hew and Hara, 2007b)

Paroutis and Al-Saleh (2009) find that factors affecting willingness to use social media for intra-organisational knowledge sharing are related to old habits of doing things, expected benefits and rewards, perceived support from the organisation and management and trust issues. They (ibid.) studied employees' willingness to use and contribute to an intra-organisational social media platform by studying a company's employees who already used the platform (users) and employees who so far did not use the platform (non-users). The motivational factors and barriers for both groups are presented in Table 13.

Table 13. Motivational factors and barriers to using an intra-organisational social media platform for knowledge sharing (Paroutis and Al Saleh, 2009).

	Motivational factors	Barriers
Users	- Effective communication (ease of use, speed and reach) - Managing personal knowledge - Generating discussion about new concepts and ideas - Finding answers to particular problems - Staying informed about the latest news and activities of fellow colleagues - Expanding one's social network - Building a level of credibility - Satisfaction in helping others - Passion for certain topics and one's area of practice	- Lack of reciprocity - Lack of support and recognition from the organisation - Information overload - Lack of trust (in quality or accuracy of information; for reciprocity; for getting help from others) - Fear of publishing something confidential
Non-users	- Having one's contributions recognised - General support and endorsement of management for Web 2.0	- Takes too much time - Lack of knowledge regarding the tools - Unawareness or cynicism of value that the use could provide - Perceptions of risks - Effectiveness and convenience of using existing tools - Lack of organisational or management support - Fear of violating company policy

The factors affecting non-users are especially important for companies planning to adopt social media for knowledge sharing purposes. This is because in a way all the company's employees are at first non-users of that particular social media tool, even though they may have some experience of using social media in other contexts. Therefore, paying attention to removing the barriers and fostering the motivating factors of the non-users is important.

As Table 13 reveals, many of the barriers of non-users actually are disproved or turned upside down as their reflections, since the users call them motivational factors. For example, non-users are not willing to use a social media platform for knowledge sharing since they believe it will take too much time compared to the value it would yield. By contrast, the users describe the ease and speed of using the platform and several

valuable benefits it provides as motivating factors. The users do not see the tools or technology as barriers, whereas non-users do not find the new technologies and tools appealing. This may be a reflection of earlier experiences of having to go through heavy and cumbersome training in order to use some information systems, and thus the first impression may be "oh no, yet another information system I have to learn to use!"

In order to successfully roll-out and adopt a new technology for employees' use, the effort of learning to use it and using it should not exceed the gains. According to the Technology Acceptance Model (TAM) the two key factors affecting information technology acceptance are perceived usefulness and perceived ease of use (Davis, 1989). Motivation to use technology can also be a matter of affordance, that is, those features of a system that enable or restrict its use (Hartson, 2003). According to Bower (2008) the expected utility (i.e. the action potentials of the technology) of using a tool, in this case a social media platform, causes affordance and leads to motivation to use it and eventually to knowledge sharing motivation.

4.4 Chapter summary

The theoretical framework of the dissertation is presented in the top section of Figure 13, which illustrates the overall connection of the research questions to the theoretical and empirical parts of this dissertation.

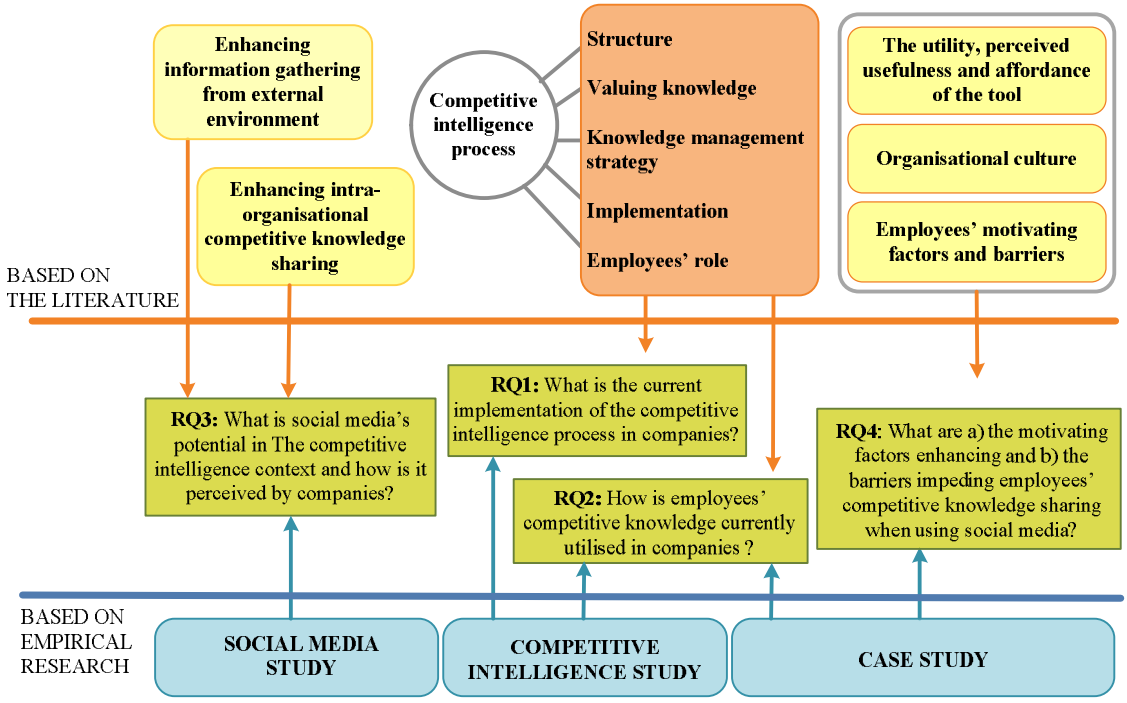


Figure 13. Theoretical framework and the connection of the research questions to the theoretical and empirical parts.

According to the theory, the potential of social media in competitive intelligence context seems to be twofold. First, it can enhance information gathering from the external environment of a company. Second, social media provides opportunities to better share competitive knowledge within a company. The social media study provides input from the empirical perspective and adds knowledge of how the potential is seen and used in companies.

The current operating mode of competitive intelligence in companies is dependent on the company in question, even though a general theoretical process model can be found on the basis of the literature. The competitive intelligence study of this dissertation will further clarify the situation in companies, and whether it is consonant with the conception that can be formed on the basis of the theory. The theoretical discussion suggests that using social media changes the competitive intelligence process. The differences between the traditional process model and that enabled by social media use are related to the structure of the process, how knowledge is seen and valued, what knowledge management strategy the process follows, the way the process is implemented, and the employees' role in the process. Currently the role of the employees seems to be, in addition to being the users of competitive knowledge, that of an occasional source of knowledge that is utilised insufficiently, or a rather passive recipient of information products. In a social media enabled competitive intelligence process the role is shifted to a more active participant shaping the collaborative understanding by contributing his own knowledge to the process.

Factors that affect the use, and consequently the success, of social media in knowledge sharing can be summed up from the literature. These are all related to the employees' perceptions and attitudes. The utility, perceived usefulness and affordance of the social media tools in question are directly linked to the technological implementation of the tool. Organisational culture on the other hand is something more abstract and more difficult to influence, although it has a great impact on the attitudes of employees to knowledge sharing and how it is done. Finally, the factors motivating employees to use social media for sharing their competitive knowledge together with the barriers that keep them from doing so are more subjective and personal. Prior research also suggests that they are dependent on the person's familiarity with using the tool. These factors are further examined empirically in the case study, which will provide more detailed answers from the employees' perspective.

PART III: EMPIRICAL STUDY

5 DATA AND METHODS

The empirical research data consists of the data produced by three studies that are complementary to each other. The studies have been named after the subject they focus on: competitive intelligence study, social media study, and two case studies. Table 14 contains the basic information on the empirical research data.

Table 14. Summary of the empirical research data of the dissertation.

Data set	Data collected	Research object	Contribution to the research
Competitive intelligence study	3–4/2009	Large companies	Understanding the current implementation and situation of competitive intelligence process
Social media study	11/2009–3/2010	Adopting companies	Understanding the companies' perception of social media's potential
		Experts	Gaining multiple perspectives and gaining better understanding on social media
		Service providers	
	2–5/2010	Social media benchmarking forum	Understanding companies' overall position on social media
Case study	2–3/2010	Case companies Alpha and Beta	Understanding the motivating factors and barriers of employees' willingness to use social media for sharing competitive knowledge
	3/2010	Case companies Alpha and Beta	

This chapter describes the data sets of the three studies as well as techniques used to collect and analyse the data. The following subsections discuss each study's objectives in relation to the research questions of the dissertation as well as the data collection and analysis techniques used in each study, as suggested by Grönfors (1982).

5.1 Competitive intelligence study

The literature suggests that the competitive intelligence process does not work in practice as smoothly and effectively as hoped for. Engaging the employees in the process as sources of knowledge seems especially to be a challenge. The competitive intelligence study was conducted in order to examine how the competitive intelligence process is carried out in the companies at the moment and if the aforementioned challenges are indeed present in the companies. Therefore, the competitive intelligence study gives answers to research question 1 *What is the current implementation of the competitive intelligence process in companies?* and research question 2 *How is*

employees' competitive knowledge currently utilised in companies? Table 15 illustrates the essential information on this data set.

Table 15. Summary of the competitive intelligence study data set.

Data set	Data collected	Data collection technique	Data analysis technique	Research object	Number of respondents
Competitive intelligence study	3–4/2009	Structured telephone interviews	Content analysis, statistical analysis	Large companies	32 companies, 32 people

The study was carried out using structured telephone interviews. In a structured interview, the questions and response alternatives are precisely determined in advance: the same questions are asked of all interviewees in the same order, and even using the same tone of voice to avoid affecting the responses (Saunders et al., 2009). The answers are chosen from a set of closed-ended alternatives (Ghauri and Grønhaug, 2005), although open-ended questions can also be used. The competitive intelligence study used mainly closed-ended questions since they provide answers that can be quantitatively analysed, subsequently enabling generalisations (Saunders et al., 2009). Open-ended questions were used in questions where the answers could not be anticipated or the researcher wanted the respondents to answer in their own words.

A structured interview at its simplest is a questionnaire with the difference that the researcher is in personal contact with the interviewee reading the questions aloud and then marking the interviewee's responses on the form (Ghauri and Grønhaug, 2005). This was the situation in this study. Structured interview was chosen as a data collection technique in the competitive intelligence study since it makes it possible to clarify unclear questions while answering them, unlike, for example, when using a questionnaire (Hirsjärvi and Hurme, 2000). In addition, the choice of collecting data by structured telephone interviews over, for example, a web questionnaire was made to raise the response rate which might otherwise have been very low. A sufficient response rate was essential since the target group was not very large, only 50 companies. The interviews were conducted by telephone to save time and other resources, and because face-to-face interviews were not believed to create any additional value.

Another reason for the researcher having a more active role and personal contact with the interviewees was making sure that the right person was contacted and answering the questions. It was not always clear who was the person responsible for competitive intelligence in a company, and contacting that person sometimes took several phonecalls within the company. If there was no obvious person responsible for competitive intelligence, the researcher described what kind of function competitive intelligence was, and this usually resulted in finding a person who could answer the

questions. Next the time for the actual phone interview was arranged. The question form was sent to the interviewees in advance by email so that they could take their time to prepare for the interview.

The sample population was the 50 largest[4] companies operating in Finland. This sample population was chosen because it can be claimed to represent the most successful companies in Finland and this together with their size makes them likely to carry out a competitive intelligence process. The answers were given by the person responsible for the company's competitive intelligence operations. The interviewee represented the viewpoint of his or her company as a whole, and thus this study refers to the answers given by the respondent as "company". The study was carried out during a four week period in spring 2009. The interviews took 15–45 minutes, the mean being 27 minutes.

Out of the 50 the companies contacted, 32 took part in the study, thus giving a total response rate (Neuman, 2005) of 64%, which, according to Saunders et al. (2009), is reasonable in structured interviews. Twenty-six companies were interviewed by telephone, and six companies gave their answers in written form since a time for a telephone interview could not be arranged due to the company's lack of time. Four companies failed to return their written answers despite several reminders, and the interviewees from two companies were never reached. Twelve companies declined to answer. The main reason for declining was that the company did not have a person who could answer questions concerning competitive intelligence. This again was because the operations were either totally outsourced or they were dispersed in different departments within the company. Some of the companies who declined had a principle of not taking part in any surveys whatsoever.

The study was based on three similar studies made (2002, 2005 and 2007), but the interview form was radically modified. The competitive intelligence study of this dissertation was a part of a larger study, and the competitive intelligence study uses only some of the data produced by the larger study. The complete form of the structured interviews of the larger study is presented in Appendix 1. The interviews were conducted in Finnish, and therefore the interview form has been translated into English by the researcher for the Appendix of the dissertation. The form consists of 30 questions, including both open-ended and closed-ended questions. In some of the questions the interviewee was asked to answer on a scale from 1 to 5 according to the importance, functionality or some other aspect mentioned in the question. The open-ended questions were qualitatively analysed according to their content. The answers to the closed-ended questions were analysed using Microsoft Excel and SAS Enterprise Guide software. Rigorous statistical testing was not applied due to the small sample size (n=32). In addition, the form of most of the questions did not support statistical testing.

[4] Measured by the turnover, according to Talouselämä journal's listing in 2008.

Therefore, the data was analysed using some basic statistical parameters, such as averages, medians and modes[5].

The results of the questions that were answered on a scale from 1 to 5 are presented as the mean of the answers. In order to eliminate bias and distortion the answers where less than 10% chose the alternative "other" were eliminated from the graphs. The answers were, however, taken into account in the written report.

5.2 Social media study

Social media is said to have many benefits in the business context. Despite this, companies seem to be rather slow and cautious about adopting social media in their operations. The social media study aimed to ascertain the attitudes, expectations and current use of social media in companies, especially in the competitive intelligence context. The overall objective of the social media study was to achieve a better in-depth understanding of the phenomenon.

The study provides answers to research question 3 *What is the potential of social media in the competitive intelligence context and how is it perceived by companies?* In addition, the interviews with companies also contribute to research question 2 *How is employees' competitive knowledge currently utilised in companies?* since the interviews discuss the competitive intelligence perspective in more detail. Table 16 presents the essential information about this data set.

Table 16. Summary of the social media study data set.

Data set	Data collected	Data collection technique	Data analysis technique	Research object	Number of respondents
Social media study	11/2009–3/2010	Semi-structured interviews, Unstructured interviews	Content analysis	Adopting companies	4 companies, 7 people
				Experts	4 people
				Service providers	2 companies, 3 people
	2–5/2010	Participative observation	Content analysis	Social media benchmarking forum	18 companies, 23 people

[5] Average, mean = value calculated by adding all the values together and then dividing them by the total number of values
Median = the middle value of all variables that have been arranged in rank order
Mode = the value that occurs most frequently (see e.g. Saunders et al., 2009)

As explained in Chapter 1.2.2 (p. 11–12) the scope of the study is to examine social media from macro perspective and as a phenomenon, not by individual tools. This is due to the fact that to date there is no coherent and widely accepted understanding or classification of the concept of social media nor of social media tools. As this research aims to find out the potential that social media as a phenomenon may have in the competitive intelligence context, it is deemed best not to restrict the discussion to some set of predetermined tools, but rather to keep an open mind and let the respondents of the social media study report the most potential ways of using social media, whatever they may be.

The social media study consists of two parts. The first part consists of interviews with companies using or interested in using social media (hereinafter referred to as "adopting companies"), social media experts, and social media service provider companies. The second part was observation of the meetings of a social media benchmarking forum with representatives from 18 companies. Content analysis was applied to the data from the social media study. The next sub-sections describe both parts in more detail.

5.2.1 Triangular interviews

The data from the adopting companies, social media experts and social media service providers was collected using semi-structured and unstructured interviews. Interviewing was chosen as it is considered a good technique when it is known in advance that answers are likely to be elaborate and dissimilar (Hirsjärvi and Hurme, 2000), as in this study the data sources represented three different perspectives. In addition to personal one-on-one interviews some of the interviews were group interviews. This was due to time management issues; it is not always simple to collate several peoples' calendars and get them in the same place at the same time. In addition, group interviews may yield more varied data, as the interviewees' discussion may reveal things that the researcher may not have known to ask.

Having multiple perspectives and data sources enables triangulation and consequently increases the validity of the research (Denzin, 1978). It also yields a more multifaceted understanding of the issue. In this part of the social media study the triangulation was ensured by interviewing three kinds of data sources, all with a different perspective on social media and its use in business: 1) adopting companies, 2) social media experts, and 3) social media service providers (Figure 14).

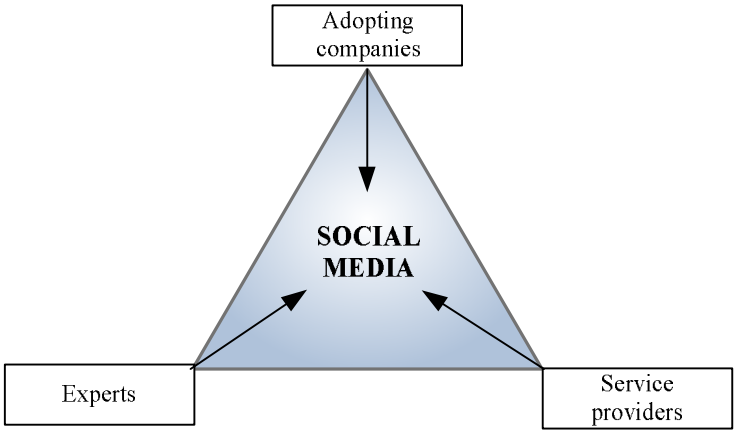


Figure 14. Triangular perspectives of the social media study.

The data from the adopting companies was collected with semi-structured interviews. The semi-structured interview allows the researcher to vary the order of questions and in some cases even omit some of them or ask additional questions. The questions are open-ended, allowing the interviewees to answer in their own words. This facilitates the discussion between the participants and furthers their understanding of the issue. (Hirsjärvi and Hurme, 2000) The themes of the semi-structured interviews are presented in Appendix 2.

The adopting companies were selected based on prior knowledge that they either were interested in using social media in their business processes or they were already using social media in some way. The interviewees typically included a person from the communications department and a competitive intelligence representative. In some adopting companies there were also marketing and IT personnel present. Two separate personal interviews were conducted with different representatives of the same company. One of the interviews was a group interview with three company representatives. The group interview situation differed from the interviews of individuals by making it possible for the interviewees to comment and refine each other's thoughts. This may have produced somewhat more coherent view of the situation of the company than three separate interviews with the same interviewees would have produced. The atmosphere of the group interview situation was very positive and open as the interviewees new each other well and could openly articulate and discuss even conflicting views. In all there were five interviews in four companies, and they were conducted in November and December 2009.

Companies look at social media from their own perspective and in their own context. It is, however, important also to discuss with people who look at social media in a business context from a wider perspective. Therefore four social media experts were interviewed in the hope of eliciting more objective opinions on companies' attitudes and use of social media in the business context. These interviews were more conversational, that is, unstructured interviews. An unstructured interview is a rather informal

discussion without questions determined in advance. This enables the interview to take the course the interviewee and situation take it to, the interviewer merely leading the discussion (Ghauri and Grønhaug, 2005). This technique was chosen since the researcher did not want to impose excessively strict limitations on the discussion and wanted to give the interviewees freedom to express their vast knowledge. Although specific questions had not been thought of in advance, the researcher was aware of the aspects, themes and perspectives from which she wanted to discuss the issues. This ensured that the interview situation produced relevant knowledge in accordance with the purpose and objectives of the research. The four personal interviews of the four experts were conducted between November 2009 and March 2010.

In order to get yet another perspective on the issue two companies providing different kinds of social media applications and tools for companies were interviewed. The first company's representative was interviewed by telephone because of his busy schedule. The second was a group interview including demonstrations of the company's products designed for competitive intelligence use. These interviews took place in March and April 2010.

To confirm that the researcher and the respondents had a common understanding of the term social media, the concept was discussed at the beginning of each triangular interview. First the respondents explained their views on social media, and then the researcher provided her own definition. After this the issue was discussed further when necessary, but the main point was to have a coherent understanding of how social media was understood in this research.

Altogether 11 interviews were conducted between November 2009 and April 2010. The interviews took from 1–2 hours each. Nine of the interviews were recorded. Two interviews were conducted in a public place with surrounding noise that would have disturbed the recording. The researcher took thorough notes on these interviews to compensate for the lack of recordings. The recorded interviews were transcribed to a suitable extent. For example, a verbatim transcription of the unstructured interviews would neither have been very efficient nor necessary. The transcribed interviews were then analysed together with the field notes on the observations.

5.2.2 Observation

For an even more multifaceted understanding of how companies see social media, the researcher observed an inter-organisational benchmarking forum focused on social media. Snowball sampling is a typical way to identify research partners in qualitative research (Patton 1990). This means that one interviewee leads the researcher to another, or the researcher may ask the interviewee to name other possible data sources for the research (Patton, 1990; Saunders et al., 2009). In the social media study the first company interviewee said that there was an inter-organisational benchmarking forum,

which was focused on social media. The researcher requested and received a list of companies participating in the forum, so that she could contact the forum members. Another interviewee from a different company also mentioned the same forum, and added to the company list. The researcher was granted permission to attend these exclusive meetings as an observer. Figure 15 illustrates the positioning of the benchmarking forum in the social media study.

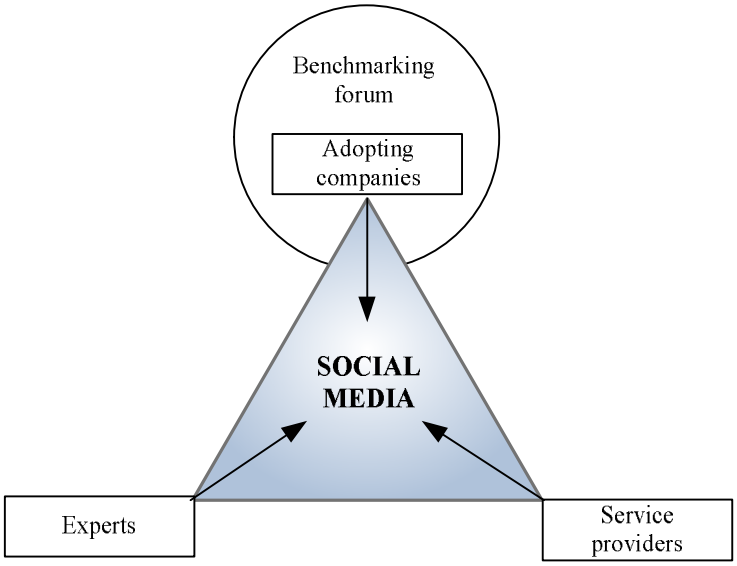


Figure 15. Benchmarking forum positioning in the social media study perspectives.

The forum members were very strict about who could attend the meetings, and the researcher was the only outsider with permission. Permission was granted on condition that the members would be kept anonymous, the meetings would not be recorded and the researcher would not interfere in the proceedings. Therefore observation was the only possible way to collect data from the benchmarking forum.

Observation is, simply put, "listening and watching other people's behavior in a way that allows some type of learning and analytical interpretation" (Ghauri and Grønhaug, 2005, p. 120). The purpose of observation is to answer questions such as what is said and done, where and by whom. It is used to describe, for example, attitudes, documents, use of information systems, ways of communicating or people regarding the issue in hand from the participants' perspective (Hoepfl, 1997; Ghauri and Grønhaug, 2005; Eriksson and Kovalainen, 2008). In this study the aim was to obtain information about several companies' social media use, the potential seen in it, attitudes towards it and what challenges companies had faced while using social media.

Observation may be conducted personally by the researcher or mechanically (Eriksson and Kovalainen, 2008), for example, by placing a video camera in the place where the observations are to be made (Ghauri and Grønhaug, 2005). Initially the choice between participatory and non-participatory observation has to be made, that is, whether the researcher is to be a part of the group or event under observation. In non-participatory

observation the researcher is an outsider, and the subjects of observation may not even know that they are being observed (Hoepfl, 1997). In participant observation the researcher is involved in the situation to some extent. As the researcher's presence in the meeting was obvious to the forum members and they knew they were being observed, this study used participatory observation technique.

Slater (1990) points out that in participatory observation the presence of the researcher always has some degree of influence, and therefore the results may not be authentic. This risk was decreased in advance by agreeing upon the rules and conditions for the researcher's attendance at the meetings as well as firm assurance of anonymity in the research report. Knowing this the members did not seem to restrict their behaviour or knowledge sharing despite the researcher's presence. In addition, they appreciated the main purpose of the meetings being the benchmarking and benefiting from open knowledge sharing, and did not want to jeopardise this.

At the time of observation the forum consisted of marketing and communications personnel from 18 companies. The companies were large and operating internationally, on both b2b and b2c markets. The benchmarking forum was a joint effort managed by different company representatives. The benchmarking forum met approximately once a month, and between meetings the discussion continued on in a private LinkedIn group. The company representatives mainly had communications and marketing backgrounds, since these are typically the departments that are given responsibility of social media. Despite this the meetings discussed social media from a wider perspective. As the researcher had no role in the discussion, the only means of understanding the participants' definitions of social media was to observe the discussion. In the end, the definition of social media in the forum was fairly coherent, and not contradictory to that of the researcher.

The researcher observed three meetings between February and May 2010. The meetings were hosted by a member company in the metropolitan area of Finland and took 2–2.5 hours each. The language of the meetings was English, since some of the company representatives were not native Finns. Each meeting was built around a specific theme that was decided jointly either in the previous meeting or in the LinkedIn group discussions. The subject of the first meeting focused on internal social media and how to engage employees in knowledge sharing. The second meeting discussed social media from the company perspective as well as from the wider perspective of a social community. The third meeting dealt with the governance of social media within companies. The meetings started with a presentation or introduction to the theme by the host company. The rest of the meeting was dedicated to discussing the issues.

The observation was planned carefully in advance in accordance with the research questions. The aim was to collect data about what was being said, that is, on all the

member companies' situation, attitude and use of social media. The researcher took field notes complemented with her own interpretations of the situation.

In the analysis phase the field notes were processed jointly with the transcribed interviews. The analysis was made following the procedure suggested by Miles and Hubermann (1994) including data reduction, data display and conclusion drawing. The results are presented with citations from the interviewees and benchmarking forum participants. These citations are coded anonymously, and the legend for the codes is as follows.

- B = benchmarking forum participant
- C = adopting company interviewee
- E = expert interviewee
- S = service provider interviewee

Codes include numbers to distinguish different individuals (e.g. C1, C2, E4). In addition to the social media benchmarking forum meetings only one of the interviews was in English. Therefore most of the citations were translated from Finnish to English by the researcher, however with the attempt to retain the original content and idea of the citations.

5.3 Case study

The employees' role in the competitive intelligence process and their attitudes to using social media for knowledge sharing was examined in greater detail in a case study conducted in two companies. The potential of social media will be only realised if the intended users, that is, the employees, are motivated to use the technology to share their knowledge. Therefore it is important to understand the factors affecting the employees' motivation and how their motivation could be encouraged. The case study provides answers to research question 4 *What are a) the motivating factors enhancing and b) the barriers impeding employees' competitive knowledge sharing by using social media*?

The research question was further divided in more detailed sub-questions the study endeavoured to answer:

- *What are the motivating factors and the barriers to the channels and methods currently in use for sharing competitive knowledge?*
- *What would the motivating factors and the barriers be if social media was used for sharing competitive knowledge?*

In order to answer these questions it was necessary to have employees themselves as data sources. This was achieved by collecting data from two companies as case study research. The perspective of the study (Figure 16) is therefore that of the employees,

although the answers also shed light on the companies' overall situation, as described by the employees.

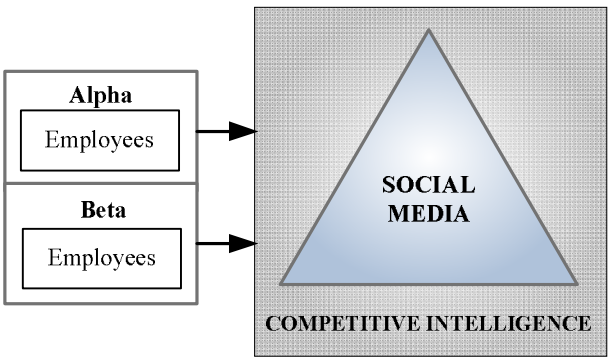


Figure 16. Perspective and focus of the case study.

The choice of case companies can be made following several principles. For example, the choice can be based on having access to the company, the company being an extreme example of issue under study (Hartley, 2004) or the company being a representative example of some larger population (Stake, 2005). The case companies of the dissertation were selected on the basis of knowledge accumuated during the social media study. The company interviews of the social media study revealed that these two large manufacturing companies both participated the social media benchmarking forum and were in the early stages of incorporating social media into the competitive intelligence context. The companies were willing to act as case companies in the research and granted the researcher access and permission to collect data from their employees. The contact person for the study was the communications manager in Alpha and the strategic development manager in Beta.

Table 17 presents basic information about the case companies. The case companies are briefly examined in terms of characteristics affecting the implementation of competitive intelligence (see Chapter 2.4, p. 41–42) as well as the knowledge management strategy (see Chapter 2.6.2, p. 51–53) they emphasise.

Table 17. Basic information about the case companies.

	Alpha	Beta
Structure		
Locations	Headquarters in Finland Offices in 24 countries	Headquarters in Finland Offices in 26 countries
Listing	Listed on the NASDAQ OMX Helsinki Stock Exchange	
Size and resources		
Employees	3100	1200
Sales in 2009	EUR 880 million	EUR 230 million
Competitive intelligence personnel	Competitive intelligence department: manager and 1 analyst	1 part-time analyst
Organisational culture and managers' attitude		
	Rather hierarchical, top-down control	Open, flat and horizontal structure
Products		
	High-tech, innovative, versatile and vast range	
Markets		
	Both operate on b2b markets globally	
Competitive strategy		
	Leader: Growth by technological innovations	
Industry		
	Mining technology	Environmental measuring
Knowledge management strategy		
	Both emphasise personalisation over codification	

As noted, both companies were interested in using social media in the competitive intelligence context, but at the time were not actively utilising it. For the sake of clarity and obtaining coherent data the study defined the social media discussion especially on using a *collaborative platform*. This was done to help the respondents focus their thoughts on something concrete and tangible rather than discussing a more abstract term, social media. In addition, the term social media was believed likely to intimidate some potential respondents or misleading their thoughts. The choice to focus on a collaborative platform was made based on the fact that it can be seen to represent several tools and functionalities, as it is a social media tool for combining (see Chapter 3.2.5, p. 66–67). In the interviews the term social media came up several times. The researcher and the respondent discussed their understandings of the term in order to arrive at shared understanding of what was meant by social media in this research.

The case study consisted of a web questionnaire followed by semi-structured interviews. A questionnaire was a suitable data collection technique considering the objectives of

the study: the aim was to reach a large group of people in a rather short period of time, and to find averages, majorities and an overall picture (Ghauri and Grønhaug, 2005). Questionnaires and interviews are often used together to increase the validity of the research and to generate more versatile data (Kunz et al., 1976; Hirsjärvi and Hurme, 2000; Saunders et al., 2009). Acknowledging that a questionnaire may not necessarily provide enough information about the issues and understanding the risk of low response rate were the reasons for also conducting interviews in the case companies. Table 18 presents the essential information about the case study's data.

Table 18. Summary of the case study data set.

Data set	Data collected	Data collection technique	Data analysis technique	Research object	Number of respondents
Case study	2–3/2010	Questionnaire	Statistical analysis	Alpha, Beta	Alpha: 90 respondents Beta: 58 respondents
	3/2010	Semi-structured interviews	Content analysis	Alpha, Beta	Alpha : 11 interviewees Beta: 11 interviewees

The first stage of the case study was a questionnaire for the case companies' employees, who responded anonymously. The questionnaire consisted of nine five-point likert scale questions with additional open-ended questions and followed by some demographic background questions. The questions were formulated in accordance with the research questions of the dissertation and based on theory and prior research (e.g. Barachini, 2008; Ardichvili et al., 2009). The likert scale descriptions were chosen after examining several likert-scale studies and websites (see e.g. Siegle, 2010; Harris, 2010). The researcher chose to use a five-point scale since it gives a wide enough variety of alternatives and also provides a neutral alternative. The lack of a neutral alternative could have frustrated the respondents and thus increased the risk of a low response rate.

The questionnaire was first tested by three other researchers, who suggested a few minor changes to it. Then the form was tested by two other people, who worked in such positions in different companies that they were believed to represent the actual respondents. Finally the questionnaire form was sent to the case company representatives for comments, which once again resulted in some minor changes to the form. Piloting the questionnaire helped to pinpoint minor errors and questions that needed revising, which were consequently corrected and revised in the final version of the questionnaire form. In addition, it gave an idea of how long the questionnaire would take to answer. The questionnaire form is presented in Appendix 3. Case company information is excluded from the form in the Appendix in order to ensure the companies' anonymity.

The questionnaire was available via the companies' intranet for two weeks in February 2010. The questionnaire was promoted in the intranet by a company representative. In addition to this an invitation to answer the questionnaire was sent to the target group by email in order to further motivate them to respond. This target group was selected and contacted by the companies' contact persons. Anyone who had access to the intranet had the opportunity in theory to complete the questionnaire. In practice only those who actually saw the announcement in the intranet ever had the chance to actually participate, that is, the questionnaire used non-random sampling (Kehoe and Pitkow, 1996). The problem with such online questionnaires is that the response rate cannot usually be calculated accurately (see e.g. Kaye and Johnson, 1999; Couper, 2000; Bowen et al., 2009). The information about the number of people who visited the company intranet (and subsequently had the chance to notice the request to answer the questionnaire) during the time the questionnaire was open for completion was not available to the researcher. Hence, the response rate was calculated as suggested by Kaye and Johnson (1999) and Eysenbach and Wyatt (2002) as follows:

$$\text{Response rate} = \frac{number\ of\ completed\ responses}{(number\ of\ completed\ responses + number\ of\ accessed\ but\ not\ completed\ responses)}$$

The information needed was provided by the online survey tool, Webropol used in the questionnaire. Using the equation above the calculated response rate was 41% in Alpha and 54% in Beta. Since the response rate alone does not always give the complete picture of the situation (see e.g. Saunders et al. 2009), the researcher decided beforehand that the lowest acceptable number of answers would be 50 per company. The final number of completed responses was 58 in Alpha and 90 in Beta, thus exceeding the set response rate criterion.

The questionnaire was complemented with 11 interviews in both case companies in March 2010. The interviewees were selected by the company representatives based on their estimation of who would be suitable to provide research data according to their status, expertise or personal interest in the issue, thus this was purposeful sampling (Patton, 1990). The interviews in both case companies were carried out during one week each in the companies' headquarters in Finland. Each interview took approximately 60 minutes and addressed the same themes from the viewpoint of the interviewees and their job descriptions. The themes of the semi-structured interviews are presented in Appendix 4. Table 19 describes the data collection in the case studies.

Table 19. Summary of the data collection in the case studies.

	Questionnaire	Interviews
What?	Structured web questionnaire	Semi-structured interviews
How?	Individually via Internet	Face to face
Who?	All with access to the companies' intranet, anonymously	22 relevant people (11/ case company)
When?	February 2010 (open for 2 weeks)	March 2010
How much time / person?	15 minutes /respondent	Approx. 60 minutes /interviewee

All interviews were recorded and transcribed verbatim. The transcription work was outsourced, since there was no point in using the researcher's time for such routine work that could more efficiently be done by an expert (Grönfors, 1982). The transcription was done by Annanpura, a social company owned and run by the Finnish Federation of the Visually Impaired. The first couple of transcribed interviews were examined and checked by the researcher to ensure the quality and accuracy of the transcriptions.

Research questions were divided into smaller subgroups, which then guided the analysis. The transcribed interviews were categorised and coded. Questionnaire responses were evaluated with statistical methods (e.g. calculating the averages and modes of answers) and transformed into more illustrative graphs. The questionnaire and interview data were compared and integrated in order to find the underlying meaning of the data. In addition, Pearson's Chi-square test for independence was performed on parts of the questionnaire data in order to indentify possible statistical significances and connections between two categorical variables. The test Chi-square value calculation is done as follows:

$$X^2 = \sum\sum \frac{(f_0 - f_s)}{f_s}$$

Where f_0 is the observed frequency and f_s is the expected frequency based on the null hypothesis (see e.g. Alkula et al., 1994). The significance level for tests in the dissertation was chosen to be five per cent ($p \leq 0.05$). The statistical tests were made using Microsoft Excel and SAS Enterprise Guide software.

The case study results present the combined findings from Alpha and Beta. This is because the company characteristics are rather similar, and also the results proved similar in most respects. Therefore the data collected from both companies was combined and analysed jointly. The results of the questionnaire and the interviews are presented hand in hand according to the factual content. Graphs are used to illustrate the answers of the questionnaire. Citations from the interviews and from answers to the

questionnaire's open ended questions are also presented. Some of the citations were translated from Finnish to English attempting to preserve the original content and idea. The citations are coded anonymously as follows:

- AR_n = questionnaire respondent from Alpha
- AI_n = interviewee from Alpha
- BR_n = questionnaire respondent from Beta
- BI_n = interviewee from Beta

The codes include a number (n) for each of the respondents and interviewees quoted. This makes it possible to trace the sources of the citations.

5.4 Chapter summary

The empirical data can be summarised in numbers. It consists of 65 interviews with 68 persons, 148 questionnaire responses, and observations of three meetings of 18 companies. Thirty-two interviews, altogether 26 hours and 12 minutes, were digitally recorded and transcribed. The data was collected during March 2009 and May 2010. This enables the description of the phenomenon at a certain, limited point in time. The data collection in the case study especially was done within a small time window, within five weeks, to ensure that the questionnaire and interviews would describe the same situation in the companies.

The three studies contemplate the phenomenon under research with different emphases and level of detail. Figure 17 shows the positioning of the three studies in terms of their level of detail and substance area they focus on.

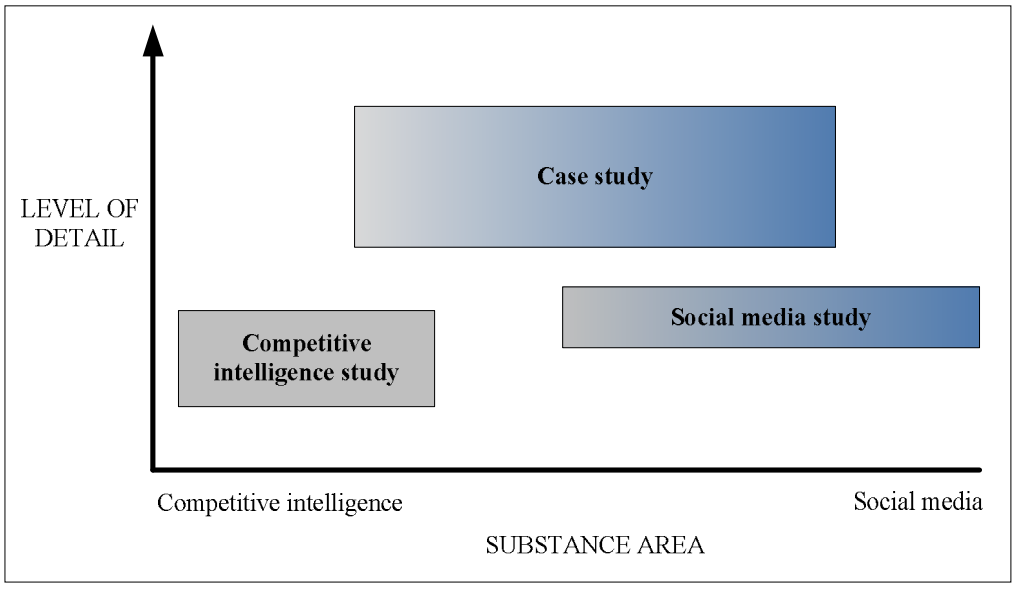


Figure 17. Positioning of the data sets.

The competitive intelligence study focuses on competitive intelligence at a rather general level, whereas the social media study mainly explores social media and touches slightly on competitive issues as well. The case study takes both of these substances into account and studies them in greater detail. In addition to the different emphases of the subject and details, the three studies examine social media and competitive intelligence from different perspectives: individual, company and business (Figure 18).

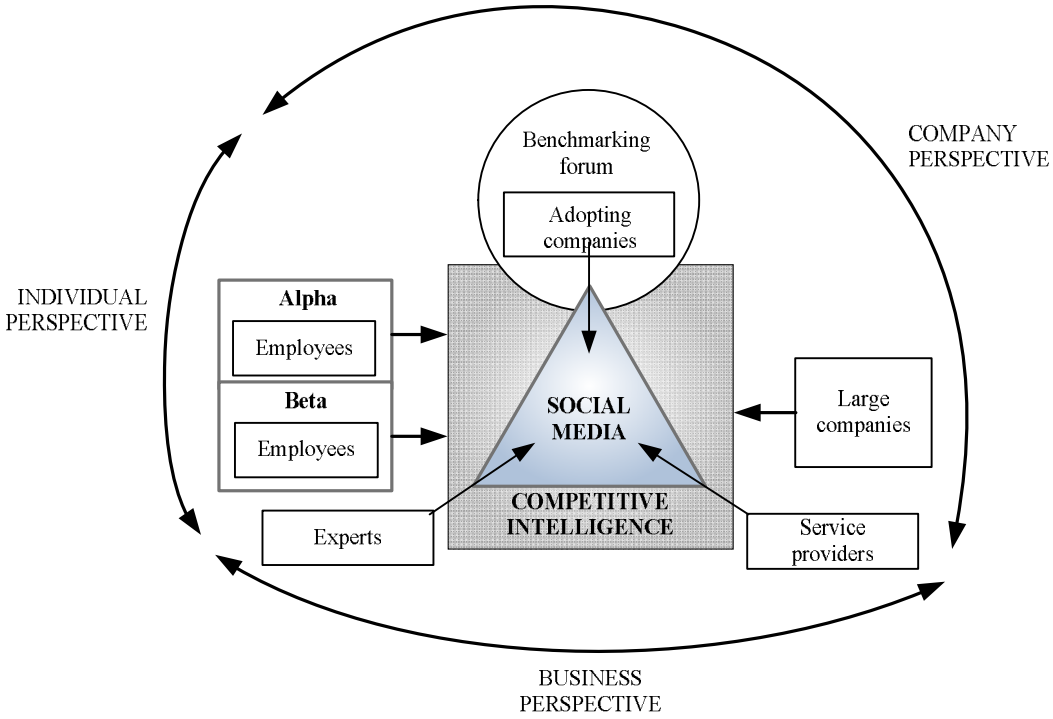


Figure 18. Perspectives and focus of the empirical data.

The perspective of individual is applied in the case study. In order to understand the motivational factors and barriers of employees, it is necessary to go to the level of an individual employee and explore his subjective view on the issue. The individual answers of the questionnaire respondents and interviewees form the bigger picture of how employees perceive the phenomenon. This way, the individual perspective becomes a more collective, company-level conception.

Several parts of the empirical study look at the phenomenon from the company's perspective. The competitive intelligence study is based on company-level scope of the questions. The social media study and the case study apply the company level in some parts: the benchmarking forum operates at the company level, and the adopting companies and service providers gave their answers to the interviews from company perspective. The experts and service providers interviewed in the social media study

looked at the phenomenon from a wider perspective, taking account of the wider business context, not only that of a company.

Collecting data from several sources that look at the phenomenon from different perspectives generates a more thorough understanding of the issue. The different parts of the empirical data complement each other and give the research multifaceted material on which to draw conclusions. Together with the theoretical part of the dissertation the empirical study provides answers to the research questions in a way that describes the phenomenon in real-life situations and thus leads to practical implications in addition to theory elaboration.

6 RESULTS

This chapter presents the results of the empirical study. The results of the three studies are discussed in their own subchapters in the light of the research questions to which the respective studies contribute.

6.1 Competitive intelligence study

6.1.1 Focus and implementation of competitive intelligence

All the 32 companies interviewed had established operations aimed at gathering and analysing information regarding their external business environment, that is, competitive intelligence. The result was as expected, since in order to succeed a company must be aware of what is happening in its business environment (see e.g. Halonen and Hannula, 2007; Global Intelligence Alliance, 2007; 2008; 2009; 2011). To find out where companies focus their competitive intelligence operations the companies were asked to what questions they sought answers through competitive intelligence. The results show that companies' motivation for engaging in competitive intelligence is in line with those suggested in the literature: Companies want competitive intelligence to help to understand the business environment and to spot possible threats and opportunities as early as possible. Competitive intelligence is used in order to better forecast the future and to support the strategy process and its implementation. The actions of competitors and the developments of markets are at the core, but issues related to customers and customer profitability were also emphasised by companies due to the rather challenging economic situation at the time the interviews were conducted (spring 2009).

The focus of competitive intelligence operations was further ascertained by asking the companies to evaluate how important different information topics related to competitive issues were to them (Figure 19). The most significant information in the context of competitive intelligence was "customers". The alternative "something else" ranked second most important[6] and included, for example, legislative issues and their changes, environmental issues, consumer behaviour and information regarding partners and suppliers. "Competitors" was evaluated to be the third most essential information needed in the company.

[6] Although ranked second most important, the answers to the alternative "something else" consisted of individual and fragmented responses, not consistent topics. Therefore the alternative "something else" is presented in the bottom of the graph. The other graphs in the study follow the same principle.

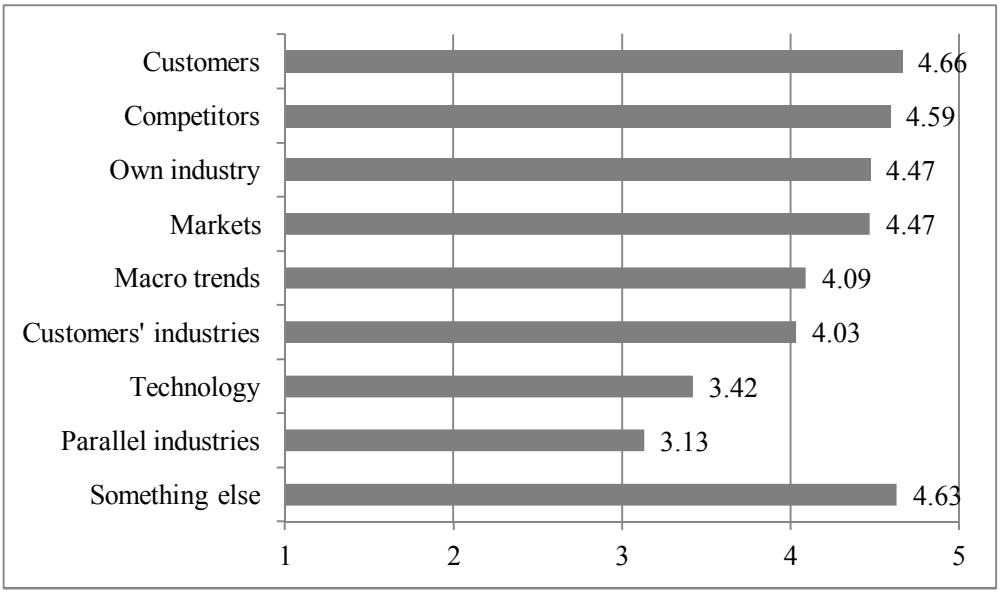


Figure 19. The importance of different information topics related to competitive issues (1=not important at all, 5=extremely important).

Information regarding customers was extremely significant for companies who, according to their answers to open questions, followed a customer based strategy. Some respondents pointed out that the challenging economic situation forced them to pay extra attention to customer profitability and customer needs. The economic situation also increased the importance to be up to date on the events in companies' "own industry", "markets" and "macro trends". All the alternatives got an average over 3, which indicates that these are indeed important information topics for companies.

Companies' competitive intelligence operations were usually reported to be rather formally organised, as 59% of the companies had a designated person responsible for competitive intelligence. The title of the person responsible was usually director or manager and he/she had an upper management status. In 26% of the companies the person responsible reported directly to the CEO, and in the other 74% there were two or fewer organisational levels between the person in charge of competitive intelligence and the CEO (mode 1, median 1, mean 1.46). This indicates that competitive intelligence is usually situated near the top management and is fairly close to it. In the companies that did not have a person designated to be in charge of competitive intelligence (41%) the responsibility was divided between different business units or to the users themselves. In all of the companies the competitive intelligence operations were estimated to occupy on average six people full-time and 15 people part-time.

The majority (69%) of the companies had outsourced some parts of their competitive intelligence operations. News scanning and different kinds of recurrent reports (e.g. market, brand and customer satisfaction reports) were the most commonly outsourced operations. From a resource based view acquiring news scanning services from an

external service provider is sensible, as is outsourcing routine reports to consultants: There are several service providers on the market who are specialised in these operations, and therefore outsourcing these is usually cost-efficient and effortless.

6.1.2 Competitive intelligence process

Identifying information needs

Identifying what information is needed is important in order to focus the efforts of information gathering and analysis correctly. The companies were asked what methods they used to identify the users' critical information needs regarding competitive intelligence. From all the options listed "something else" ranked highest. This indicates that the methods used by the companies' are not coherent but rather eclectic. The respondents who chose "something else" elaborated their answers and described the methods they used. Some companies identify information needs specific projects designed for the purpose. Companies also gain an understanding of the users' needs from the feedback sent via the company's competitive intelligence portal or other information system. In two companies the competitive intelligence personnel did not try to identify the needs of the users but the users themselves identified and communicated their needs to the competitive intelligence personnel (e.g. by making requests for ad hoc analysis). One company determined the need for certain information by dropping some information products from the delivery lists for a while and checking, if anyone asked for them. This way the competitive intelligence personnel could ascertain whether these information products and the information they contained were really needed or if producing these information products was only wasting resources.

The second most used method was "general interaction and discussions with the users" followed by "interviewing" as the third most popular method in use. Interviewing differs from the general interaction and discussions as the questions, aim, timing and the interviewees are planned in advance, making it a more formal approach. "Mathematical methods", such as different formulas, patterns and modelling, were used least, even though 40% of the companies used them to some extent, and five companies used them much or very much. Most of these five companies operated in the financial sector, so also using mathematical methods in identifying information needs is natural because of the nature of the industry.

Identifying information needs is not always straightforward and easy. The companies were asked how difficult they found the most common problems regarding identifying information needs reported in the literature (Figure 20).

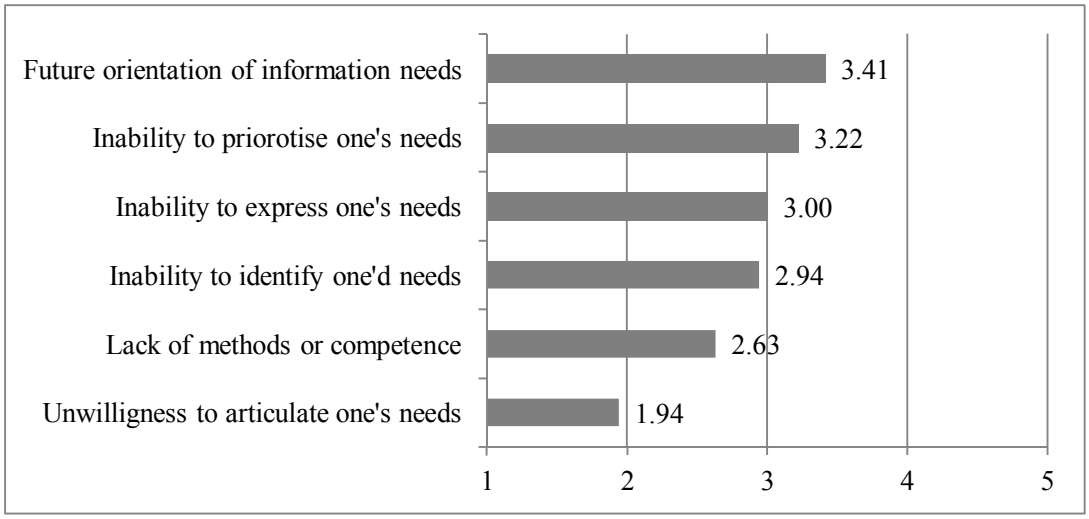


Figure 20. Challenges of identifying users' information needs according to their perceived difficulty (1=not difficult at all, 5=extremely difficult).

"Future orientation of information needs" was seen to be the most challenging: it is in many cases impossible to predict users' future needs and be prepared for them in advance. The second most challenging issue was the users' "inability to prioritise" their own information needs: users are not always able or willing to separate nice-to-know information from must-know information, which is problematic from the competitive intelligence personnel's point of view and makes it difficult to allocate resources. The third most difficult issue was the users' "inability to express" their information needs, which is closely related to prioritising. The users are not able to articulate clearly enough what they really need making the satisfying of the needs with right information harder.

One company chose the option "something else" to be extremely difficult (5) due to the timing. The respondent said that the users were not able to time their request for information appropriately, but they wanted the information immediately, even though it was late even at the time the request was made. This problem is related to the future orientation of information needs as well as the users' inability to identify and express their needs. In addition, events in the external business environment that come as a surprise can lead to a sudden need for information, presenting surprising and challenging ad hoc requests that demand a quick response. As such requests may be impossible to satisfy in time, it is of the utmost importance for competitive intelligence to be proactive and try to avoid such surprises by keeping abreast of events.

Gathering and utilising employees' competitive knowledge

The companies were asked how they had succeeded in gathering and utilising employees' competitive knowledge. Figure 21 shows that none of the companies ranked themselves as excellent in obtaining employees' competitive knowledge. Seventy-two per cent of the companies perceived that they had coped at least satisfactorily, 25%

succeed in obtaining employees' competitive knowledge fairly well, and only one company rated its success to be poor.

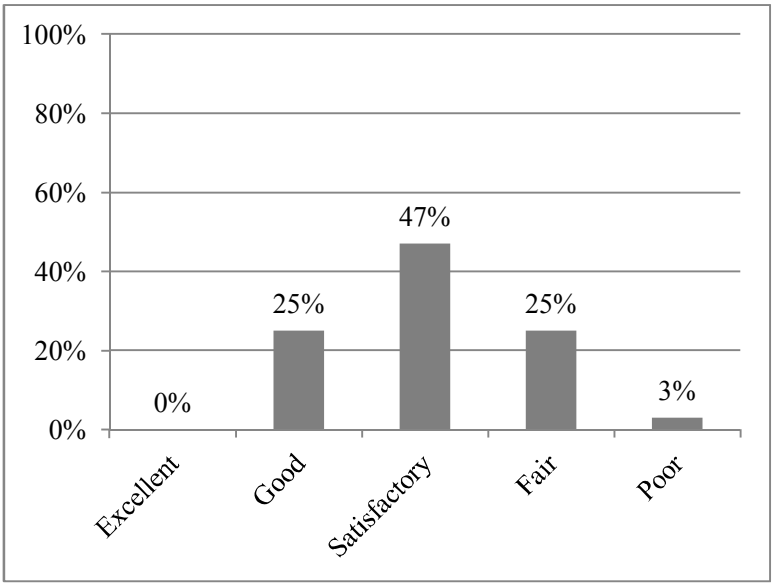


Figure 21. Succeeding in utilisation of employees' competitive knowledge.

An open-ended question aimed to find what methods companies utilised for gathering employees' competitive knowledge. According to the responses the most common method was to ask the employees to upload or write down their information in a portal or intranet and comment on issues there (34%). Employees' competitive knowledge was also gathered for competitive intelligence purposes by discussing in different kinds of interaction situations and meetings (32%). The third most used method was to gather information by questionnaire (25%). Other methods mentioned were monthly reporting (13%), collecting customer information into a CRM system (13%), interviews (6%), email (6%) and discussion forums (6%). One company said they obtained the competitive knowledge by integrating employees in expert networks, where knowledge was shared in different ways.

Information analysis and dissemination

Companies utilise several different analysis methods and tools for processing information. The companies were asked how important different analysis methods were to them. The question examined the importance of the analysis methods rather than the use of different methods. This choice was deliberate as high usage rate of a method does not necessarily correlate with the value or usability of that method.

The question proved to be rather difficult to answer, since some of the respondents perceived the list to be overwhelming and others complained that the acronyms or methods themselves were not defined precisely. It can, however, be assumed that if a respondent did not recognise a commonly known acronym, such as SWOT or PESTEL,

and did not know what it meant even after having it explained by the interviewer, the method probably was not systematically used, either. Therefore, even though the scale from 1 to 5 reflects the perceived importance of the analysis methods, in addition to "not important at all" the value 1 can also be understood as "not familiar at all". The results are presented in Figure 22.

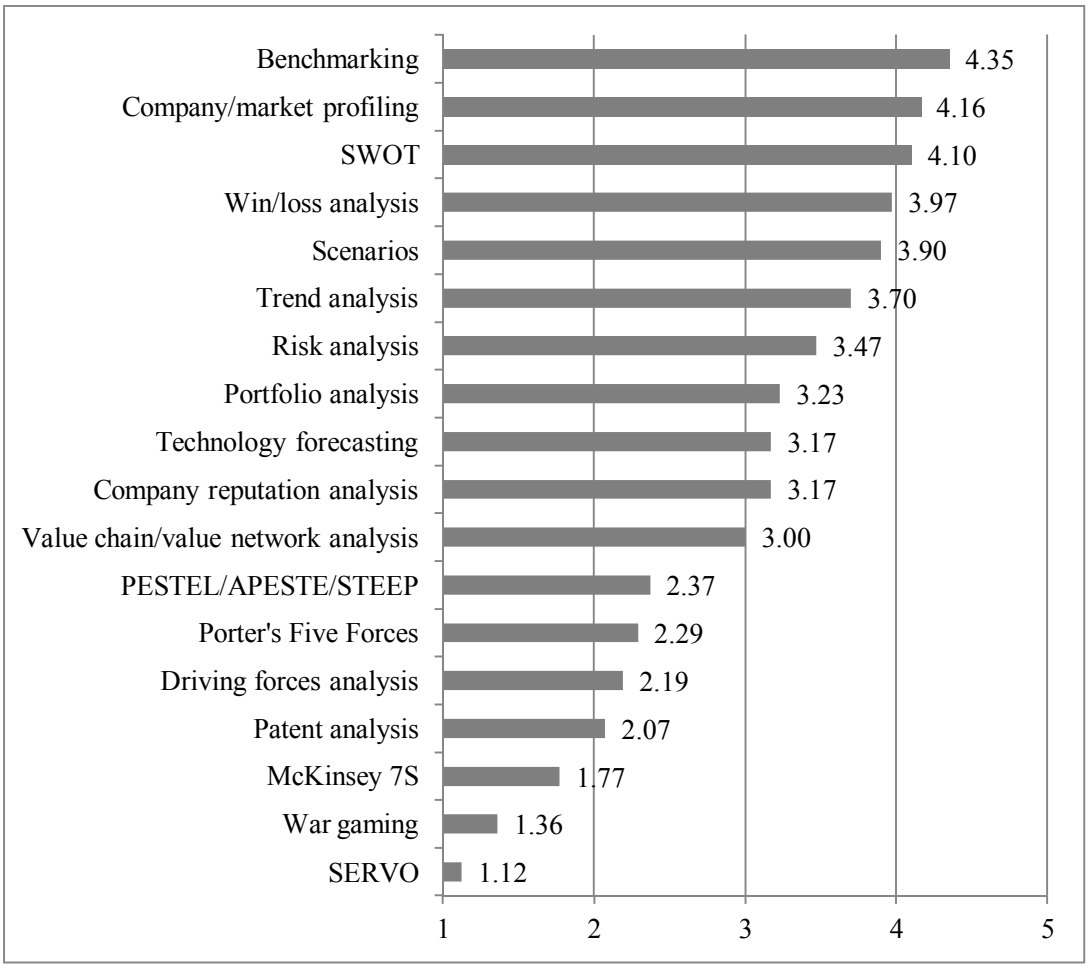


Figure 22. Most important analysis methods used by the companies (1=not important at all/not familiar, 5=extremely important).

The most important analysis method was "benchmarking". "Company and market profiling" was ranked second most important, and the traditional SWOT analysis was ranked third. The least important, and simultaneously most unfamiliar, analysis methods were "SERVO" (used to evaluate company's strategic decisions), "war gaming" (role play simulation) and "McKinsey 7S" (analysis of the strength of a company's strategies).

The results indicate that the companies do not use formal and rigorous analysis methods to interpret information. In addition, the analysis methods addressed not so much strategic issues but were more operational and practical. This is interesting, since the aim is to support managerial decision-making and the strategy process: it might have been assumed that the analysis methods listed above would have been used by the

competitive intelligence to make better sense of the external environment and, for example, competitors' strategies or future trends in customers' needs.

Competitive intelligence operations can be roughly divided into the following two approaches; "push" and "pull" (see e.g. McClurg, 2001). In the push approach the competitive intelligence personnel deliver the information products to the users without their specific request. In this case the information products are made according to predefined information needs and delivered to the users on a certain schedule. In the pull approach the initiative comes from the user: the user identifies that he or she needs information and requests it from the competitive intelligence personnel. In this case the operations are based on one-off and ad hoc analysis made on request, and the competitive intelligence personnel does not independently try to identify the users' needs or push information products at them. When asked about the approach used in their competitive intelligence operations 50% of the companies said their operations were based equally on push and pull approaches. That is, competitive intelligence produces and delivers regular information products based on predefined needs but also fulfills the ad hoc requests of the users. Fourty-one per cent described their competitive intelligence following the push approach and only 9% based their operations on the pull approach alone. In these nine companies the competitive intelligence operations were rather modest and the responsibility for satisfying information needs was usually left to the users themselves.

The companies were asked to evaluate how many regular information products their competitive intelligence operations produced. The results show that in almost every company competitive intelligence produced regular information products, as only two companies reported not having any regular information products at all. In 41% of the companies competitive intelligence produced 5–10 information products on a regular basis. In one third of the companies (31%) the number was more than ten, and 22% of companies had 1–5 regular information products.

The companies were asked how they utilised different channels for disseminating information products to users (Figure 23). "Something else" ranked higher than any of the given alternatives. The respondents listed these channels to include wikis, video conferences, personal presentations through webcasts, and special information systems designed for certain users.

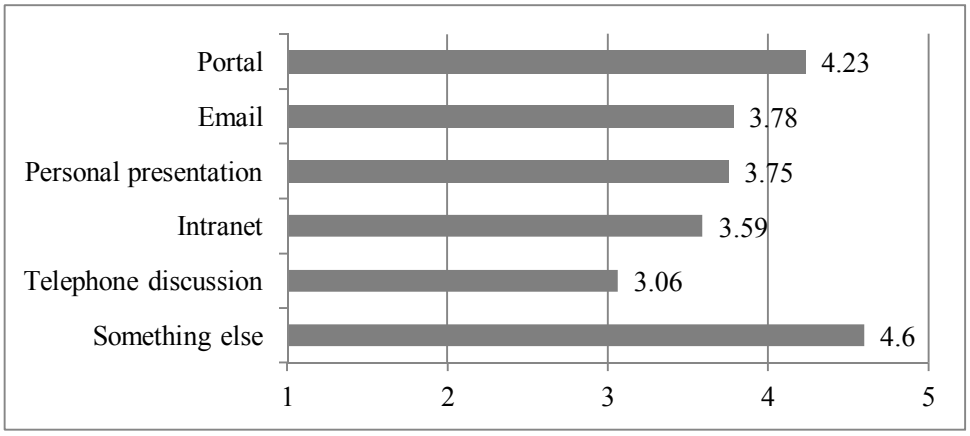


Figure 23. Channels used for disseminating information products for users according to their importance (1=not important at all, 5=extremely important).

From the given closed-ended alternatives "portal" was ranked the most important channel for disseminating information products. Portal refers here to an information system designed especially for competitive intelligence purposes, whose contents and users are defined according to competitive intelligence needs. Therefore portal is not a synonym for "intranet", which is seen to cover a company's operations and personnel more broadly, and intranet was listed as a separate alternative. "Email" was the third most important channel, closely followed by "personal presentation". Personal presentation refers, for example, to competitive intelligence responsible presenting market analysis for the participants of the sales meeting.

According to the results Web 2.0 technologies and groupware were therefore identified as important, but at the same time many respondents said that they were not used that much in the company. The answers could have been very different if the question had been about the use of different channels. Then traditional channels (e.g. email, telephone discussions and presentations) might have been at the top of the list.

Utilisation and feedback

Companies were asked to evaluate the personnel groups of competitive intelligence according to how important the competitive knowledge provided by the competitive intelligence is to them. As Figure 24 shows, the importance correlates with organisational level: the higher the organisational status, the more important competitive knowledge is considered to be. This is only natural as competitive intelligence aims to support decision-making and is in many companies closely linked to the strategy process. It is, however, noteworthy that other employee groups than top management (e.g. salesmen, product development engineers) also got a rather high average of importance (2.77). It is therefore acknowledged that competitive knowledge is needed and used throughout the company, not only by management.

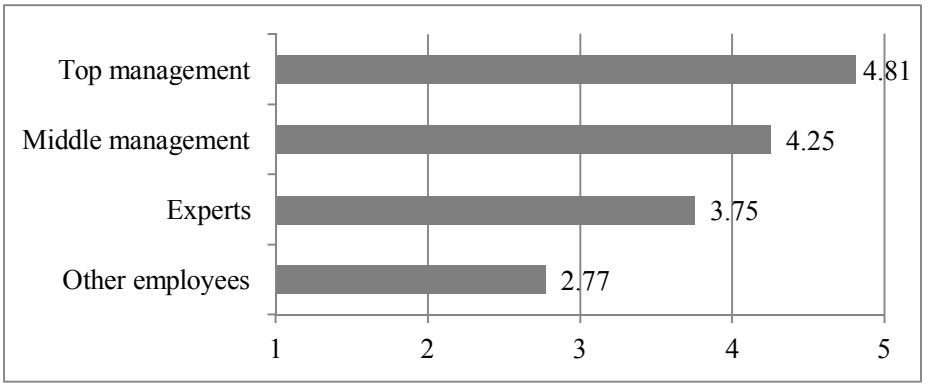


Figure 24. Users of competitive intelligence according to how important competitive knowledge is to them (1 = not important at all, 5 = extremely important).

The respondents also evaluated the utilisation of competitive knowledge from a function based view. That is, in which departments or functions information and knowledge gained through competitive intelligence is mostly needed and used. The results show that "business planning and development" is the most essential function in need of competitive knowledge. The alternative "something else" ranked second in the responses, containing legal department, investments and financial communications. It can be said that all the aforementioned are intertwined with business planning and development and interact with each other when deciding on the future course of the company. The third most important user function was "marketing and sales", which is traditionally seen as having significant needs for competitive knowledge as decisions on marketing and pricing are much affected by competitive issues.

Eighty-four per cent of the companies collected feedback regarding the operations. In the majority of the companies feedback gathering was irregular and informal. The most used methods of gathering feedback were oral discussions (44%), feedback questionnaires (38%) and internal customer satisfaction surveys (28%). In addition, in some companies feedback was gathered through email and portals (28%). Sixteen per cent of companies did not collect feedback at all. One company said the reason for this to be that they did not want to distinguish competitive intelligence from other operations and processes too clearly as in their company it is tightly integrated with these, and therefore they did not separately gather separate feedback on it.

6.1.3 Benefits achieved and areas in need of improvement

The companies were asked to evaluate how well they had succeeded in competitive intelligence (Figure 25). The aim of the question was to get the companies to review and evaluate their operations. The question was situated in the end of the interview on purpose, as by the time the respondents reached the question they had had to ponder their competitive intelligence operations from many perspectives. If the question had been asked at the beginning, the answers might have been very different.

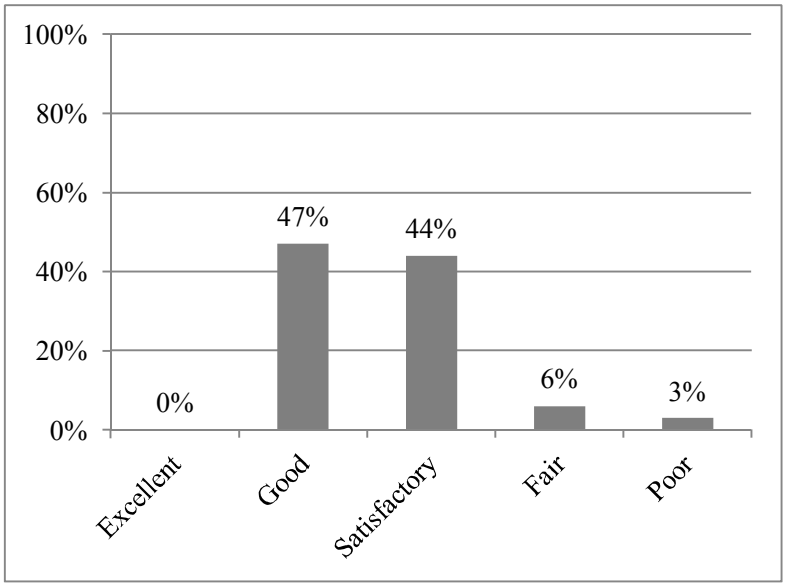


Figure 25. Companies' success in competitive intelligence.

As Figure 25 shows, none of the companies gave themselves a grade of "excellent", but 91% of the companies thought their performance in competitive intelligence had been at least satisfactory: of these almost half (47%) said their performance was "good" and 44% "satisfactory". The grade "fair" was given to themselves by 6% of the companies, and only one company (3%) reported poor performance in competitive intelligence.

The most important benefit achieved with competitive intelligence was "improved quality of information". The second most significant benefit was "increased knowledge sharing". "Early recognition of threats and opportunities" was ranked third. The companies did not believe that competitive intelligence had a direct impact on products and production or optimising acquisitions and purchases. This is understandable, since these are more operative level functions that mainly utilise internal information rather than basing their decisions on the external environment. The benefits achieved from competitive intelligence are presented in Figure 26.

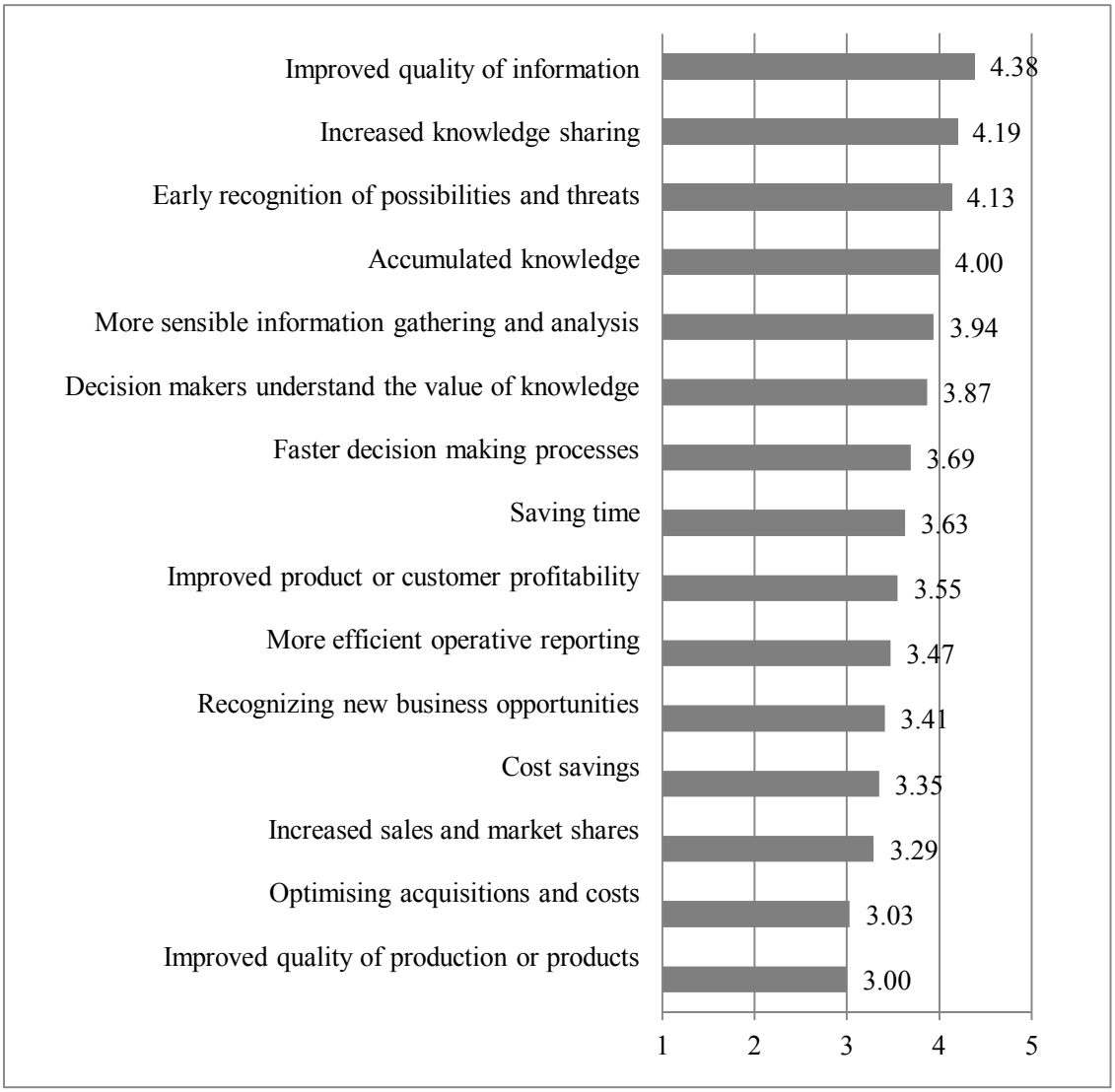


Figure 26. Benefits achieved with competitive intelligence (1=does not apply to our company, 5 =applies to our company well).

All potential benefits listed as alternatives resulted in a value greater than 3, which indicates that competitive intelligence is seen to benefit all the mentioned areas at least to some extent. Two companies chose the alternative "something else" and gave it a value of 4. One of them said that competitive intelligence improves the allocation of resources. The other company stated that competitive intelligence trains junior superiors and teaches them to better understand business and industry.

The study also examined if companies measured the benefits of competitive intelligence and how they did it. The results show that only 16% of the companies were measuring the benefits in some way. The methods mentioned included Balanced Scorecard and certain predefined indicators from the feedback discussions with the personnel. Most of the companies (84%) did not measure the benefits at all. This was mainly because measuring is seen as too difficult or that companies do not know how to do it (nine companies). In seven companies measuring was not considered necessary. In four companies the fragmentation of the operations prohibited the measuring. four

companies said that they were starting to measure the benefits in the future. One company did not want to measure the benefits in order to avoid the measuring to exceedingly steer the competitive intelligence operations.

The companies were asked what areas of competitive intelligence they thought needed improvement in their company. The emphasis of this question was therefore not on what areas were deemed as important as such. The answers can be interpreted such that the smaller value the alternative is given, the better it is arranged in companies. Figure 27 illustrates the importance of the improvement areas.

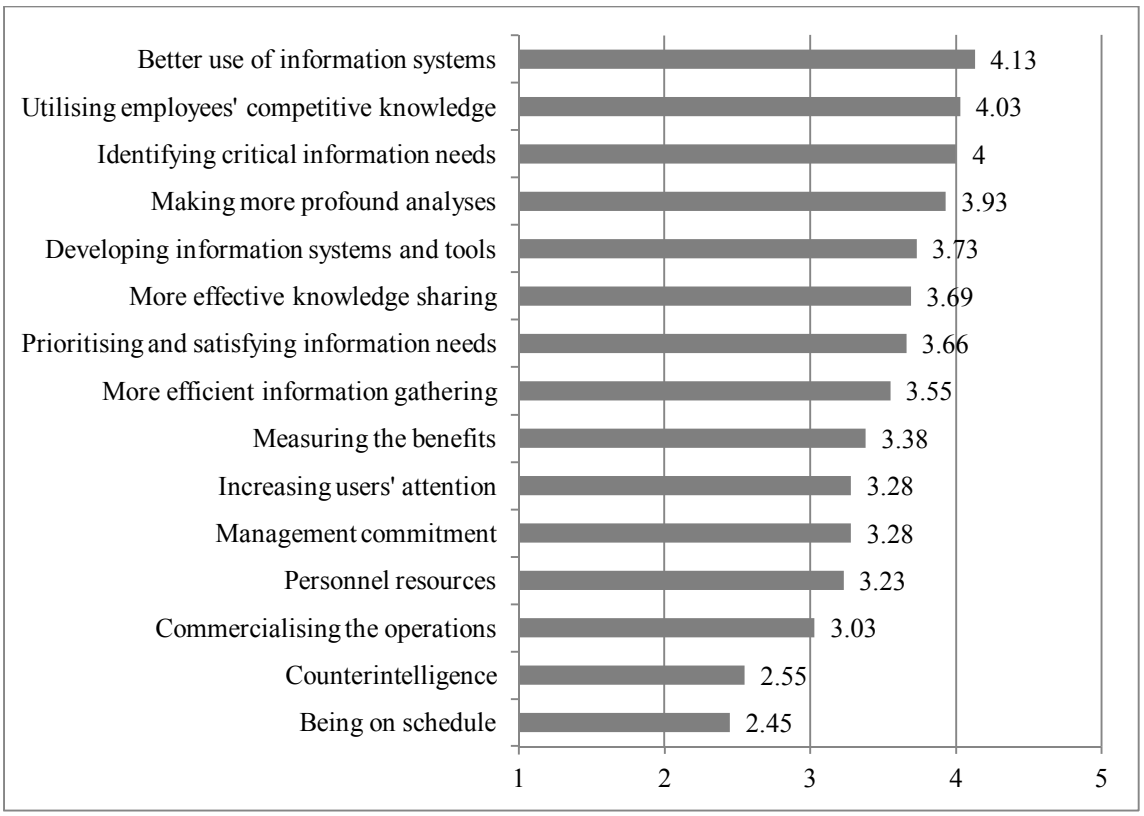


Figure 27. Areas of competitive intelligence in need of improvement in companies (1=not at all important to improve, 5=extremely important to improve).

"Better use of information systems" regarding competitive intelligence was considered to be the most important area for improvement. "Utilising employees' competitive knowledge" ranked second, and "identifying critical information needs" was the third most important area for development. One company chose the alternative "something else" and valued it as extremely important (5) saying that speeding up operations was their number one target for development; the response time for requests should be shorter and the operations more proactive.

6.1.4 Prospects for competitive intelligence

When asked about the future prospects of competitive intelligence, the rather labile and challenging state of world economy had a clear impact on the answers. Almost every

company mentioned the effects of the prevailing recession on the company operations in general and competitive intelligence in particular. Despite the economic situation (or maybe specifically because of it) 59% of companies were going to increase their investments in competitive intelligence and only 9% were going to decrease them in the next five years (2009–2014). Those planning to increase the investments argued for this by stating that the role of information in supporting decision-making becomes more important in such a tight economic and competitive situation. At the same time, the challenging economic situation forced some companies to cut their investments in competitive intelligence even though they acknowledged its value. Some of the companies planning to decrease their investments in competitive intelligence based the decision on making the operations more efficient, reducing overlaps and critically evaluating the price of outsourcing, for example, consultant reports. Thirty-four per cent of companies wanting to maintain the investments at the same level as before said that in the present economic situation the investments could not be increased, but there was no will to diminish these important operations, either.

Finally, the companies were asked to evaluate what kind of changes they anticipated in competitive intelligence within the next five years. This open-ended question was asked from both the company's point of view and competitive intelligence in general. Figure 28 illustrates the future trends in competitive intelligence emphasised in the companies' answers.

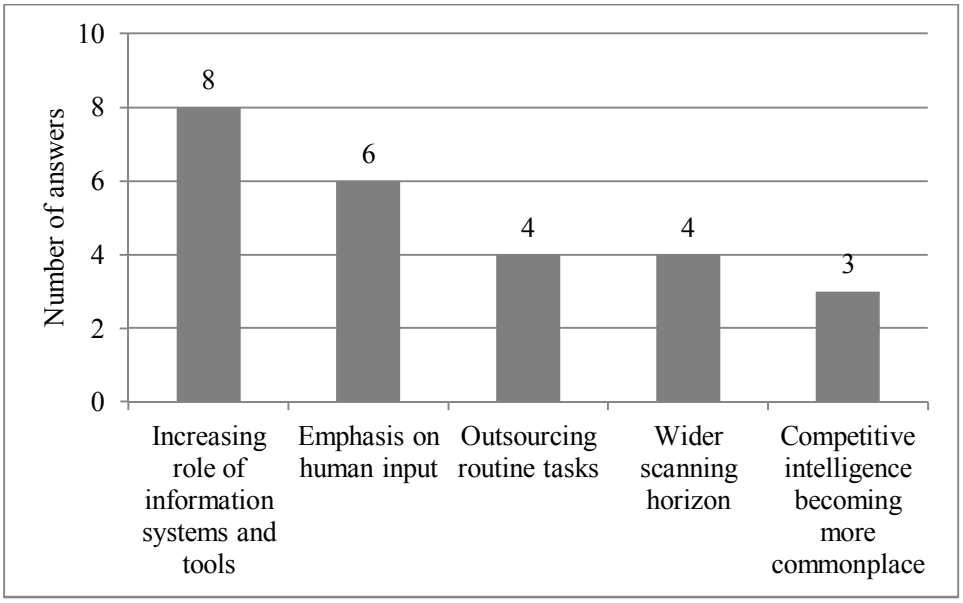


Figure 28. Future trends in competitive intelligence.

Eight companies mentioned the noteworthy role of information systems and tools: the value of new technologies and sophisticated tools was seen in making operations more efficient and automatic. Monitoring information sources can be partly automated, information can be filtered and processed more efficiently than before, making the

operations faster and leaving more time for refining the information into better quality analyses.

The role and importance of humans were seen as a central trend (six companies). The importance of analysts and experts in analysing the information was seen to be emphasised: “The value comes from the people, not from the systems”. Eliciting and sharing employees’ knowledge and tools for this were in the interests of the companies. Open-ended questions about the future trends of competitive intelligence also revealed that a collaborative approach and discussing in intranets, blogs and wikis was believed to enable interactions and knowledge sharing over organisational boundaries and spatial locations. One company said that ”with the use of communities a large company can gain the benefits of a small company”, as in low virtual organisational structure and informal knowledge sharing.

Four companies believed in outsourcing the routine operations of competitive intelligence. This aims at making the operations more efficient in order to get the company’s own competitive intelligence personnel to focus on valuable knowledge refining and analysis. The comments regarding outsourcing, however, emphasised the rather trivial routine tasks, and that outsourcing needs to be done carefully.

Four companies mentioned the widening of the scanning horizon. As the geographic dimension expands, the company must look more widely at the operations and environment. In addition to its own industry and markets a company must also monitor customers’ industry, parallel industries and other markets: the perspective was believed to shift from micro to macro. There will be more subjects and targets for competitive intelligence to monitor, but the information sources that need to be taken to account will also increase due, for example, to social media. As the scanning expands the time span also changes and emphasises prediction. In the future the scenarios were expected to focus on the 10–15-year time span.

Three companies believed that competitive intelligence would become more commonplace and integrate with other business processes. Becoming commonplace would mean that competitive intelligence evolves from the top management’s service function into employees themselves increasingly producing and analysing information, making competitive intelligence a company-wide function.

6.2 Social media study

6.2.1 Companies’ attitude towards and use of social media

The study sought to ascertain companies’ attitude towards social media as well as how companies were using social media at the time. This was elicited not only from the adopting companies, but the experience and knowledge of the experts and service

provider companies was also used to gain an understanding of the status quo. According to the study, fear of the unknown seems to be very much present in adopting social media for business use. One of the experts interviewed stated that companies in Finland have so far not adopted social media very extensively, and that this is due to three features of Finnish companies: First, the expert argued that the CEOs are arrogant and do not want to be taught anything new. They shrug their shoulders at things they do not understand and are not interested to find out more about them. Second, the management in Finnish companies is relatively old, many of them baby-boomers. The soon to retire management is not eager to learn about new technologies and is acutely aware of the dangers of social media. Third, the expert argued that Finnish companies are not good at actively seeking new business models. They like to settle for the old and are easily lulled into believing that it will continue to be successful in the future.

Even though these rather critical reviews of Finnish companies' challenges for adopting social media seem rather harsh, there is some truth in them. For example, in 2007, 25% of CEOs and vice presidents in Finnish companies were over 55 years old (Statistics Finland, 2007). As there is a reverse correlation between age and social media use (see e.g. Statistics Finland, 2010; Madden, 2010; Chou et al., 2009), it can be assumed that the management's age affects how eagerly a company takes a stand on social media.

> *Management consists of the TV generation that has bad experiences of teleworking and lacks understanding of the digital world. (E4)*

The adopting company interviews revealed that not many of the companies had an official or consistent position on social media use. In two of the four companies interviewed social media had not been formally discussed by management nor did the company use social media consistently:

> *Our company has a very inconsistent conception of social media. It depends who you are asking in our company: are we a Finnish pace-setter company or are we totally cords off the wall in these things. (C2)*

> *The management has not officially stated that social media is banned, but they see it as some sort of hype. Therefore you need to explain it to them from the functionality point of view and not mention that it is social media. (C4)*

> *Other companies in the benchmarking forum are in the same situation as we are; starting things but not yet quite sure, what we want to do. (C1)*

According to the study, the general atmosphere in companies seems to be that the top management seeks reasons that justify them in not taking a closer look at social media. Other companies' failures or realised risks of using social media in any business context are used as arguments against social media without even wanting to understand the concept or its potential.

> *If someone makes the mistake of trashing the boss in Facebook, Facebook is banned from everyone. That is the same as if someone sent an email to the wrong address, so emailing should be banned from everyone. The attitude towards social media is paranoid: they think of any reason for not having to think about it. (E1)*

The results of the study suggest that IT and communications are the main authorities regarding social media in companies. However, their actions regarding social media are not usually conducive, but rather related to restricting its use or banning it altogether. As one interviewed expert noted, this attitude however may make social media even more tempting for employees:

> *IT sees social media as a porn site. The attitude is that basically it should be banned altogether. However, banning something from the employees is like putting kids to stand in front of the window of a candy store and say that they are not allowed to go in: it increases the temptation. (E1)*

Despite the reluctant attitude towards social media, companies are however interested in social media. The interviews with the adopting company representatives revealed that even though management may seem reluctant to take a stand on social media, it is becoming increasingly aware that they cannot avoid the issue indefinitely. The pressure may come from within the company, from the employees who want to use social media tools to improve their work. It can also be seen as a question of company image: if the company's message is being in the front line of development and implementing novel technologies, how credible is the message if the company ignores using social media?

> *There is a bit of that that we need to be on the top of development, which creates pressure to take a stand on social media. (C2)*

Another issue is how the company's attitude towards social media affects its attractiveness as an employer. The new generation of employees has a premise that they can use social media to enhance their work processes. For them it is a natural way of communicating, also in the work context.

> *Social media is like the red pill in the movie Matrix: once you eat it you cannot go back to the blissfully ignorant world. Then when you have to deal with people who live in the old world you have to travel back in time. (E4)*

> *Our company has to take a stand on social media within the next 5–10 years, possibly already within the next 2–3 years. - - - The new generation of employees cannot think of not having social media. It is the same as if you took cell phones from us. - - - It is a weakness of the employer not to have social media in use, or at least the employer needs to have really good arguments for why it is not used. And as we are not a military company, we need to have really good grounds if we want to stay as withdrawn and closed as we are now. (C2)*

Knowledge is today's resource and currency: sharing knowledge creates knowledge and trust. However, to share knowledge there need to be proper opportunities and channels for it. Impromptu social events like coffee table or hallway discussions are commonly used for this, but this requires being in the same location. In many cases the knowledge sharing happens between colleagues, but the bottom-up approach is lacking: there are no mechanisms to collect ideas and information from the grassroot level, and these are in many cases the seeds promoting company position.

> *The things that have made a company successful haven't required these (social media tools). The thing is to remain successful, how they should change their way of working. The things that made companies successful will not keep them successful in the future. (B1)*

According to the study, in order to continue successful in the future, companies need to explore the possibilities of utilising social media in their everyday business. Otherwise their image and attractiveness as an employer may suffer, in addition to not gaining the business benefits that social media could bring. For example, how credible do people today see a company that refuses to use email, Internet or cell phones to do business and rather insists on communicating only by handwritten letters and face-to-face meetings? Maybe the question in next ten years can also be applied to social media use.

The adopting companies were asked how they utilised social media tools or Web 2.0 technologies in competitive intelligence context. One company used them for virtual meetings and compiling information for reports from different units. Another company used them for arranging internal scenario workshops. They had a technology screening and discussion site for experts and engineers that enabled them to discuss what new technologies are on the rise and what they mean for the company, megatrends etc. The company's person responsible for competitive intelligence also used LinkedIn to locate information sources. One company had an internal CEO blog, which occasionally and indirectly was a way to share competitive knowledge within the firm. However, as one expert pointed out, things shared in blogs are not necessarily so specific that they tell the readers anything new, especially in competitive issues:

You can take an CEO blog with the same content and place it in any other company. (E2)

One company did not use any social media tools for competitive intelligence purposes. As the usage rate of social media was rather low in the companies, the respondents were asked what they thought were the reasons for this. The answers revealed several challenges to successfully adopting social media in competitive intelligence, listed as follows:

- Managers' fear of losing control and position
- Information security and control issues
- Volume of users
- Motivating employees to participate and use

According to the study top-down control of knowledge sharing is still very strong in companies. As one respondent said, it is no use creating discussion forums if managers withold their information. They may fear that if employees are given the freedom to more widely and visibly discuss with each other, there is a chance of a rise of people who grow above their official roles and mandates because they have such vast knowledge, and thus create a threat to the manager's power and position. Managers may see them as threatening and uncontrollable.

Information security issues often arise when discussing any technological aid used for sharing knowledge. In many cases IT claims that a big problem with using social media is that social media software cannot be bought from companies that can make a

contract, that lay a basis, for example, for a trial in case of problems. However, this would seem to be an overexaggeration of the problem and evidence of not really knowing the situation of the social media application markets today: many well-known and large companies already provide highly sophisticated social media software for company use, in addition to micro companies and individual entrepreneurs selling their applications through the Internet.

The volume of users is a significant challenge for a successful social media application. The user mass in Internet in general is different from that in an individual company. The question of the number of users is especially noteworthy, if the users follow the 90–9–1 rule of participation (Nielsen, 2006): only 1% of the users are heavy contributors, 9% are occasional contributors and 90% remain inactive readers that do not contribute. If the total user count in a company is 500, this would mean that only 20 people would ever contribute, leading to rather modest benefits of social media use.

The study also revealed the difficulty of motivating employees to use social media for knowledge sharing. Especially in the case of competitive knowledge there were suspicions that the motivation to share the knowledge and use social media for this would be very challenging.

> *We have a very vast and heterogeneous user group in our company globally. The challenge is a) to make even a fraction of them aware of the tool and information needs, b) get them to use it, and c) use it so that they really know how to use it. (C2)*

The challenge is also connected to the focus of the knowledge: it is easier to get people talking, for example, about the program, venue and the date of the office Christmas party, than getting them to share more important information regarding competitive issues.

> *The challenge for competitive intelligence is how to focus the actions and propel people in the right direction, so that something sensible can be gained from the tool. But at the same time be careful not to restrict the people too much, so that it demolishes itself and only takes up time. (C2)*

> *If benefits are not found they blame the tool, even though the problem is in the users. (E4)*

Balancing between initiating the initial use with easy but irrelevant subjects and then directing the discussion to issues more essential to business is a challenge. Too little moderation or too strict control can both impair the employees' motivation to use the tools, and consequently decrease the benefits gained from the tools.

6.2.2 The perception of the potential of social media in competitive intelligence

The study explored the perception of the potential of social media in business, and especially in the competitive intelligence context. In a general context the respondents had a fairly unanimous understanding that the greater the firm, the bigger the benefits of social media use could be. They saw social media providing an opportunity to meet

more people and discuss issues from different contexts within the firm. Social media was thought to develop the company culture in a more open direction giving employees permission and opportunities to participate and collaborate. The respondents believed that it would encourage people to better link and interact with each other and thus facilitate knowledge sharing within the company. In addition, this increased interaction was seen as a way to create a sense of community that could help to strengthen the sense of unity within global companies, which can otherwise have a very remote and fragmented organisational culture.

> *I believe it changes the culture, way of working and way of thinking. Social media is however not a value in itself, but needs to serve a certain purpose. (C1)*

These general benefits were seen to apply in the competitive intelligence context as well. Social media enabling the creation of networks and lowering the barrier to contact people were deemed especially beneficial for better sharing of competitive knowledge. Social media can help to create a vast network in a short period, whereas creating a face-to-face network usually takes much longer. However, as one of the respondents underlined, it takes a long time before social media network members can be called friends: building a deep and trusting relationship through social media takes more effort and time than in traditional face-to-face networking. People still want face-to-face contact, and therefore social media was seen as an additional aid in interaction instead of replacing traditional ways altogether.

> *I don't think it will ever replace hallway discussions, but it can create bridges between people and lower the barrier to contact them. (C3)*

The results of the study revealed that a better overall understanding of issues gained through social media enhanced knowledge sharing and facilitates general interactions within a company: it lowers the barrier for picking up the phone or sending an email to find the right contact more easily. As one respondent said, collaborative work creates scope for profitable growth.

Social media was seen as a channel for bottom-up knowledge sharing, which seems to be desired especially regarding competitive knowledge:

> *Competitive intelligence looks at things from a narrow point of view, they don't know how to elicit information from the grassroot level. (E2)*

> *Social media has a potential to serve as a channel for better hearing the bottom-up messages. (C2)*

Traditionally a company's competitive intelligence personnel has had very limited opportunities to utilise the potential of employees as knowledge sources. Access to informal discussions has been limited, as it would require being at the right coffee table at the right time, where interesting issues occur at that moment. Social media could be a great help for competitive intelligence personnel, as well as for individual employees, to identify and locate information sources and experts within a company. Internal social

media tools can create a profound change in organisational actions by bringing equality and enhance collaboration, facilitate knowledge sharing and following knowledge to its source.

> *We competitive intelligence personnel do not know enough about the business, so we need to have good contacts to those who have business knowledge and local knowledge in order to make good analyses and reports. Social media could help to build this network for competitive intelligence. (C2)*

Respondents said that social media can directly benefit the business by bringing visibility to competitive intelligence. Using social media leaves a trail of information that would otherwise not be visible. Benefits may include eliminating overlaps in information gathering and analysis: when there is a place to find information about what others are doing or have already done, overlap will cease.

> *The most interesting and fruitful points usually come from within the company, in meetings and such. If they could be documented in a way that enables locating them later on, it would be valuable. (C2)*

However, in order to reap the benefit, it requires a new way of thinking and doing competitive intelligence:

> *What comes to competitive intelligence, people are accustomed to just getting information, not contributing to it themselves. It is difficult to turn around into a collaborative process. One of the biggest changes is the change in culture: it requires a massive change in thinking and internal ways of doing things. The evolution from a consumer to a contributor takes its time. (C1)*

According to the study, using social media may afford several additional business benefits: it can lower transaction costs, save time and make processes more efficient and effective. It enables shifting from linear, planned and sequential industrial processes to dynamic, simultaneous, responsive processes that utilise digital world:

> *Making Encyclopedia Britannica needed a company for making it, loads of contracts, a specific group of people producing the content and process and so on, just to get the books done yearly. Now the contracts have been replaced by community licences or open licences, peer production and so on. (E3)*

> *In the economic uptrend you could do with a little less understanding. But it is not enough to know what everyone else knows, the information needs to have some kind of substance and our company context or some meaning, or that you could evaluate the level or value of the information for us or somebody else. I think social media would bring just this context to the information. (C2)*

Despite all the potential benefits social media was reported to create for competitive intelligence, it was also acknowledged that it does not solve all the problems. One remaining challenge is how to create meaning and understanding of the vast mass of knowledge that can be shared through social media applications:

> *There are no techniques to bring out meanings and insight from a mass of information within a social media platform. Content aggregators take words out of context, but you must know the context AND the source in order to understand the information. So far there are no technologies for this, and therefore it is always a human job to go through the information and*

filter it to the managers. This person needs to have business understanding and know the company in order to connect information with the users. Employees' awareness of what is important is critical, that is, awareness of information needs. (E2)

The respondents agreed that social media is an enabler and a tool that could bring several benefits in competitive intelligence context. However, the best practices of utilising social media, the most suitable applications, and how to realise the potential in competitive intelligence remained unanswered.

The focus of information does not matter when choosing the tools, but what is to be done with the information: do we want to aggregate and classify or just discuss. The choice of the tool is influenced by the users and usability, not the focus of the information. (E4)

Social media is not a value of itself. The value is dead if social media is adopted without a sensible approach. (S2)

In all, the study emphasised the perception that social media should be regarded as a tool and enabler. In addition, in order for it to be usable and successful, the business context, the purpose for which it is used, must be carefully considered and communicated to the users.

6.3 Case study

6.3.1 Current knowledge sharing practices

Employees as knowledge sources: supply and demand do not meet efficiently

The respondents and the interviewees in both Alpha and Beta saw themselves as good sources of competitive knowledge. As Figure 29 illustrates, the top three issues the respondents considered they knew best concerned customers, the economic situation and markets.

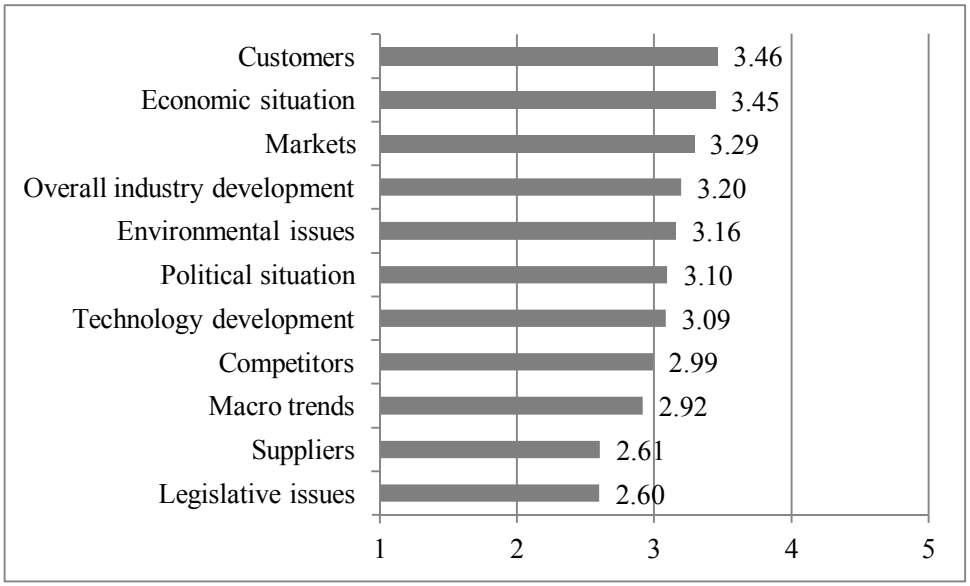


Figure 29. How much knowledge respondents consider themselves to have regarding competitive issues (1=not at all, 5=extremely much).

According to the interviews there is room for improvement in the case companies' comprehension of competitors' and markets' needs, even though the importance of being aware of developments in the business environment is acknowledged. Currently knowledge sharing and analysis concerning the external environment is made on an ad-hoc basis, and the results are not widely circulated or used:

> *One of the main weaknesses as a company is the poor understanding of the external business environment.(AI_1)*
>
> *We don't have systematic ways to record data about competitors. Fragmented uncoordinated collection by some people only. Certainly valuable unused potential available here… (BR_1)*
>
> *We haven't done competitor analysis very efficiently. We might know their products, but we have no idea of their other means to compete: why they do well, why they are doing well with our customers and why they beat us. The sort of deep understanding is lacking. (BI_5)*
>
> *In my opinion everybody in this company should scan the external business environment, because it affects everyone's actions to some extent. (AI_9)*
>
> *I would like to have basic information about our competitors and other companies in the industry. I would like to understand their goals, strategy, what markets they are on, who their customers are and how many customers we share. This information is actually quite hard to find. It probably resides within the firm, but I can't go from person to person and ask if they might know about these firms. (BI_11)*

The respondents evaluated sources of knowledge within the organisation according to their quality and importance (Figure 30).

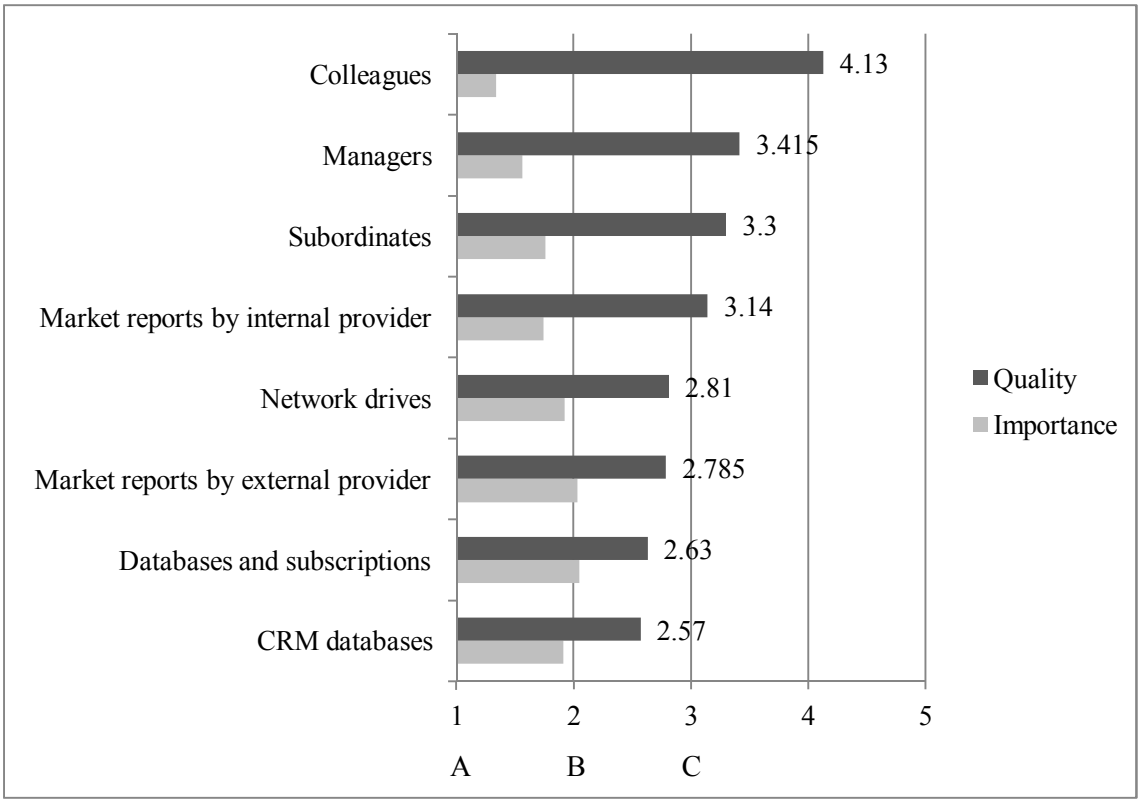


Figure 30. Quality and importance of sources of competitive knowledge (quality: 1=very poor, 5=very good. Importance: A=very important, C=not important).

Overall the quality of knowledge sources was rated fair (average 3.10). The best quality sources were human sources: colleagues, subordinates and managers. The databases and subscriptions were ranked to have the poorest quality. For example, in Alpha the CRM databases were criticised as too heavy to use, too cumbersome to enter information, and too diversified to generate answers to simple questions. The reliability of the information in the CRM databases was also questioned, since rectifying incorrect information could not be easily done. In Beta the U drive, acting as the current central knowledge database, received criticism for not being user friendly. Finding information from the U drive was deemed troublesome since the amount of folders and several level structures does not follow common logic. The information mass has grown to huge proportions and the classification has not been able to keep up with it.

The knowledge sources rated as most important were colleagues and managers in both companies. In Alpha the competitive intelligence department was rated as the least important source. This can partly be explained by the respondents' background: even though the questionnaire was open to anyone in Alpha to answer, not all the respondents may have had access to the competitive intelligence department's services. One interviewee criticised the knowledge provided by the competitive intelligence department for being of little value:

> *Unfortunately the relevance is quite minimal, since the knowledge they provide is coded and trivial. (AI_4)*

The interviews indicated that the employees possess ample valuable competitive knowledge but the knowledge sources and those needing the knowledge do not meet as efficiently as they should. One side of the problem is that when one has knowledge that is likely to be interesting to someone else, there may not be information about who this someone else is. Employees do not necessarily understand what knowledge would be valuable for others in the company, since the needs have not been communicated to them.

> *Because of my history I get some reports that might be useful for someone. I don't know what to do with them, so they just lie in my email. The problem is that even though you understand that this is important stuff and someone could need it you don't know to whom to give it, where to put it, how to communicate it.(BI_6)*

> *Sometimes I by chance receive an email discussion containing really interesting knowledge, and nobody just hasn't thought that it would be of any interest to me or they think that I already have the knowledge. (BI_3)*

Another challenge is that even if the relevance of knowledge is understood, there are not good enough channels to communicate it to those in need of it, as the following quote explains:

> *We have many databases in Alpha where I could picture myself writing down something interesting that I heard while visiting a customer. Sadly the access to them is often very restricted, so I don't have any idea where to put my knowledge to get it documented and shared to others. (AI_5)*

In addition, in both companies there is a lack of channels or ways to distribute knowledge that has no predefined receiver. On the other hand, those in need of knowledge can have a hard time finding the person who has the knowledge: they may know that it exists within the company, but they do not know whom to ask. In some cases the path can be very winding, leading from one person to another, and it may ultimately lead to a dead end: there is no efficient company-wide channel to ask questions that do not have predefined recipients.

> *At the moment the only way to find knowledge concerning the external environment is to discuss with people from the segment. And it is actually quite hard to find these people. (BI_1)*

> *We have this weekly meeting with our global team. We don't make memos about the meetings, the knowledge stays in one's own notes. The assumption is that everybody to whom the knowledge is important is present and that it isn't that important to anyone else. (BI_3)*

Furthermore, if obtaining knowledge and communicating it further is not a part of a person's job description they are not very eager to do it. In Alpha, management and leadership were identified as key factors affecting knowledge sharing or lack of it:

> *If you have knowledge about the external business environment, the current instructions could be described as "keep it to yourself". At the moment management hasn't expressed any wishes or demands that this knowledge is needed and should be shared and how it could be done. (AI_1)*

In speeches they praise the importance of sharing knowledge throughout the organisation, but that's just hot air. In reality the management does not demand or support knowledge sharing, and therefore it doesn't happen.(AI_11)

When the company doesn't push a new way of working and promote it like "hey, we have this system and this is how you use it, and it is cost-saving and can be used for knowledge sharing" it will not be used. (AI_11)

According to the interviews, in Alpha management gives orders and expects the personnel to act in a certain way, but it does not follow the same rules. The personnel find this to be a message that if management does not deem the issue important enough to act on it, then why should others bother either. The challenges multiply when trying to communicate the valuable competitive knowledge one has obtained to top management:

The only way to share this knowledge with management is to send them email. And there is a threshold for sending an email to the CEO about a weak signal or rumour, even though you know it might have an effect on things. (AI_5)

They (top management) don't get the knowledge, and they know it. Everyone understands that it is a big problem, but there is not enough time in either end of the line to correct the situation. (AI_11)

There are two opposite sides challenging the knowledge sharing and utilisation between employees as knowledge sources and top management as knowledge users: level of analysis versus lack of time. Top management would benefit most from well structured and summarised knowledge (i.e. knowledge that is already analysed to a certain easily comprehensible level). However, producing well structured knowledge takes time from the source to organise and outline the knowledge in a form that top management appreciates. On the other hand, if the knowledge source does not take the time to analyse the knowledge this has to be done by the knowledge user (i.e. top management). Browsing through a haystack in hope of a needle may take too much time compared to the benefit to be derived from it.

Network dependant discussions and emailing

According to the questionnaire, the top three ways to share knowledge were email, official meetings and hallway/coffee table discussions (Figure 31).

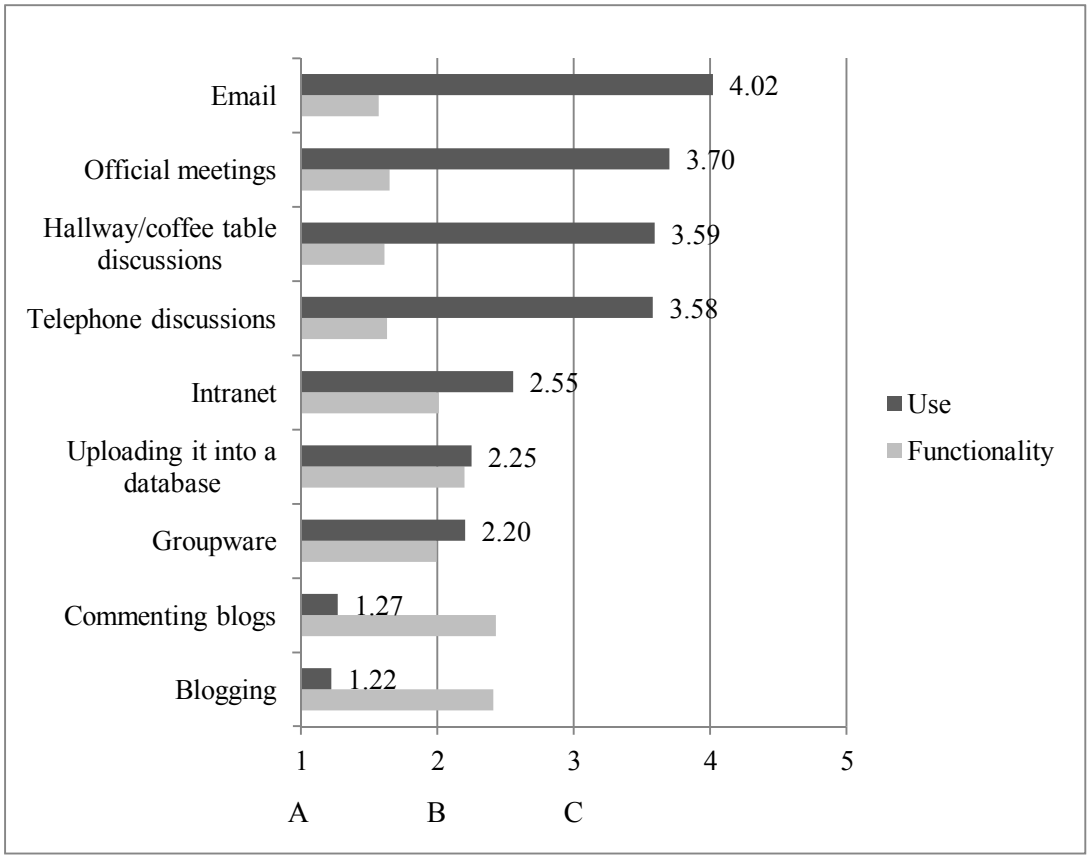


Figure 31. Use and functionality of channels for sharing competitive knowledge (use: 1=not at all, 5=extremely much. Functionality: A=good, C=poor).

Blogging and commenting blogs were the least used channels of knowledge sharing. Even though the questionnaire results pointed email as the most frequently used and also the most functional way of knowledge sharing within the companies, the interviews yielded a contradictory result. The interviewees acknowledged email to be the main tool for information sharing at the moment, but at the same time it was seen as a problematic and cumbersome medium:

> *Too much of the conversation still happens between mailboxes. The most valuable knowledge is lost specifically in the black hole of mailboxes. (BI_3)*
>
> *Everybody understands the value of knowledge, but there is no channel to share it effectively. People don't know how to define who is in need of the knowledge, and they don't want to stuff others' mailboxes in vain. So, if they are not sure if a piece of knowledge really is relevant to someone, they choose not to send it at all. (BI_6)*
>
> *The problem is that my email account is constantly full. People send big attachment files that I have to archive somewhere else. Then the information is scattered in different places and I cannot find it when I need it. (AI_5)*
>
> *People don't have any sense of proportion when using email. They put 50 people as recipients, even though the subject is relevant to only a few of them.(AI_3)*

Another problematic issue when using email is that it reaches only those people who are listed as recipients. The person having actually the best up to date knowledge about a certain issue may not be among them and therefore cannot contribute. Again,

knowledge shared and cumulated in emails may be buried in long email chains, where only a fraction of the content is relevant, and that content may be hard to find. As the content of email messages is only visible to the sender and recipient(s), a person may have to answer same questions from different people over and over again, because the answer is not visible for anyone to see.

The least functional knowledge sharing channels were blogging and commenting blogs (see Figure 31). At the time of the questionnaire it was not possible for just anyone to start a blog within the companies and when only a few people were blogging, it is understandable that neither blogging nor commenting blogs was seen as a very effective way of sharing knowledge. It was also noted by several respondents that the focus and substance of blog posts is often very broad and that they contain mostly nice-to-know type of information that is bound to that certain point in time:

> *How well something works in the long run is dependent on how relevant the information is and how well it is documented. Blogging tends to include much irrelevant info and quickly loses value, where as a go memo has a longer lasting value. (BR_10)*

In the interviews knowledge concerning competitors was seen as the most difficult knowledge to obtain within the companies. In Alpha, the competitor and customer knowledge provided by the competitive intelligence department or its reports was considered too general to answer most of the questions. Competitor knowledge is very complex and often the needs for it are very personalised: different people need different kind of knowledge about the same competitor and want it in different format and time. The bottom line is that there probably is no way of satisfying all needs at the same time, at least with the current ways of working.

Both companies unconsciously follow the personalisation strategy of knowledge management: the knowledge resides within people and is not usually codified in documents. Personal network defines greatly the access to knowledge sources within both companies. The better and more extensive one's network, the easier it is to identify appropriate knowledge sources. The knowledge sharing depends heavily on one's own network within the company, which is problematic especially for a new employee who has to start the long process of building the network from scratch:

> *It takes a couple of years to build up a good enough network of your own, so that you know whom to ask the questions from and get the knowledge. Until then getting knowledge gives you grief and gray hair. (AI_6)*

> *Our knowledge in Beta is very person bound. The key is that when you have been here long enough and especially in a central position, you have a vast network and you know who knows what. It really shouldn't be like this, that you have to have to be here for ten years and done something with every function in order to build a sufficient network. (BI_4)*

> *If you want to know something, you have to know from whom to ask. The only way of getting the knowledge is to hunt it down from your network. (AI_2)*

> *How much you get knowledge depends on your own activity level. The more energy you have to dig the knowledge up yourself and the more you chat with people: that's the most effective way*

to get knowledge. If you're not an active chatterbox you have to work hard for the knowledge on your own. (BI_5)

Knowledge sharing relying on the mouth-to-ear principle and counting on personal networks is very vulnerable. How well knowledge is obtained and shared depends on a person's network, chemistry between people, how busy they are or even on what mood people are in.

Knowledge sharing culture

The knowledge sharing culture within the case companies was explored with several statements that the respondents evaluated from their own perspectives (Figure 32). The statements aimed to ascertain, how the recipients perceive the knowledge sharing to function and how the organisation affects this.

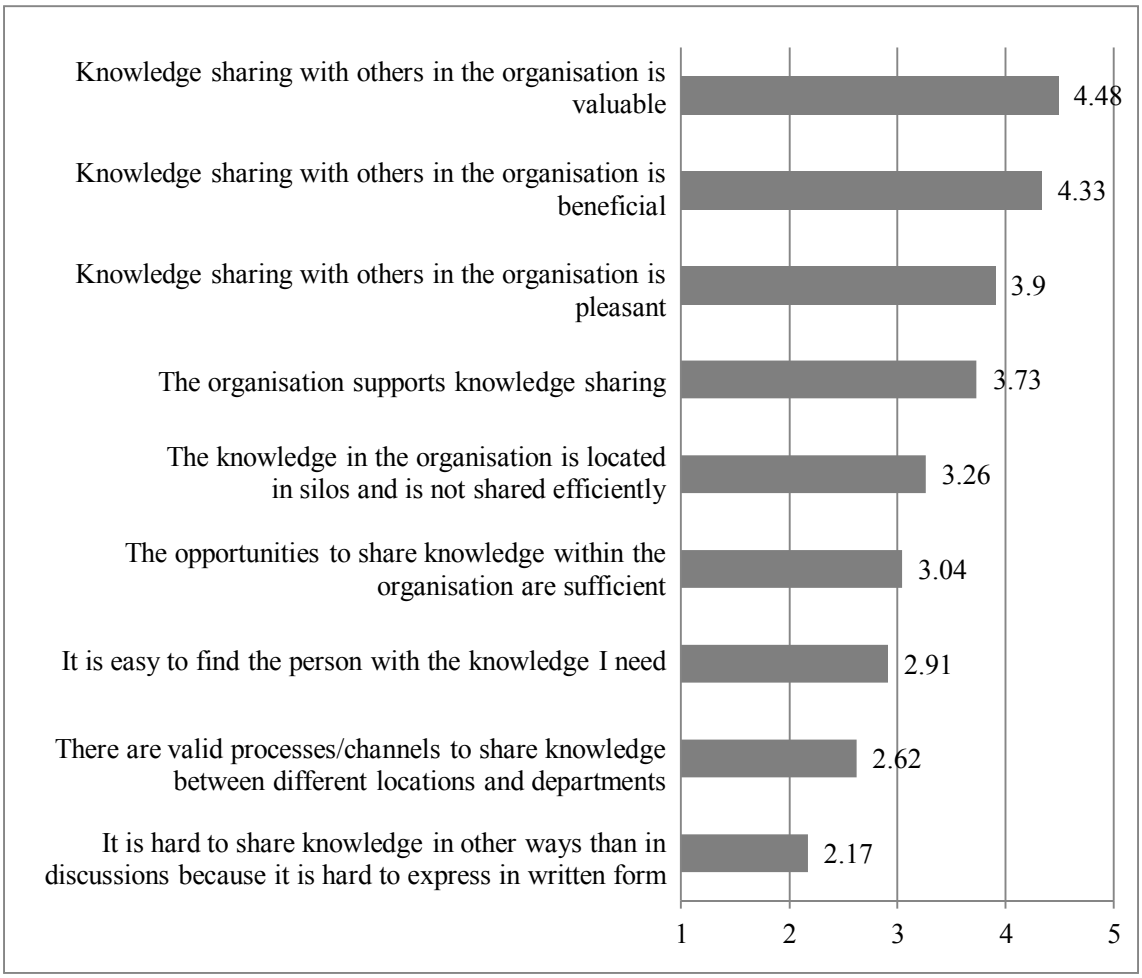


Figure 32. Organisational knowledge sharing culture (1=strongly disagree, 5=strongly agree).

The results of the questionnaire reveal that knowledge sharing with others in the companies is considered valuable, beneficial and pleasant. Yet the answers to the open-ended questions as well as the interviews reveal another dimension: even though knowledge sharing is understood to be significant and important from everyone's own

perspective, sharing knowledge with others is still considered problematic. The answers to the open-ended questions in the questionnaire mostly described how difficult respondents thought knowledge sharing to be. Most of the interviewees in Alpha also stated that Alpha's culture does not particularly support knowledge sharing. Even if, when directly asked about it, some of the interviewees stated that Alpha's knowledge sharing culture is open, their answers to other, more subtle, questions revealed a different picture.

> *In our organisation, people refuse to volunteer their knowledge. If you ask the right questions then you get it. This is wrong. Knowledge in the organisation is a value to all, those who have and those who have not.(AR_3)*
>
> *Most of Alpha's locations seem to work only internally. No knowledge transfer is taking place. (AR_7)*
>
> *We have lots of valuable knowledge within Alpha, but getting it is very difficult. Sometimes it feels like certain people see knowledge as a vessel of power: they don't want to share too much of it and they don't want to document it in any place where it could be visible to others. (AI_2)*
>
> *Sometimes you can also notice that having knowledge creates wrong kinds of leverage and power statuses in this organisation. (AI_9)*

In Beta the interviews supported the finding that knowledge sharing culture was considered to be open and supportive of knowledge sharing:

> *Here in Beta we have a tradition of being frank. If you go and ask somebody something, you get the answer. (BI_11)*
>
> *We talk about stuff in an open manner; nobody tries to hold back their knowledge. (BI_2)*

However, Alpha and Beta share another factor that impedes knowledge sharing: companies naturally have to keep important knowledge safe, which can also lead to a very protective attitude towards knowledge. In the case companies this has led to quite a strict information security policy that in some cases was considered excessive. People do not have access to other segments' or units' information systems, although there could be valuable knowledge that should cross organisational borders:

> *We have quite strictly secured U drives within segments. The only way of getting knowledge from a different segment is to ask their personnel to prepare an info package for us.(BI_1)*
>
> *Our competitors are typically not organised in the same way we are. They may operate in several segments, but here the knowledge about these competitors just doesn't flow between segments. (BI_6)*
>
> *Even though the segments may have different products they may have same competitors, but I can't access other segments' pages in databases or intranet. It's kind of funny that we can't see each others' travel reports even though they might be of use to colleagues because we do have even the same customers. (BI_7)*
>
> *We tend to exaggerate information security risks so much that soon we can't do anything because it might include a risk. (AI_11)*
>
> *I also think that we are quite paranoid as a company to keep the information hidden so that nobody can steal it or misuse it. If somebody (Alpha employee) really wants to harm or steal information, he will do it, no matter what kind of security policy we have. At the moment we*

are just preventing ourselves developing further, because of the poor knowledge sharing! (AI_10)

Empowering employees to share knowledge concerning competitive issues more freely might provide the company with better understanding about the external environment, but it might also cause more risks for the company's information security. Keeping important information and knowledge safe should certainly not be overlooked, but excessively protective and restrictive protocols can also block the very beneficial knowledge sharing within the company. Sharing knowledge and protecting it are two sides of the same coin, and they should be balanced properly in order to benefit from knowledge and also not waste too much effort on protecting knowledge that does not really need protection.

In all, when asking an individual employee's opinion from their own viewpoint, knowledge sharing is considered to be a good thing, but it is felt to be somewhat cumbersome. In Alpha this was because of other people's reluctance to share their knowledge and the prevailing culture that does not encourage or demand people to share knowledge. In Beta the difficulties stemmed from insufficient access to knowledge over segment borders and the lack of working channels to share and request for knowledge.

6.3.2 Using a collaborative platform for knowledge sharing

The questionnaire elicited the respondents' mindset towards using a social media platform for sharing competitive knowledge. A definition[7] of the platform was first given in order to clarify the term. Figure 33 shows the respondents' willingness to use such platform.

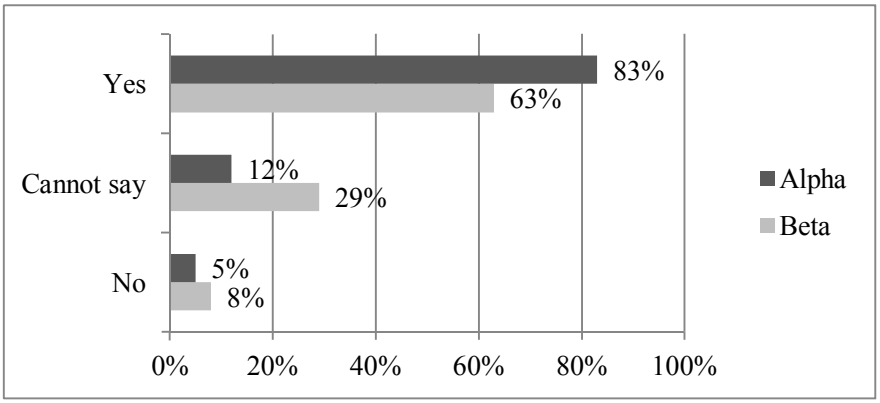


Figure 33. Respondents' willingness to use a social media platform for sharing competitive knowledge.

[7] "A collaborative platform can be defined as "a set of software components and software services that enable individuals to find each other and the information they need and to be able to communicate and work together to achieve common business goals" (c.f. Wikipedia). Consider that your company would have an organization-wide technological collaboration platform for sharing knowledge. The platform would allow you to publish your knowledge and insights, ask questions, comment and discuss with others about external environment related issues, and search for knowledge and people within the platform."

In both companies the majority of the respondents were positive about sharing their competitive knowledge through such a platform and there were only a few who would not want to use it. The number of indecisive respondents was significantly greater in Beta than in Alpha, as it rose almost to a third of the respondents. A third of the respondents explained their answers in their own words. Most (69%) were positive and the remaining third were negative or hesitant. The positive comments were encouraging for a more effective way to share knowledge within the companies:

> *Quick access to information is an important step to improve our working efficiency. People working in technical areas spend considerable time on searching. (AR_6)*
>
> *Without sharing knowledge, our company's future is challenging and questionable. (AR_4)*
>
> *Active knowledge sharing is in the best interests of Alpha and a collaborative platform is essential for a global company. (AR_5)*
>
> *A global company needs such tools. The time zone challenges support such approach. (AR_8)*
>
> *Why not? At least to increase organisational learning. (BR_4)*
>
> *We should find alternative ways to sending only emails.(BR_5)*
>
> *We don't all know every single detail. Collaboration allows the best people to give their best bits together. (BR_7)*
>
> *It is a way of communicating what is inside our heads to a broader audience. (BR_8)*
>
> *Beta is full of very knowledgeable people all over the world and most of the time they don't know each other exist. (BR_6)*

Important remarks on the challenges of implementing such platform were also made as well as deflated sighs of frustration:

> *When someone posts an answer for all to see, it is hard to disagree with the statement. If you choose to disagree you are opening a discussion for all to view. Therefore you may cut the conversation shorter than you would like to. (BR_9)*
>
> *I have not seen a working example of this. (BR_3)*
>
> *It could be hard to find time needed for writing ready-to-publish information. (AR_9)*
>
> *Knowledge is the basis of our company and needs to be shared – but the tools need to be easy and user friendly to encourage knowledge sharing rather than making it more difficult. (AR_10)*
>
> *Just let me do my job. (BR_2)*

The significance of respondent's age and overall familiarity with social media affecting the willingness to use social media platform was tested statistically. Table 20 presents the results of tests performed to study the connection between age and willingness to use social media platform.

Table 20. Results of performing the Pearson Chi-Square test for respondents' age and their and familiarity with social media.

Crosstab

			Age					
			–29	30–39	40–49	50–59	60–	Total
Familiarity with social media	None	Count	0	0	0	0	0	0
		%	0%	0%	0%	0%	0%	
	Little	Count	2	8	10	10	5	35
		%	6%	23%	29%	29%	14%	
	Somewhat	Count	5	22	36	14	2	79
		%	6%	28%	46%	18%	3%	
	Much	Count	6	0	6	2	0	14
		%	43%	0%	43%	14%	0%	
	A great deal	Count	0	0	0	0	0	0
		%	0%	0%	0%	0%	0%	
	Total	Count	13	30	52	26	7	128
		%	10%	23%	41%	20%	5%	

Chi-Square tests

	Value	**DF**	**Exact p**
Pearson Chi-Square	30.92	8	0.00028
Likelihood Ratio Chi-Square	27.42	8	0.00089
Mantel-Haenszel Chi-Square	8.85	1	0.00280
Fisher's Exact Test			0.00098
Sample size	128		

The results show that the older the respondents were the less familiar they were with social media. The results are statistically significant ($p < 0.05$). In addition, similar tests were performed to find out if overall familiarity with social media affected the respondents' willingness to use social media platform for competitive knowledge sharing (Table 21).

Table 21. Results of performing the Pearson Chi-Square test for respondents' familiarity with social media and their willingness to use a social media platform for competitive knowledge sharing.

Crosstab

			Willingness to use			
			No	Yes	Cannot say	Total
Familiarity with social media	None	Count	0	0	0	0
		%	0%	0%	0%	
	Little	Count	4	25	11	40
		%	10%	62%	28%	
	Somewhat	Count	6	64	20	90
		%	7%	71%	22%	
	Much	Count	0	15	2	17
		%	0%	88%	12%	
	A great deal	Count	0	0	0	0
		%	0%	0%	0%	
	Total	Count	10	104	33	147
		%	7%	71%	22%	

Chi-Square tests

	Value	DF	Exact p
Pearson Chi-Square	152.23	9	0.0026
Likelihood Ratio Chi-Square	17.38	9	0.0156
Mantel-Haenszel Chi-Square	1.20	1	0.2952
Fisher's Exact Test			0.000006
Sample size	147		

A statistically significant ($p < 0.05$) connection between the two factors was established: the stronger the degree of familiarity of a respondent with social media, the more positive was the attitude towards using the platform (Table 21). Finally, the effect of age per se on the respondents' willingness to use the platform was tested (Table 22.)

Table 22. Results of performing the Pearson Chi-Square test for respondents' age and their willingness to use a social media platform for competitive knowledge sharing.

Crosstab

			Age					
			–29	30–39	40–49	50–59	60–	Total
Willingness to use	Yes	Count	1	0	7	0	2	10
		%	10%	0%	70%	0%	20%	
	No	Count	9	22	36	19	4	90
		%	10%	24%	40%	21%	5%	
	Cannot say	Count	3	7	9	7	1	27
		%	11%	26%	33%	26%	4%	
	Total	Count	13	29	52	26	7	127
		%	10%	23%	41%	20%	6%	

Chi-Square tests

	Value	DF	Exact p
Pearson Chi-Square	11.60	8	0.16
Likelihood Ratio Chi-Square	14.04	8	0.11
Mantel-Haenszel Chi-Square	0.43	1	0.57
Fisher's Exact Test			0.15
Sample size	127		

The results show that age as such did not have a directly significant effect on willingness to use a social media platform ($p > 0.05$). However, in relation to the other tests, age has an indirect affect on willingness through the relation of age and familiarity. Still, this does not necessarily prove that age is the most important determining factor, but it should be understood that individual features always have an effect depending on the person in question. A twenty-year-old may be more reluctant to use a social media platform than someone over fifty-five years.

Motivational factors of using social media as a channel for sharing competitive knowledge

The respondents were asked what would motivate them to share their competitive knowledge through a social media platform. These motivational factors should be taken into account and endorsed if or when designing and implementing such a platform in the case companies. The questionnaire results (Figure 34) show that the respondents were committed to help their organisation to achieve its goals and were willing to share knowledge if this is reciprocal: getting something valuable in return motivates people to share their knowledge. Overall the respondents seemed to be quite eager to share

knowledge if the motivational factors were in place: the average of the answers was 3.40 and the lowest mean was 2.28.

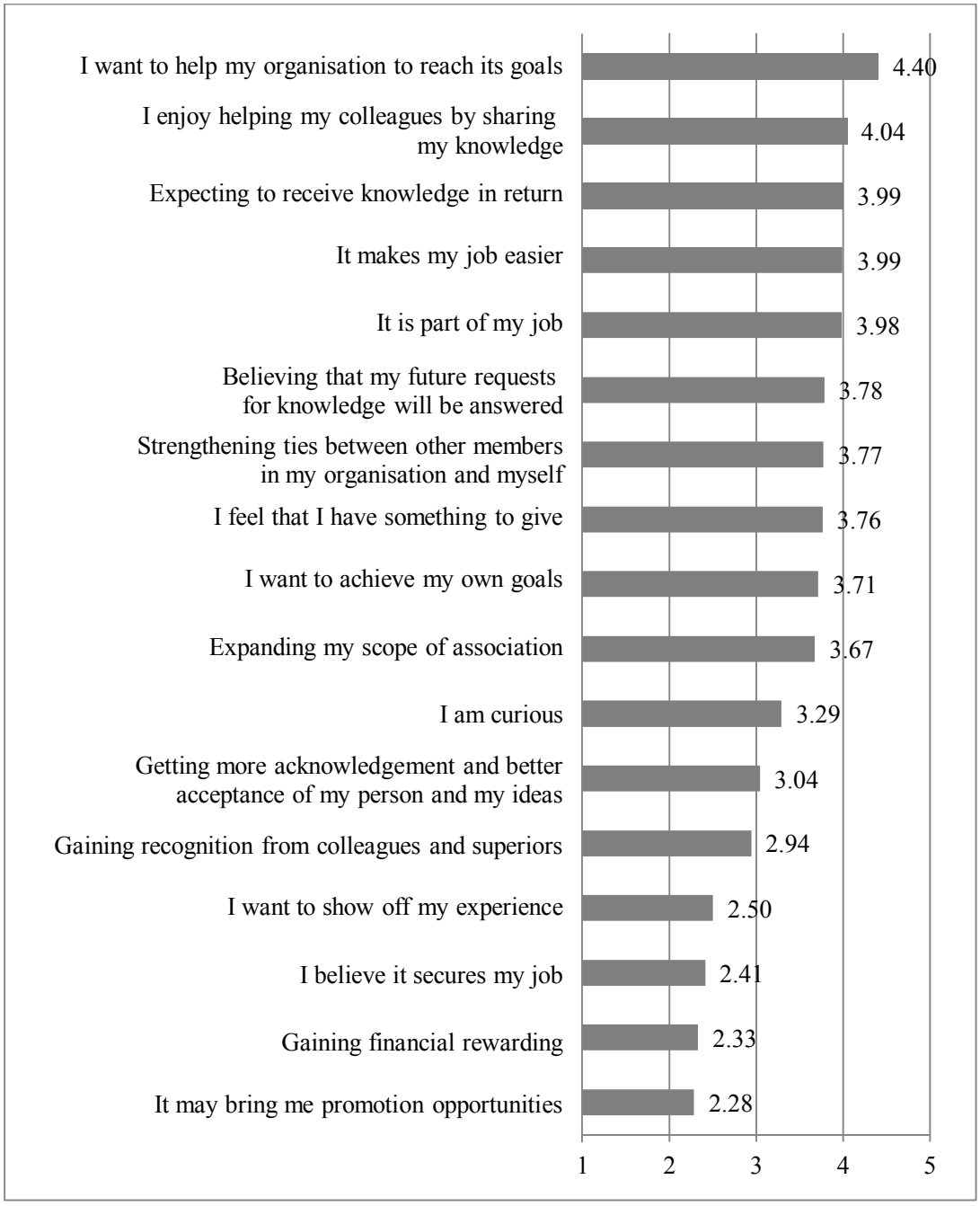


Figure 34. Factors motivating respondents to share competitive knowledge through a social media platform (1=not at all, 5=extremely much).

The motivational factors that would encourage people to share knowledge through such a platform were quite similar to those that can be found in earlier research on knowledge sharing theories (see e.g. Ardichvili et al., 2003; Ipe, 2003; Barachini, 2009): people are motivated to share knowledge when it is reciprocal, it gives an individual employee a chance to influence the company's results and there are sufficient opportunities to share knowledge.

Even though financial rewards were seen as one of the least motivating factors, the interviews revealed that some kind of incentive was seen as a good way to motivate employees to change the current practices (e.g. excessive emailing, storing information in several databases) towards using a social media platform. According to several respondents, praise and thanks from superiors were seen as motivating factors, whereas plain orders and obligation to share knowledge would just turn people against it, or at least it would impair the quality of knowledge. The results show that the best way to motivate the respondents to use a social media platform for knowledge sharing would be to assure them that by using the platform their workload will not increase but it will facilitate and ease their work instead.

Statistical testing (Pearson Chi-Square Test) was again used to find out how the respondents' age and overall familiarity affected their answers. The Chi-Square test was performed for the top three motivating factors and age, and again with the familiarity. The results did not show any significant dependency between the factors ($p > 0.05$ in all cases).

Barriers to knowledge sharing: areas that should be given extra attention

One question set examined the barriers of knowledge sharing, that is, the factors that prevent the employees from sharing their competitive knowledge through a social media platform. Again, the questions were expressed in the form of statements that the respondents evaluated from their own perspectives. Figure 35 illustrates the results.

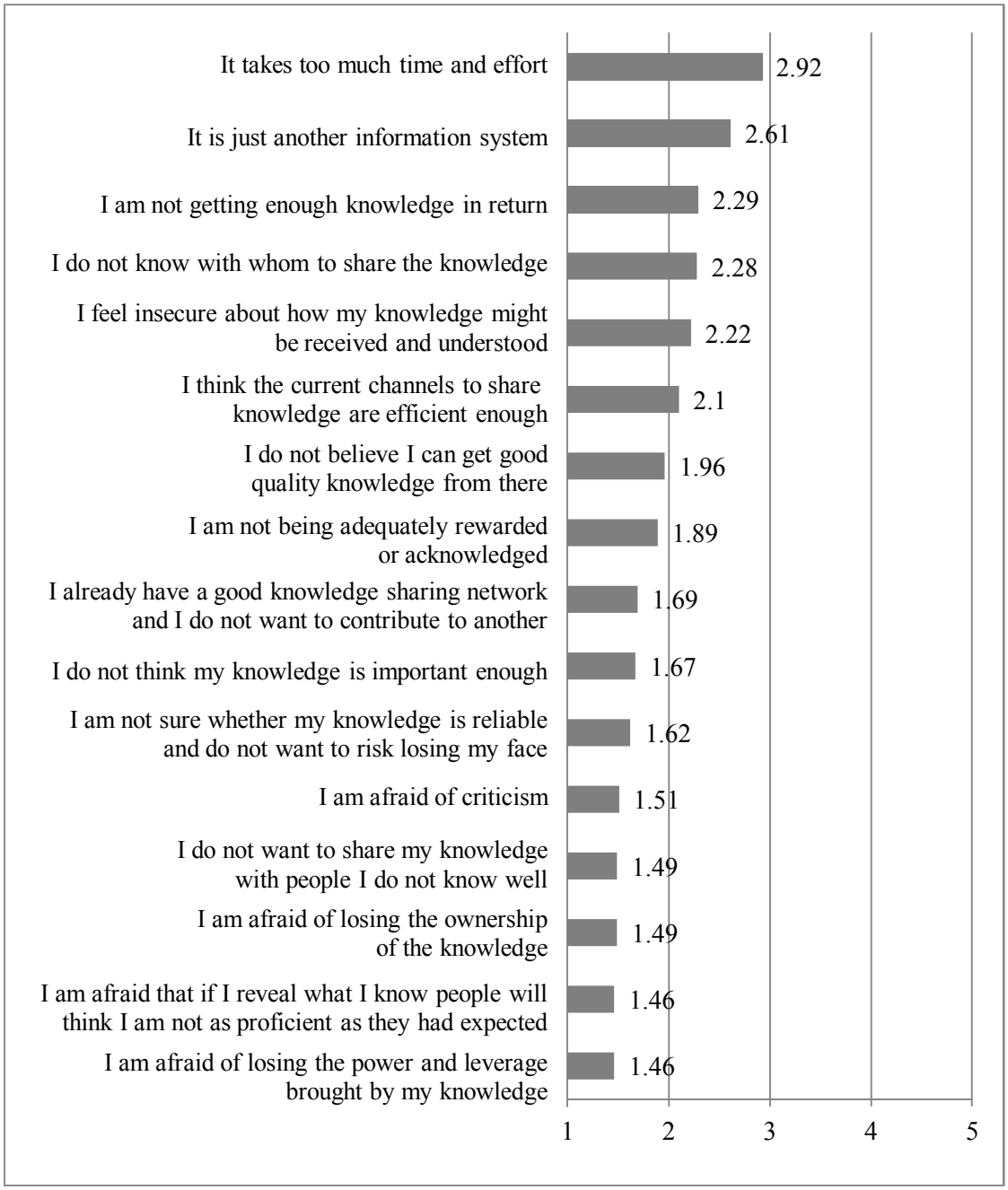


Figure 35. Factors preventing respondents from sharing competitive knowledge through a social media platform (1=not at all, 5=extremely much).

According to the results the barriers were not significantly present in the companies: on a scale from 1 to 5, 1 was the mode in almost every question. This indicates that respondents do not find these factors inhibit their knowledge sharing but are fairly keen to share their knowledge to others in their company.

The most significant barrier was concern that it would take too much time and effort to share knowledge through a social media platform. If the platform is not easy to use and it does not benefit the users by making their work easier, they will not want to use it but will stick to their current ways of working and sharing knowledge. A third of the

comments in the questionnaire could be summarised as two statements: "using a collaborative platform takes too much time" and "hanging in this kind of a 'company Facebook site' is not real working but a waste of time".

> *Seems that involvement with shared data would be overly time consuming and distracting from tasks at hand. Cost/benefit questionable! (BR_12)*

Respondents' greatest concern about competitive knowledge sharing via a social media platform is the assumption that it either increases the workload, takes excessive time from the "actual" work, or is inefficient altogether. Some of this may spring from a traditional perception of what working is, which does not include chatting or sharing links:

> *I've always thought that this discussion about how much time it (using a social media for knowledge sharing) takes is peculiar: is working always only about making an Excel sheet or a Power Point presentation? In my opinion it is more important that if you refine or share knowledge that in the end benefits the company it has nothing to do with wasting time. It is work all the same, even if it is done with different tools or despite it isn't accordant with somebody's official job description. (AI_10)*

Another concern was that it would be just another information system. As there are already many information systems the employees are obligated to use even if they do not find them beneficial to themselves, it is understandable that they are not too eager to learn how to use yet another information system to contribute to. Respondents and interviewees suspected that most people would still be clinging to the current practices even if new ones would ease the workload in the long run. It is also seen that some, often ageing, employees are not willing or able to adopt new ways of working or use new technologies.

> *This is quite a fossil company in that taking on new technology here is really a challenge. There are still lots of people who don't even know how to use a computer. (AI_6)*

To study whether age had any significance to the barriers, Chi-square tests were performed to find out if the age and overall familiarity had an effect on the responses. In this case, too, no significant effect was found between these background factors and the responses ($p > 0.05$).

The respondents were also somewhat insecure about how their knowledge might be received and understood. This may refer to the fact that it is not always easy to explain complex issues clearly to others, and especially if it has to be done in writing to unknown recipients. Another aspect is the reliability of the knowledge: people do not feel secure about writing down rumours, hearsay or their own contemplations that are not thoroughly reasoned. If they are not thoroughly argued and proven good the ideas and their presenter may face a lot of criticism instead of positive attitude and joint efforts to develop the ideas further. This was emphasised in both case companies and described as an "engineer's attitude" towards knowledge:

We as engineers want to do things to perfection. In social media it doesn't matter if the knowledge is fuzzy, because the network of people rectifies, improves and completes it. Getting used to this requires a fundamental change in the way we Finnish engineers think, because we have always been taught that you have to make things perfect. (AI_1)

We have this engineer's mentality: if you are not absolutely sure about something you will not upload or share it. Everyone has this kind of an internal filter, and if it's not downright said or encouraged by the organisational culture that share for goodness sake regardless of the certainty, then we won't do it. (AI_7)

If we are now building some kind of knowledge sharing tool, it is important that there is a low treshold for inputting the data. This also means that it should be a platform for open discussion, the information added does not have to be 100 % right in the first place. (AI_4)

The employees' attitude towards knowledge and knowledge sharing is decisively shaped by the organisation culture of the company. If the culture does not support sharing informal or incomplete knowledge, it does not matter what channel is used for knowledge sharing. Therefore, in order to make the most of the potential of social media tools in internal competitive knowledge sharing the mindset and attitude towards knowledge should be prepared to better accept the sharing of incomplete information and knowledge and the idea of collaboratively cultivating them further.

PART IV: CONCLUSIONS

7 CONCLUSIONS AND DISCUSSION

The final chapter of the dissertation draws together the findings from the theoretical research and those from the empirical study. The chapter gives answers to the research questions. Moreover, the chapter discusses the contribution of the dissertation from both theoretical and practical viewpoints. The research is also assessed regarding validity, reliability and generalisability. Finally, some ideas for further research are presented.

7.1 Answering the research questions and research problem

The general starting point of this dissertation was the assumption that social media has an effect on the competitive intelligence process. The aim was to understand how social media changes the competitive intelligence process and how it could enhance the elicitation of employees' competitive knowledge. The dissertation sought answers to research questions that together could provide an explanation for the main research question: how can social media change the competitive intelligence process? Both theoretical and empirical research was conducted in order to find sufficient knowledge to draw conclusions on the issues. A summary of the key findings of the research is presented in Figure 36.

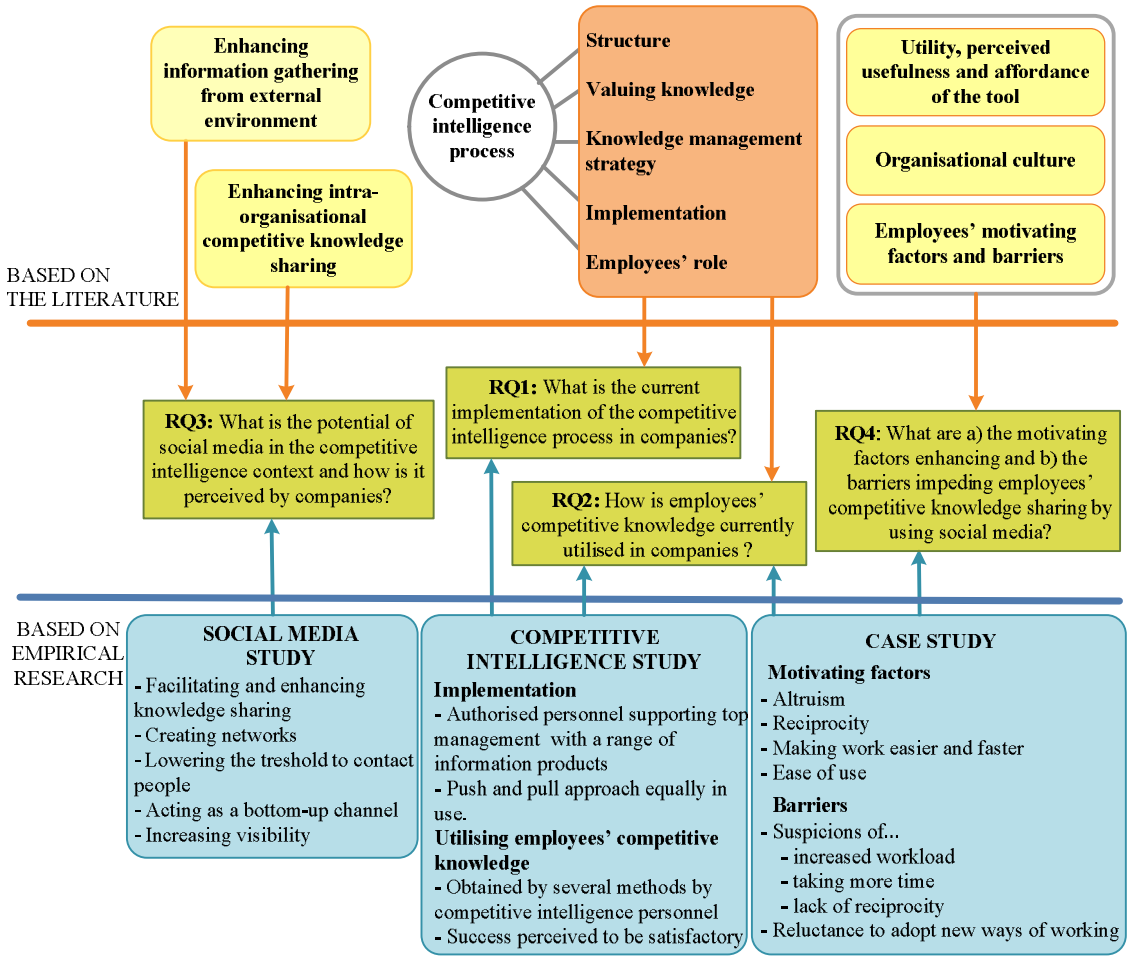


Figure 36. Main findings of the dissertation.

These key findings are next discussed in more detail together with the related research questions. Finally, drawing from these, the main research question is answered.

7.1.1 RQ1: What is the current implementation of the competitive intelligence process in companies?

On the basis of the theoretical research, a general theoretical process model can be identified (Chapter 2.3, p. 31–39), but the implementation of the competitive intelligence process is still company-dependent (Chapter 2.4, p. 39–43). The results of the competitive intelligence study show that all the large companies interviewed in Finland have target-oriented competitive intelligence operations aimed at gathering and analysing competitive knowledge. Over half of the companies have appointed personnel to be responsible for competitive intelligence, and they are usually situated near top management. The motivation for carrying out competitive intelligence operations in the companies was in line with the general aim presented in the literature: to avoid surprises and to support decision-making and strategy (see e.g. Gilad, 2004; Hill and Scott, 2004; Tyson, 2005; Chapter 2.5, p. 43–44).

The practical application of the competitive intelligence process was a focal topic of the competitive intelligence study, according to which the methods of competitive intelligence personnel to identify users' needs are various and incoherent: understanding the needs of the users relied mostly on informal and sporadic discussions between the competitive intelligence personnel and users, or the user articulating a specific need, for example, when requesting an ad hoc report on a given issue. Identifying information needs was deemed challenging due to the future-orientation of information needs. In addition, in line with the theory (Pirttilä, 1997; Wilson, 1997; Butcher, 1998), several of the challenges were related to the difficulties of users communicating their needs. It is evident that having an outsider trying to identify users' needs results to insufficient understanding of what information is actually needed, which may result to inadequate information gathering. On the other hand, trained competitive intelligence personnel may have skills and access that enable them to acquire and analyse information more efficiently than an average user according to the needs communicated to them.

The theory suggests that information gathering utilises several sources both internal and external to the company (see e.g. Choo, 2002; Chapter 2.3.2, p. 35–36). In the competitive intelligence study the focus was on the level of utilising employees as knowledge sources. The companies perceive that they succeed fairly well in gathering and utilising employees' competitive knowledge, even though this is also seen as one of the most important areas for improvement. The methods for obtaining the employees' competitive knowledge mostly applied the push approach (see Chapter 2.6.2, p. 52), requiring initiative from the employees. According to the responses, no commonly used and evidently well-functioning method or channel for obtaining the employees' competitive knowledge was used in the companies.

Analysis by definition (see Chapter 2.3.3, p. 36–37) is giving meaning to information in a certain context by utilising experience and suitable methods. In order to see beyond the obvious (Bose, 2008), analysis methods and techniques can be used. The theory presents several formal analysis techniques and tools that are commonly believed to be used by competitive intelligence personnel and decision-makers (see e.g. Fleisher and Bensoussan, 2007; Bensoussan and Fleisher, 2008). However, evidence from the competitive intelligence study reveals that these formal analysis methods were not deemed very important in companies, or the expertise needed to use them was insufficient. The most important methods for analysing information were benchmarking, competitor and market profiling and SWOT analysis. According to the results the level and value of the analysis made without using available and proven methods could be questioned: if no rigorous evaluation methods are applied to reveal the underlying patterns and connections of information, is the "analysis" more than merely reading and accepting the given information as such? In practice it is hardly likely that this would be the case, as people always interpret what they see or read, often unconsciously, and decide what they regard as reliable and useful. Still, as a good analysis requires, among other personal features and skills, experience as well as

knowledge about the given issue and context (see e.g. Bose, 2008; Kamensky, 2008), if these are lacking the use of sophisticated analysis methods cannot mend the shortcomings.

As discussed in the theoretical part (Chapter 2.3.4, p. 38), the role of technology in disseminating and sharing competitive knowledge is emphasised. The results of the competitive intelligence study support this perception: according to the study, new technologies are becoming more popular in disseminating information products and analyses from competitive intelligence personnel to users. Webcasts, video conferences and Web 2.0 technologies are even seen as more important channels for information dissemination than, for example, traditional email (see Figure 23, p. 115). However, they are not necessarily used accordingly, but companies have clearly become interested in their potential, as they are believed to better enable the sharing of knowledge and to promote human interaction.

According to the empirical findings from the competitive intelligence study, the main users of competitive intelligence are top management and the business development function. The results show that the relevance and importance of competitive knowledge is believed to correlate with organisational status. As a result, the study supports the illustration of the traditional competitive intelligence process model (Figure 11, p. 82): The role of competitive intelligence personnel was to support top management's decision-making by satisfying their needs with suitable information products. That is, the operation mode mostly followed the "serving the few" rather than "empowering the many" approach (Kinsinger, 2008) to competitive intelligence implementation. The focus of organised information gathering was on the external sources, which mostly provided the input for the information products. The competitive intelligence personnel also acted as filters and mediators of employees' competitive knowledge. The companies perceive that they succeed fairly well in gathering and utilising employees' competitive knowledge, even though this is also seen as one of the most important areas for improvement. Currently the role of the employees is that of an occasional source of knowledge that is insufficiently utilised, or a rather passive recipient of information products.

The competitive intelligence study showed that 91% of the companies thought their performance in competitive intelligence had been at least satisfactory. Regarding benefits achieved, they are in line with earlier research (see e.g. Collins, 1997; Gilad, 2004; Fuld, 2006): competitive intelligence had improved the quality of information, increased knowledge sharing within the company and enabled early recognition of threats and opportunities. Thus competitive intelligence was in practice fulfilling its promise and expectations. Still, making operations more effective was in the focus of companies: better use of information systems and their compatibility was seen as the most important area for development in competitive intelligence. The role of information systems, technologies and tools was believed to be emphasised in competitive intelligence operations, but not at the cost of people. Technology is

considered to release resources and make operations more efficient as it can enable automate trivial and routine tasks and thus allow human resources to be allocated to analyse and further enrich information. According to the competitive intelligence study, the role of human input will be emphasised in the future, as competitive intelligence is believed to engage employees in the process more widely than before. The issue has long been prevalent in research (Herring, 1991; Drott, 2001), and in the light of the empirical results it is demonstrably topical. Instead of analysts doing analyses and disseminating readymade reports to users, the users themselves take a more active part in analysing and sharing knowledge. Collective and informal knowledge sharing and discussion enabled by new technologies can help to remove organisational boundaries and spatial restrictions and thus enable a more fruitful knowledge sharing within companies.

As noted earlier in this dissertation (Chapter 1.1, p. 4, Chapter 4.1, p. 75), one of the main challenges for competitive intelligence is the changing information environment. The empirical results promote this conception. According to the results of the competitive intelligence study, the scope of competitive intelligence will shift more and more from micro level to macro level as the changes in information environment affect companies' business environment and force them to keep up with even more subjects than before. Social media for its part increases the available information sources, but it also offers technologies to automate some parts of information gathering and processing. Another challenge is that the need for long term forecasts and analyses will increase as companies want to be better able to prepare themselves for economic changes. This sets requirements for competitive intelligence, and especially the expertise of competitive intelligence personnel: an analytical approach and profound understanding of the business are emphasised. Therefore competitive intelligence personnel need to have a good network and knowledge sources within the company in order to have a thorough and comprehensive support from business functions for their analysis: the connection between competitive intelligence and employees' competitive knowledge is expected to strengthen.

Reflecting the results to anticipate further developments in the competitive intelligence process, competitive intelligence is expected to become a more every-day function and integrate more closely with other business processes. This can be attempted by engaging employees more widely to gather, analyse and share competitive knowledge making competitive intelligence operations a part of their everyday jobs. At the same time the requirements for the expertise of the competitive intelligence personnel will increase. In the future the operations will be made more efficient by utilising sophisticated information systems and technologies for competitive intelligence purposes and by outsourcing routine tasks.

7.1.2 RQ2: How is employees' competitive knowledge currently utilised in companies?

Employees are acknowledged to have valuable potential in acting as sources of competitive knowledge in companies (Collins, 1997; Drott, 2001; Fleisher, 2001; Chapter 2.6.1, p. 46–47). The case study revealed that internal human sources, such as colleagues, managers and subordinates were indeed considered to be the best quality as well as most important sources of competitive information. By contrast, in Alpha the competitive intelligence personnel was rated as the least important source of competitive knowledge. This can be explained by the sample of the case study, as not all the respondents were necessarily users or "internal customers" of the competitive intelligence personnel. However, another explanation emerging in the results is that competitive intelligence personnel cannot provide detailed enough knowledge, but provides rather general level information that does not satisfy the needs. Prior research suggests similar reasons for why delegating the execution of the competitive intelligence process to authorised personnel is not always the best solution (Pirttilä, 1998).

According to the literature the potential of employees' competitive knowledge has so far mostly been underutilised as a source for competitive intelligence process (Fuld, 1991; Herring, 1991; Bernhardt, 1993; Hannon, 1997; Broome, 2001; Chapter 2.6.2, p. 47–55). The reasons for this are the lack of communication (Fuld, 1991; Herring, 1991; Bernhardt, 1993; Hannon, 1997), lack of suitable channels and lack of motivation (Hannon, 1997). The empirical results provide contradictory results regarding success in utilising employees' competitive knowledge: according to the competitive intelligence study the perceived success in the utilisation of employees' competitive knowledge was mainly satisfactory. However, the case study indicates that the ability to utilise employees as knowledge sources is insufficient: even though employees are regarded as important and good quality sources of competitive knowledge in the case companies, the empirical results back up the theoretical findings. The need for competitive knowledge is not communicated or expressed, and neither is the understanding of who are good sources of knowledge in which issues in the companies. Second, the lack of channels for sharing competitive knowledge impedes the utilisation. Although knowledge sharing is regarded as pleasant and valuable, it is also perceived to be rather inefficient and cumbersome with the current channels in use. This is emphasised especially in knowledge sharing over organisational boundaries. Third, employees lack motivation to share their competitive knowledge with others: even though it is seen as valuable, beneficial and pleasant, the lack of support and example from management does not emphasise its importance. Fourth, at the moment in both case companies competitive knowledge is mostly shared with colleagues within one's own function or department and not circulated more widely within the company. Still, it was acknowledged that competitive knowledge could be valuable to other functions as well, and conversely other functions' and departments' knowledge would have benefited each other. The challenges for sharing this knowledge over organisational boundaries were

identified to occur from organisational culture, weak ties between departments, lack of sufficient channels and strict information security policy.

The reason why the competitive intelligence study and the case study yielded differing answers to the research question can be explained by the use of different data collection techniques but especially by the different perspectives. The company representatives answering the questions in the competitive intelligence study were the people responsible for the competitive intelligence operations. Therefore, their perspective on the utilisation of employees as knowledge sources was that of an information gatherer. They did not perhaps consider the overall potential of employees' competitive knowledge, but rather answered the question from the point of view of how well they obtained answers from the employees to the questions they occasionally posed to them. Or, if the utilisation relied on the employees' initiative to push their knowledge forward, the respondent might have been content with the knowledge received, however small the amount compared to the hypothetical potential not shared. Thus when asking about how they succeeded in the utilisation of employees' competitive knowledge from the case study respondents, they probably answered from a different perspective: in the role of employees who understand that they possess much more valuable competitive knowledge than they have so far shared with others. In addition, the case study respondents gave their answers from another perspective as well: as users of competitive knowledge who do not believe they have at their disposal the best knowledge because access to others' competitive knowledge is poor.

To conclude, even though from companies' perspective the utilisation of employees' competitive knowledge is rated to be fairly high, from the employees' (i.e. the sources and users of competitive knowledge) perspective the utilisation is not sufficient.

7.1.3 RQ3: What is the potential of social media in the competitive intelligence context and how is it perceived by companies?

The potential of social media in the competitive intelligence context seems to be twofold. First, on the basis of theory, from the 5C categorisation (Chapter 3.2, p. 59) especially completing tools (Chapter 3.2.4, p. 64–66), such as tagging and syndicates can improve information gathering from the company's external environment. Utilising social media as an external source of competitive intelligence can provide manysided information: communicating tools (Chapter 3.2.1, p. 59–61), such as blogs and discussion forums, may offer competitive knowledge and serve as direct knowledge sources for competitive intelligence. In addition to serving as sources of information, social media tools can advance information source identification and information gathering from the company's external business environment. Tools for connecting (Chapter 3.2.3, p. 62–64) especially, such as professional social networks, can help to locate a potential source and completing tools, such as tags can help to further classify the source by describing the content and nature of the information source. In all, using

suitable social media tools information gathering from the external business environment can be made more efficient.

Second, backed up by both the literature and the social media study (Chapter 6.2.2, p. 126–127) social media can enable better sharing of competitive knowledge within a company. Using a functional combination of social media tools for competitive knowledge sharing, processing and analysing within the company may empower and engage employees to participate the competitive intelligence process in a more active manner. A collaborative setting, enabled, for example, by using tools for collaborating (Chapter 3.2.2, p. 61–62) (e.g. shared workspaces) and connecting (e.g. company's internal social networking sites), makes it possible to share different thoughts on a topic, and therefore adds value to the outcome: combining shared insights as well as discussing conflicting opinions within a company's collaborative platform can assist in forming a more multifaceted and truthful understanding of issues. Therefore, collaborative argumentation is possible as social media tools can enhance wider employee participation and collaboration in the competitive intelligence process. Collaborative argumentation and sense making through social media use may bring competitive intelligence to a new level, turning it into collective competitive intelligence.

The social media study corroborates theoretical findings; for employees the potential of using social media as a means to share knowledge within the company and as an enabler of collaborative competitive intelligence throughout the company can give them opportunities to better share their competitive knowledge as well as to utilise the competitive knowledge of others. For example, using an internal social media platform combining several tools that enable collaborative content creation, sharing and discussing ideas and networking with other employees can develop the company culture in a more open direction giving employees permission and opportunities to participate and collaborate. As ascertained by the social media study (Chapter 6.2.2, p. 126), this lowers the barrier to pick up the phone or send an email to find the right contact and person more easily, encourages people to better link and interact with each other and thus facilitates knowledge sharing within the company.

For competitive intelligence personnel the potential can be realised as they can benefit from the competitive knowledge shared with social media tools by using them to validate information (e.g. checking the reliability from multiple sources made more easily available by connecting tools), locate internal expertise and sources (e.g. seeing an employee's profile and areas of expertise as well as rankings from peers) and consequently enrich the information products. As elicited from the literature (Chapter 2.6.2, p. 47) and ascertained by both the competitive intelligence study (Chapter 6.1.2, p. 111–112) and the social media study (Chapter 6.2.2, p. 126) competitive intelligence has not been able to utilise the employees' knowledge to its full potential even though its value is acknowledged. The challenges were identified by the social media study to relate to the difficulties of bottom-up communication with the methods and channels

currently in use (Chapter 6.2.2, p. 126–127). Social media was seen as possibly making a contribution to facilitating this interaction, and subsequently evolving the process more towards a collaborative model as presented in Figure 12 (p. 83). In addition, the respondents of the social media study deemed social media to increase the visibility of competitive intelligence. As using social media tools makes it easier to search and find even informal information and following knowledge to its source, it leaves a trail of information that would not otherwise be visible (e.g. search a discussion forum by tags or following a certain user's activity in discussions). This again helps to eliminate overlaps in information gathering and analysis, and consequently saves time and makes work more efficient.

Creating networks was seen as one of the focal benefits provided by the use of social media by the social media study respondents (Chapter 6.2.2, p. 126). In order to understand how network creation actually benefits competitive intelligence efforts one might wonder if the value of social media is in creating networks *per se* or enabling knowledge sharing through these networks. That is, is the value in sharing competitive knowledge in, for example, a social media platform or discussion forums? Or is the value created by social media enabling to build a network that helps sharing and obtaining competitive knowledge with the help of the network regardless of the channel used? Ultimately, both of these may bring benefits to a company, and can be achieved by utilising social media.

7.1.4 RQ4: What are a) the motivating factors enhancing and b) the barriers impeding employees' competitive knowledge sharing by using social media?

According to the literature the factors that affect the use, and consequently the success, of using social media for sharing knowledge are to some extent related to the employees' perceptions and attitudes. First, the utility, perceived usefulness and affordance of the social media tools used are for knowledge sharing directly linked with the technological implementation of the tool. Still, evaluation of their utility, affordance and usefulness are personal judgments of the employees, and thus subjective. Second, a company's organisational culture is more abstract and rather more difficult to influence than, for example, improving the tools based on the user feedback received. Yet organisational culture affects the attitudes of the employees to knowledge sharing. If the culture does not support sharing competitive knowledge in the first place or does not support learning new ways of sharing, adopting social media successfully is challenging. Finally, factors that motivate employees to use social media to share their competitive knowledge along with the barriers that impede them from sharing are most subjective and personal. Motivation to share competitive knowledge and willingness to use social media for the purpose are key success factors for the success of the tools. Even if the utility, affordance and usefulness of the tools were established as good and organisational culture encouraged using them for sharing competitive knowledge, their value would not be realised if employees are not motivated to use them for sharing their

competitive knowledge. Therefore, understanding the motivational factors and barriers is essential in order to foster the employees' motivation and to remove the barriers and thus improve the opportunities of successful use of social media in competitive knowledge sharing.

In order to understand whether there were differences between the motivational factors and barriers of current channels and methods and those enabled by social media, the perceptions of the current channels were also studied. This way the case study could provide a more thorough understanding of the practical situation. As a conclusion from the theoretical and empirical research, the main factors that motivate employees to share their competitive knowledge through the current channels are related to being in the comfort zone: knowledge is usually mostly shared with familiar people and colleagues within one's own area of expertise or location, which does not require getting to know new people and contemplating trust issues. Even though the current channels are acknowledged to be somewhat inefficient, the employees still perceive them as easy to use compared to having to learn to use a new technological channel.

The barriers that impede knowledge sharing currently relate to the disconnectedness of knowledge sources and those in demand: a lack of understanding of who knows what within the company impedes efficient sharing and utilisation of competitive knowledge. This proves to be a problem especially in companies where knowledge sharing is heavily dependent on personal networks. Moreover, the location of knowledge creates challenges for knowledge sharing: competitive knowledge is often located either in people's heads or locked inside a database, mailbox or network drive. Finding and accessing it is difficult, as neither the knowledge nor its holder or location is clearly visible to others. A strict information security policy can also limit knowledge sharing, especially over organisational borders. Keeping important information and knowledge safe should certainly not be overlooked, but over protective and excessively restrictive protocols can also block the very beneficial knowledge sharing within the company.

The research reveals the motivating factors and the barriers of employees if social media, and especially a company-wide collaborative platform, were used for competitive knowledge sharing. Prior research suggests that motivational factors and barriers are dependent on the person's experience with using the social media tool in question (Paroutis and Al Saleh, 2009). The empirical results of this dissertation corroborate this conception by proving that the stronger degree of familiarity a person has with social media in general, the more positive is the attitude towards using social media for sharing competitive knowledge. Age as such does not have a direct significant effect on the willingness to use social media. However, in relation to the other tests, age has an indirect effect on the willingness through the relation of age and familiarity: the older the employees were the less familiar they were with social media, and consequently, the less willing to use it for sharing competitive knowledge. At the time the case study was conducted, neither of the case companies used social media tools for competitive knowledge sharing at company-wide level. Therefore, it should be noted

that the results refer to the motivating factors and barriers of non-users (see Table 13, p. 86).

The results of statistical testing did not show any significant dependency between employees' age nor their overall familiarity with the motivating factors of using social media for sharing competitive knowledge. Moreover, these background factors were not proved to have any significant effect to the barriers, either.

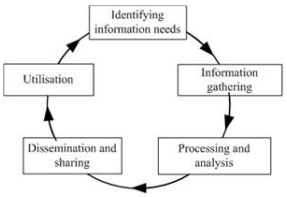
The motivating factors that would encourage employees to share their competitive knowledge using social media tools were in line with those found in earlier research on general knowledge sharing theories (Ipe, 2003; Ardichvili et al., 2003; Barachini, 2009). The focal factors that would motivate the employees to use social media for competitive knowledge sharing were helping the company and others altruistically, expecting reciprocity in knowledge sharing, expecting the use of social media to make everyday work easier and faster, and that the technology would be easy to use. However, if using social media would increase the workload, take excessive time or not be reciprocal enough employees would not want to use it. Other barriers to sharing competitive knowledge through social media were the reluctance to share imperfect knowledge or uncertain rumours for a wider audience and reluctance and inability to adopt new ways of working and new technologies.

7.1.5 The main research question: How can social media change the competitive intelligence process?

The dissertation argues that social media changes the competitive intelligence process. In light of the research it can be concluded that social media already has an effect on companies' information environment, as the widespread use of social media produces more volume and more versatile information than before. The changing information environment can affect companies in many ways, and in the competitive intelligence context it influences information gathering especially. In addition, social media can have affects on the elicitation of employees' knowledge and making competitive knowledge more visible in a company, but these affects are only felt if social media is introduced and adopted in companies.

The theoretical discussion suggests that using social media changes the competitive intelligence process model presented in the literature. Table 23 presents a summarising comparison between the two process models emanating from the theoretical discussion.

Table 23. Comparison of traditional and social media enabled process models.

	Traditional process model	Social media enabled process model
Structure	Cyclic consecutive phases 	Swirling 
Valuing knowledge	End-product	The refining process itself
Knowledge management strategy	Emphasis on codification	Supports personalisation
Implementation	Push: users as receivers	Pull: active participation
Employees' role	Authorised personnel	Employee collaboration

When using social media in competitive intelligence the structure of the process may be more reminiscent of a swirl of overlapping and interacting subprocesses containing many variations and participants. Valuing knowledge emphasises the entire journey from the source of knowledge, collaborative sense making, using the knowledge and finally making the whole process available and accessible to others. A social media enabled process tends more to follow the personalisation strategy of knowledge management although knowledge also has to be codified to some extent in order to share it through technological tools. Namely, some social media tools, such as blogs and wikis, place more stress on the codification of knowledge and act as a repository of knowledge. Social media provides an opportunity to implement the competitive intelligence process as participative and collaborative and engaging employees in the process. The role of the employees shifts to that of more active participants shaping the collaborative understanding by contributing their competitive knowledge to the process as well as better benefiting more from others' competitive knowledge.

In addition to changing the process model, the affects social media can have on the competitive intelligence process in practice are twofold. Even though the use of social media can provide some improvements and answers to current problems and challenges in the process, it may also create further challenges. The implications from both of these perspectives emerging from the research are presented phase by phase in the following subsections. However, as the phases are somewhat overlapping, especially in the social media enabled swirling process model, drawing the line is difficult: many activities in different phases also affect other phases. In addition, some additional questions that emerged during the research process are also considered.

Identifying information needs

The first task of this phase in the process is to define the most important information needs and keep critical information safe from those who do not need it to perform their tasks. According to the theoretical research, the challenges of identifying information needs are related to the difficulty of articulating one's needs and the subconscious nature of information needs. The empirical study discovered additional challenges, mostly related to identifying users' information needs from outside, namely users' inability to prioritise, express or even to identify their own needs. These lead to the conclusion that information needs may be difficult and in many cases impossible to identify from the outside, that is, by someone other than the person in question. Social media tools provide functionalities that empower employees to search and use information more effectively and independently than those available in the Web 1.0 era (Chapter 3.1, p. 56–58). For example, social media sites such as social networks, expert blogs and discussion forums provide more information sources for competitive intelligence purposes than the preceding static webpages that composed the Internet ten years ago. In addition, tagging and folksonomies can be used to create more effective categorising of information in addition to providing alternative search functions. Professional social networking sites can make people's connections and network nodes visible and subsequently assist in getting into contact with experts and sources of knowledge. The aforementioned functionalities provided by social media enable users to satisfy their own information needs independently and efficiently. This means a shift from the push approach towards the pull approach in competitive intelligence implementation, where users identify their own needs and have the opportunity to satisfy them effectively.

Another task of identifying information needs is to promote the use of relevant information and simultaneously to diminish the accumulation of excess information. However, if the users are not aware of what information is available, they cannot use it. Social media tools enable for many-to-many communication. For example, a conversation on a discussion forum is open for all users to see and participate in. Again, even though publishing a blog post can be seen as one-to-many communication, it may still evolve and enable many-to-many communication as commenting the post opens the door to a wider discussion with more voices than only the original author's. Many-to-many communication can promote overall awareness of what information is available and needed within the company. However, the use of social media tools also poses an additional challenge related to the accumulation of superfluous information and information overload. Finding information can be difficult and time consuming due to the vast amount of information available, constant updates and because it may be stored in multiple locations. As it is easier to share and acquire information, how to make sure that the focus of information is relevant? When the volume of information increases, so does the challenge of finding what is relevant.

Information gathering

The focus of the second phase of the process is on acquiring information from different sources. In order to perform this task, the literature presents several challenges that need to be taken into account and tackled. First, identifying, locating and utilizing information sources, both inside and outside the company, can be difficult: where to find the needed information or building blocks to satisfy the information need? Social media offers improved chances for identifying possible personal information sources. Social networking sites, and especially professional networking sites, provide a vast amount of information on peoples' expertise, contact information and references. In addition, the sites can also act as primary information sources, as information is shared directly through the sites. If a company has an internal companywide social media platform that includes personal profiles and user information, locating experts on a certain area can be fast and easy, likewise contacting them through the platform. Such "expert yellow pages" have existed before (see e.g. Drott, 2001), but with social media linking experts direct to their knowledge and contacting them can be made more usable than, for example, having a static database or printed list of experts. Social media use facilitates following the personalisation strategy of knowledge management in a more open manner: the information is still personal, but can be made more visible to others by enabling to identify the person with the knowledge and contacting them. Still, even with social media information sources require critical evaluation. However, as social media provides access to multiple sources, it can be argued that it helps to validate the information with source triangulation.

Social media also provides technological solutions for keeping up with newly published information in the Internet. Syndicates, such as RSS, enable filtered data delivery from selected web pages whenever the contents are changed or new content is added. Using syndicate feeds facilitates to everyday information search and retrieval tasks regarding competitive intelligence. Syndicates and aggregation tools enable filtering and following information and browsing through it in one location instead of having to click through individual sites. Syndicates can also be used in an internal platform, for example, in the form of alert services when a new article, report or discussion on a certain area has been published. This way users do not need to constantly visit the sites they are interested in to see if there is anything new available.

A perennial area for improvement in the competitive intelligence process is to better utilise the potential of employees as information sources: how to get the employees' competitive knowledge to work for the benefit of the company? The challenges related to this include several perspectives: how to communicate to the employees what information is needed, how to motivate them to share their knowledge and what channels will the employees use to share their knowledge? Using internal social media tools can enhance the awareness of what competitive knowledge is valuable to share within the company, and at the same time emphasise the importance of keeping this knowledge safe from outsiders. Moreover, social media provides usable channels for

competitive knowledge sharing, as it utilises technologies that are easy to use, flexible and support informal communication. For example, sharing a photograph and tagging it with suitable words and phrases can be more enlightening than a five-page memo.

Simultaneously, as several social media tools enable discussions and commenting (e.g. the commenting option in blogs and wikis, discussion forums), and often in a more informal manner (e.g. instant messaging and microblogging), their use can also reveal social networks within the company: who knows who and who communicates with whom. Making networks visible can lower the barrier to contact new people through others, and also show the key employees who act as network nodes.

Information processing and analysis

Evaluating the quality, reliability and usefulness of information is one of the tasks of the next phase in the competitive intelligence process. The evaluation is not always straightforward. Depending on the evaluator, there may be several conceptions whether some information is reliable, useful or relevant. Several conflicting truths may seem equally possible, so how to decide which to trust? When the evaluation is done by the competitive intelligence personnel, they usually have to limit the message they send and choose which of the alternatives they deem most reliable. The users of this information only get this one truth and may not be aware of the alternative ones.

Using social media tools can enable several truths to be presented, as it provides easy access to the original sources. For example, publishing a market report as a wiki page within the company's collaborative platform makes it possible to link directly from the report to the original sources used and, if needed, to those contradict with the analysis. This way the users themselves can easily access the sources and evaluate the alternatives according to their knowledge and experience instead of relying on that provided by someone else. If the sources are in an internal social media platform or suchlike, joint content creation and evaluation, that is, group discipline, eliminates "bad information" and corrects flaws. Still, it is debatable, if all can choose what to believe and according to which they will act and make their decisions, what if bad decisions are made relying on different information, who is to blame? Should there be an authority purging excessive alternatives and evaluating the information instead of relying on users' judgment and group discipline?

Another task of information processing is the indexing and storing of the information. A common problem in companies is the storing of duplicates in different locations (e.g. in each individual's email archives, several folders within the network drive) and using pre-determined categorisations that may be inadequate. These may impede finding information. From social media tools tagging enables user-generated categorisations and linking information in several contexts as well as its retrieval even though the article itself is stored in one location. Instead of browsing through dozens of folders on a network drive, trying to guess with what logic the information was categorised, a user

can find information on a certain subject by clicking the tag that describes the contents. Tags also enable serendipity, that is, stumbling upon information one was not originally looking for, but which proves to be interesting. However, inconsistent use of tags may confuse information categorisation even more, if the tags do not adequately describe the contents and therefore lead to irrelevant information.

Analysing information is a central task in the competitive intelligence process. Giving meaning to the information in a certain context creates value for the information and makes it more usable in the company context. Combining bits and pieces of fragmented information and understanding the connections can be challenging. It requires existing knowledge and experience as well as ability to see beyond the obvious. Aggregation tools and tagging can aid the process by enabling serendipity and seeing connections between pieces of information. Moreover, social media use provides access to more information and also gives the chance to ask advice and clarifications from others. That is, it provides the opportunity to do joint analysis and benefit from the wisdom of crowds, thus making the analysis more profound and multifaceted. In addition, even though there may be analysts providing analysis of information, the users always make their own final analysis of information they receive. These individual insights and interpretations could be valuable to others in the company as well, but getting them for wider use can be problematic. Social media tools enable publishing and sharing one's own analyses, without having to ponder whether it is of interest of anyone and if it will encumber peoples' email account in vain. Still, even though technology can provide tools and access to information, the final analysis and interpretation has to be done by users themselves.

Disseminating and sharing

If the competitive intelligence process is run by authorised personnel, the information needs to be delivered to users. In order to do this, the personnel needs to understand what knowledge is needed by whom, and define the recipients accordingly before sharing the information. Understanding who needs what and when is linked to the first phase; identifying information needs. In this case, the recipients of the information need to be known in advance so that the right information reaches the users. However, if the needs of users are not known, the information will not reach all those in need of it. Again, when using, for example, an internal social media platform the recipients do not need to be determined in advance: information can be uploaded to the platform, described and categorised with tags, and the platform consequently alerts the users who have subscribed to information with this sort of content.

Sharing information and insights with others is another focal task of this phase of the process. Informal channels are preferred when sharing competitive knowledge, as unstructured and unofficial information is often perceived hard to share through official and inflexible channels. Imperfect and invalidated information, such as interpretations of weak signals or vague rumours, is not something people usually want to present to a

wide audience. When using social media tools for knowledge sharing the premise is that the shared information does not have to be a completed and finalised report or verified fact. Several social media tools, such as wikis and shared workspaces, provide opportunities for collaborative content creation and editing, which enables sharing budding ideas and collaboratively refining them further. This, however, requires the users to accept the initial incompleteness of information and not reject the emergent ideas.

Informal and personal channels, such as coffee table discussions with colleagues, are often the most usual channels for sharing competitive knowledge, but tapping in to information shared through informal channels is hard. Usually the information shared from mouth to ear stays between the participants of the conversation. Social media enables informal but digitalised knowledge sharing channels, so that the information can be searched and found by others as well. However, social media can also be seen as a formal channel. Even though it would not be expected to replace the existing informal channels, it may be discarded altogether if it is perceived as "just another information system" to which employees are obligated to contribute.

Contributing competitive knowledge through social media tools requires independent initiative from the employees. In order to actively contribute to and participate in knowledge sharing and thus bring value to it, employees need to be motivated to share their knowledge. In addition, they need to be motivated to share their knowledge through the appropriate channel, in this case, using social media tools.

Utilisation

The final phase of the competitive intelligence process defines it value: if information is not used to achieve the company's goals, the process has not generated any value. Therefore, the key task of this phase is to take actions based on the understanding given by the received information. Giving feedback on whether the information satisfied the need or created new ones, and how the information was used and what it led to is an important part of the competitive intelligence process. Empirical research indicates that giving and receiving feedback is mainly irregular and informal in companies, and receiving feedback on contributed knowledge can be rather random. Still, willingness to help others and the company to achieve their goals is a key motivating factor for sharing competitive knowledge through social media. Social media tools can provide easy and fast channels for giving feedback: for example, users can rate each others' contributions and help by giving "stars" to each other or writing public recommendations. In addition, social media use can improve the transparency of decision-making and leave traces of where the knowledge was used.

7.2 Contribution of the research

7.2.1 Theoretical implications

Scientific research pursues to make contributions to further the understanding of the phenomenon under research. A research contribution can be defined to be the elicitation of new and relevant knowledge, that is, providing the research are with knowledge that have previously not been presented (see e.g. Salmi, 1978; Whetten, 1989; Lukka and Kasanen, 1993; Olkkonen, 1994). This dissertation contributes new knowledge to the rather limited literature regarding the connection between social media and competitive intelligence: how the emergence of social media affects carrying out the competitive intelligence process (Chapter 4.1, p. 75–77; Chapter 4.2, p. 77–84; Chapter 7.1.5, p. 158–164), potential improvements as well as additional challenges included. The competitive intelligence study (Chapter 6.1, p. 108–121) enhanced the understanding of how companies in practice implement the competitive intelligence process, and the social media study (Chapter 6.2, p. 121–128) together with the case study (Chapter 6.3, p. 128–146) gave suggestions of the impact of social media on the process, which then were reflected to and synthesised with the theoretical discussion in Chapter 7.1 (p. 148–164). This knowledge provided by the dissertation is called for in the competitive intelligence literature as an opening to the so far rather fragmented discussion of the connection of social media and competitive intelligence (as discussed in Chapter 1.1, p. 7). Even though the conclusions of the dissertation may be regarded as suggestions and speculations based on opinions and interpretations, they still lay a base from which to elaborate the discussion.

The dissertation also contributes to the wider discussion regarding social media, especially by providing a usable typology of social media tools. The categorisation of the 5Cs (Chapter 3.2, p. 59) classifies the tools by their use and by so doing takes the viewpoint of practical application and the purpose for which the tools can be applied. It can aid both academics and practitioners in their efforts to comprehend what can be done with different social media tools and also help to choose suitable tools for different purposes.

In the competitive intelligence context the dissertation suggests a concise list of the features that affect the implementation of competitive intelligence (Chapter 2.4, p. 41–42). These company-dependent characteristics have an influence on how to organise the activities. The list of features presented and explanations of their impact on competitive intelligence implementation may help evaluating and assessing the activities in different firms. This may be useful for understanding why activities are organised as they are, and can give a starting point for a typology assessing the most beneficial ways of implementation in different kinds of companies.

In addition, this research enhances the knowledge on the employees' role in the competitive intelligence process in general, and the utilisation of their competitive

knowledge has been amply discussed (see e.g. Chapter 2.6, p. 46–55; Chapter 4.2, p. 81–84; Chapter 6.1.2, p. 111–112). The issue has long been prominent in the competitive intelligence literature, and this dissertation will probably for its part elaborate the discussion as it presents the potential offered by a set of new technological solutions, social media, in regard to utilising employees' competitive knowledge. New information about the premises that affects sharing and utilising employees' competitive knowledge has been presented (Chapter 2.6.2, p. 47–55; Chapter 4.3, p. 84–87; Chapter 7.1.4, p. 156–158). These contribute to the knowledge based theory of the firm by giving explanations for how employees' competitive knowledge can benefit the company, and the premises for realising the benefits.

Several process models of competitive intelligence in general have been presented in the literature (e.g. Collins, 1997; Kahaner, 1997; Probst et al., 2000; Choo, 2002; Vitt et al., 2002), but they concentrate on describing the phases and tasks of the process and do not address the implementation, environment the process takes place in or the employees' role in the process. A central contribution of the dissertation is the suggestion for a competitive intelligence process model facilitated by social media use. Figure 12 (p. 83) illustrates this process and elaborates the affects that social media can have on a company's competitive intelligence process and especially the use of employees' competitive knowledge. In addition, the illustration takes into account the wider setting of the process and its interest groups and connections to the external environment.

The dissertation contributes to the knowledge sharing literature. Factors affecting employees' knowledge sharing motivation have been widely researched in a general context (see e.g. Bock and Kim, 2002; Ipe, 2003; Riege, 2005; Bock et al., 2005; Lin, 2007; Barachini, 2009; Gagné, 2009; Holste and Fields, 2010; Suppiah and Sandhu, 2010) as well as when using social media as a channel for sharing knowledge (see e.g. (see e.g. Ardichvili et al., 2003; Hew and Hara, 2007b, Paroutis and Al Saleh, 2009; Zhou, 2011). In the context of sharing employees' competitive knowledge the motivational factors have not previously been researched and therefore it has not been shown whether the context of knowledge has an effect on the factors. This dissertation contributes to the academic discussion by concluding that the context of knowledge does not affect the motivation nor does using a social media tool as a channel as the findings are similar to the general motivational factors of knowledge sharing (Chapter 6.3.2, p. 141–143).

It is a commonly assumed and to some extent even proven that there is an inverse correlation between age and social media use (see e.g. Statistics Finland, 2010; Madden, 2010; Chou et al., 2009). Whether the same inverse correlation also stands in the context of knowledge sharing motivation has not previously been reported. This dissertation has established the effects of background factors (age and overall familiarity with social media) on willingness to use social media as a channel for sharing competitive knowledge (Chapter 6.3.2, p. 138–141). The results of statistical testing in this dissertation show that a person's age does not have a direct significant

effect on the willingness to use social media as a channel for sharing competitive knowledge, but it still has an indirect affect through the relation of age and familiarity: the older the employees are the less familiar they are with social media, and consequently, the less willing to use it for sharing competitive knowledge. Furthermore, the research did not find a significant affect between the aforementioned background factors and motivational factors or barriers to knowledge sharing (Chapter 6.3.2, p. 143, p. 145).

7.2.2 Practical implications

Academic research should not be kept only to the level of theories and hypotheses, as it can also give direct and indirect contribution to practice as well (see e.g. Turunen, 1978). The value of theory is demonstrated and sometimes it is validated in practice. Hence, in order to increase the value of the findings of this dissertation, based on the research, some suggestions and recommendations for companies are presented on how to enhance the success of adopting social media for competitive knowledge sharing. The emphasis is therefore on the factors identified in the dissertation to affect the employees' willingness to use social media tools and how companies could influence these factors to their advantage.

Leadership and management style can be one factor affecting how well social media is adopted for knowledge sharing. Management's commitment to using social media and showing an example influences the employees' motivation. If social media use is encouraged only in speeches and on paper and not by management acting accordingly, the message is often interpreted by employees that if management does not consider the issue important enough to act on it themselves, then why should others bother either? Through management by example, that is, visibly showing that knowledge sharing using social media is worthwhile, management can motivate the employees to follow their example. For example, giving feedback on knowledge contributed and telling the employee that the knowledge helped to determine a certain course of action is a major motivating factor for the employee to continue contributing.

Organisational culture and trust, and overall perception of the value of knowledge within a company can influence the success of social media implementation for knowledge sharing purposes. If knowledge is seen as a vehicle of power or status in the company, employees may think the best way to prove their expertise is to keep knowledge to themselves, not share it for everyone's use. The general fear may be that knowledge sharing leads to loss of power or leverage or sharing an idea may lead to someone stealing it and taking all the credit. To shift the mindset from jealously protective to openly sharing requires communicating that sharing knowledge in social media does not take power but can bring rewards: telling an idea at the coffee table may result in someone stealing it, but if idea is shared in social media, the source can be tracked and rewarded. Therefore, showing that by sharing knowledge (i.e. showing the

world one's knowledge and expertise) brings more appreciation and respect within the company than sitting on the knowledge. Again, giving employees praise and credit for sharing their knowledge and thus helping others and the company is an important way to nurture their motivation.

One of the biggest obstacles and discouraging factors in using social media for competitive knowledge sharing was found to be the fear that it would increase employees' workload and sharing knowledge this way would take time from the "actual" work. Often people are reluctant to adopt new ways of working and new technologies. They cling to the current practices eventhough new ones would ease the work load in the long run. It is also found that age indirectly has a negative effect on the willingness to adopt new ways of working or using new technologies. In order to tackle these suspicions the benefits of sharing knowledge in a new way should be made implicit and clear and using the technology that supports knowledge sharing should be easy and pleasant. Therefore, careful planning and development of the social media tools in question is essential, so that the affordance, utility and usefulness will motivate the employees to use the tools rather than become barriers to use. Employees should perceive the positive effects of using the tools in the form, for example, of reciprocity of knowledge sharing or satisfying their knowledge needs better and faster than before. The benefits can be made visible by creating a business case for how contributing knowledge serves the individual employee, so that the time used for making the contribution is worthwhile. The employees who are the early adopters and users of social media tools should be supported and encouraged. Taking psychology as an aid and exploiting the natural jealousy of people often comes in handy: when others see how fast and easy they get things done, they become jealous and want it too.

A common barrier for social media use in the work context is doubts about its effectiveness. Employees may think of using social media as merely wasting time and sharing irrelevant knowledge. As the results of the dissertation show, one of the greatest worries employees have concerning knowledge sharing via social media is the assumption that it either increases the workload, takes excessive time or is overall inefficient. Therefore, changing the attitudes about using alternative tools and channels for knowledge sharing is a key success factor for successfully adopting social media. It is important to show in practice that informal and unstructured knowledge sharing can also be efficient and valuable. In addition, making knowledge sharing part of everyone's job description and thus formally allowing and encouraging it furthers the attitude of not perceiving it as a burdensome extra task taking time from the "real" work.

In addition, to prove the effectiveness and justify using social media tools for competitive knowledge sharing there needs to be a certain goal or target for the use: instead of just kicking tires, they should be used for solving real business problems. It should always be kept in mind that using social media is a tool to get things done, not an end in itself. In other words, social media tools should be used for a certain purpose and

not just for its own sake: Social media does not have a value of itself. The value is lost if social media is introduced without a sensible approach.

7.3 Assessment of the research

7.3.1 Validity

Validity of research describes the extent to which it actually studies the phenomenon it claims to study (Saunders et al., 2009). Hence, the validity of this dissertation relates to the level at which the phenomenon, that is, social media changing the competitive intelligence process, was studied. The dissertation assessed social media in general before focusing on its potential and use in competitive intelligence. The research, however, does not claim to be a social media focused study per se, as the objective was to examine a certain context and use of social media. Therefore, the validity of the research is affected by the narrower scope of interest.

In addition, the results may have suffered from the researcher's fairly positive position and expectations towards the potential of social media. That is, the research may be criticised to emphasise the positive effects of social media rather than eliciting the possible negative effects it may have on competitive intelligence, and business in general. This may be because the general position on social media in Finnish companies seems to be rather reserved and emphasises the risk over the benefits, as demonstrated by the social media study. However, the researcher pursued to keep an open and objective mind and did not understate risks, even if they were not as visibly presented as the potential benefits of social media use.

According to Denzin (1978) *triangulation* increases the validity of the research. In this research, both data and method triangulation (Denzin, 1978; Brannen, 1992; Metsämuuronen, 2005) were implemented in the empirical data collection. Collecting data from several sources contemplating the phenomenon from different perspectives generated a more thorough understanding of the issue and therefore the answers to the main research question is deemed as more truthful. Method triangulation was used in the social media study that utilised semi-structured interview, unstructured interview and participative observation as data gathering methods. In addition, the case study utilised method triangulation by collecting the research data with questionnaire and semi-structured interviews. Consequentely, research questions 2, 3 and 4 in particular were validated with method triangulation.

The different sections of the empirical data complemented each other and gave the research multifaceted material on which to draw conclusions. Doing three separate studies, instead of combining, for example, the competitive intelligence study and social media study, is justified by their different foci. The competitive intelligence study did not examine social media at all, since the aim was to investigate the current state and

practices of competitive intelligence independently. Again, the social media study scanned such a broad area that it was reasonable to conduct the data collection using multiple techniques and sources, whereas the aims of the competitive intelligence study could be achieved by a simpler approach.

The need to conduct the case study was evident because without taking into account the individual level and the employee perspective the research would have neglected a focal viewpoint. The employees' changing role in competitive intelligence, enabled by the use of social media, was anticipated to be one of the main factors changing the competitive intelligence process. Therefore not looking at the phenomenon from their perspective, too, would have made the research insufficient as it then would not have presented empirical evidence from an important practical point of view.

Together the three data sets form an entity that improves the validity of the results by combining qualitative and quantitative research methods and techniques and using multiple data sets (Brannen, 1994; Denzin, 1978; Hammersley, 1992). Along with the theoretical part based on prior research and the literature the empirical data made it possible to answer the research questions in a way that described the phenomenon in real life situations and thus led to practical implications in addition to theory elaboration.

Another part of validity is so-called *face validity*: how well the measures or scales used in fact describe what they are intended to describe (Saunders et al., 2009). Testing the questionnaire helps to pinpoint possible errors or questions that need revising and consequently improve the validity of the questionnaire results (see e.g. Saunders et al., 2009). The case study questionnaire form was first tested by three other researchers, who assessed the overall functioning of the questions and the software used. Then the form was tested by two other persons working in different companies who were believed to represent the actual respondents. The reason for this phase of testing was to ensure that the questions and terms were comprehensible and logical. Finally the case company representatives tested and commented the form before its issue for the actual data collection. This fairly thorough testing of the questionnaire form resulted in a usable and good quality data collection tool. This was proven by the quality and relevance of the data collected with it as well as the fact that the feedback from the respondents did contain only two critical remarks regarding the questionnaire form, and neither of these were very relevant to the actual data collection[8].

The analysis of the data also affects the validity of the research. Especially when using statistical methods there is a risk of ending up with biased or completely wrong assumptions if the measures and tests are not performed correctly and the results are wrongly interpreted. To ensure that correct tests were performed on the data and that the nature of the data allowed statistical testing, the researcher consulted an expert in

[8] One person complained that her English skills were not sufficient enough to understand the questions without using a dictionary. Another doubted whether it was appropriate to ask the respondents' age.

statistical testing. The expert confirmed that suitable tests were used and that the interpretations of the results were correct. This way the statistical testing was validated and proven to have been executed in an acceptable manner.

7.3.2 Reliability

The reliability of the research is another concept that needs to be addressed when assessing the results of the research. How reliable the acquired data are depends on whether the same results can be found with the same methods and sources by someone other than the researcher (Yin, 1994; Gummesson, 2006). According to Easterby-Smith et al. (2008) reliability can be assessed by answering the following questions:

- Is it possible to see the route from the data to the conclusions?
- Can some other researcher come to the same conclusions?
- Will the same results be achieved if repeated on another occasion?

The reliability of the research was enhanced by thoroughly describing the data collection and analysis (Douglas, 1971), thus enabling the repeatability of the research by another researcher as well as improving the transparency of drawing conclusions from the data. However, in hermeneutic research the data is always interpreted by the researcher, and the influence of the researcher's persona, attitude, beliefs and experience cannot be excluded (see e.g. Grönfors, 1982; Yin, 1994). Therefore, a different researcher could have ended up with different interpretations of this dissertation's research data. Still, this cannot be judged to be a weakness in this research or the data, as the composition is natural for all hermeneutic research. According to Bruyn (1966) the geographical location from which the data is collected affect the *subjective adequacy* of the results. Namely, the closer to and more familiar the researcher is with the geographical location of the respondents, the better opportunities the researcher has to understand them. Therefore, it can be argued that the results are the better as the researcher and most of the interviewees originate from Finland, that is, had similar cultural backgrounds and understanding of the surrounding national community.

The reliability of the answers given by the respondents in all the studies is another issue worth considering. In the competitive intelligence study, the respondents were the people responsible for the competitive intelligence operations in the company, or, if there was no such designated person, the person who was thought to best answer the questions on the subject. Whether these were the people who knew most about the issue can be questioned. In addition, the respondents were asked to answer the questions from the viewpoint of the company as a whole. However, their own subjective opinions may have influenced their answers. In addition, as the companies in the study were large corporations, it can be questioned if one person could give reliable answers representing the situation of the whole company.

In the case study, the questionnaire responses were given anonymously by company employees via Internet. Even though the questionnaire software recorded all individual entries of completed responses, there is no definite way of ensuring that someone did not answer the questionnaire more than once, thus distorting the results. In addition, there can be doubts about the honesty of the respondents: did they answer the questions truthfully or not? The same question can surely also be posed of the interviews in all three studies. Still, as the interviews were made either face-to-face or by telephone in direct interaction with the researcher and with the respondents' own identity, there is reason to believe that the interviewees answered truthfully and in good faith. Moreover, if the research was made at another point in time, the answers given by the respondents could have differed.

7.3.3 Generalisability

Generalisability, or *external validity* (Hoepfl, 1997; Saunders et al., 2009), refers to whether the findings are credible in light of other results (Yin, 1994) and if they are applicable in another setting (Hoepfl, 1997). According to Whetten (1989) the theoretical contribution of a research can be limited because of temporal and contextual factors, such as where and when the research is conducted, that affect the generalisability of the results. Quantitative research, especially the survey method, aims at generalisations, and therefore it is often more relevant to examine the generalisability of their results (Ghauri and Grønhaug, 2005). In this dissertation, the survey method was applied in the competitive intelligence study and case study questionnaires. Response rate is one way of validating the generalisability of the results (Blair and Zinkhan, 2006). In the competitive intelligence study the response rate was 62%. In the case study questionnaire the response rate was calculated as 41% in Alpha and 54% in Beta. According to Baruch (1999) and Saunders et al. (2009) these are reasonable response rates for such studies, and thus provide grounds for generalisations. Therefore, the results can be argued to represent the situation in the target population as a whole: in the competitive intelligence study this refers to large companies operating in Finland, and in the case study to the employees and companies similar to the case companies.

In the case of questionnaires it is always relevant to ponder whether the sample represents the whole population (Couper, 2000). In the case study this refers to whether the respondents represent sufficiently all employees in the case companies. In light of the background demographics of the case study questionnaire, it is safe to say that the sample did indeed cut through the companies' employees at a satisfactory level making the results generalisable within the case companies. Yet, whether the sample satisfactorily represents the populations of other companies cannot be proved conclusively. Therefore, the results cannot be claimed to be generalisable to all companies and situations, but rather to those with conditions similar to those described in the dissertation.

Alpha and Beta were selected as case companies as they were evaluated to be suitable for the study in question: they were rather similar in many features (e.g. size, markets, adoption phase of social media) and they provided access and a supportive attitude to the researcher to collect the data. As in qualitative research, the research data is collected from the sources that are the most informative from the viewpoint of the research questions (Koskinen et al., 2005b), surpassing these criteria was seen as making Alpha and Beta good case companies. How well the case companies represent companies in general, that is, what is their representativeness and subsequently the generalisability of the results provided by the case studies, is dubious.

7.4 Discussion and suggestions for further research

Even though Finland is perceived to be an advanced information society and utilises ICT extensively, when it comes to social media Finland is not in the vanguard: most of Finnish companies do not have a strategy for utilising social media in business (Karkimo et al., 2011; Tuurala, 2011). In all, companies in the USA seem to be well ahead of European companies in social media adoption in all utilisation areas (Johnson, 2011). Nevertheless, the interest and investments in social media are continuously increasing in companies (Karimo et al., 2011). The next few years will most likely witness several business cases of social media applications which further companies' eagerness to benefit from social media as well, and also create understanding of the applicability and usefulness of different social media tools in business. Tuurala (2011) takes the view even further by suggesting that the next big change occasioned by social media use in companies is giving up email: in the future email would be used only when necessary, but will be rejected as a channel for knowledge sharing.

According to Johnson (2011) using social media for better engaging employees in the company's activities is currently one of the biggest growth areas in both US and European companies. Engaging employees in the competitive intelligence process by using social media tools was one of the focal interests of this research. The research process yielded several issues for future research that would generate interesting knowledge and further clarify social media use in the competitive intelligence context. This dissertation presented some uses of social media tools for competitive intelligence. However, a more thorough study validating their use in practice and ascertaining what tools are best suited to competitive intelligence, both for gathering information from the external environment and sharing competitive knowledge within the company, is called for. Another somewhat tool and technology oriented issue for research is related to the functionalities and design of the tools. For example, if a social media platform or mash-up were to be used for competitive intelligence purposes, what elements should it contain to best support the sharing and using of competitive knowledge within a company?

As shown in this research, social media does not only have benefits for competitive intelligence but also presents challenges and risks for its efficient usage. One central challenge is the increasing volume of knowledge available. In order to avoid information overload and derive benefit from knowledge, it is appropriate to understand how to elicit the most relevant competitive knowledge from the mass with the help of social media tools. Again, this calls for research focused on the technological dimension and the use of the social media tools reflected in the needs of competitive intelligence.

Measuring the efficiency of an investment, for example calculating return on investment (ROI), is typical for companies wanting to evaluate the benefits against the costs. In the case of using social media tools in competitive knowledge sharing, many of the variables are intangible (e.g. knowledge in general, a decision made based on the knowledge gained through social media use) and putting a definite financial value on them can be challenging. Yet it is understandable that companies are eager to know how efficient using social media is in competitive knowledge sharing, for example the ratio of time spent versus value gained through social media use. The affects of social media use in general on employee productivity have been addressed in research (Ferreira and du Plessis, 2009), but the value gained from using social media in competitive knowledge sharing has so far not been quantified.

Another issue related to the effectiveness and efficiency of using social media in competitive knowledge sharing is the uncontrollability of social media. When the aim is to get social media to promote the company's pursuit of its goals through competitive intelligence, how to focus the knowledge sharing on relevant issues and decrease the amount of excessive information that may hinder finding the relevant information? One possible way might be some kind of monitoring, that is, appointed moderators making sure to some extent that the discussions and shared issues are relevant and within the intended limits. However, as too strict moderation can also impede knowledge sharing (Willem and Buelens, 2009), to what extent should competitive knowledge sharing be controlled or administrated? More research is called for in order to find the optimal balance that promotes knowledge sharing and simultaneously keeps the contents on the right track.

Social networking sites focused on a certain area of interest and serving a limited purpose gather massive numbers of active users, and consequently provide businesses with opportunities to benefit from the users and vice versa have proved to be successful. An excellent example of such a social media application is Ravelry, the social networking site for knitters (see e.g. Manjoo, 2011). The question is whether it is possible for companies to create this kind of functionality of technology and passionate user base among their own employees around competitive intelligence and benefit from the competitive knowledge of the masses. As the users' intrinsic motivation is a key driver to the success of social media within a company, can competitive knowledge ever

awake such interest and passion within the employees that the volume of users and quality of knowledge is enough?

Further research could also take into account the role of competitive intelligence personnel in relation to social media use. As social media use can engage and empower the mass of employees to participate and carry out the competitive intelligence process, examining how it influences the role and tasks of competitive intelligence personnel would be interesting.

The risks of social media in general seem to be topical in media and also influence companies' attitudes towards social media adoption. Even though several potential benefits of social media in competitive intelligence context have been presented in this dissertation, it has also been noted that it also poses risks and challenges. Investigating the risks in greater detail should gain more of an interest in further research.

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APPENDICES

APPENDIX 1: Competitive intelligence study interview form

RESPONDENT'S NAME AND COMPANY:_____

A. DEFINING THE ACTIVITIES

1. **Does your company have consciously executed activities aimed at gathering and analysing information about your company and the external business environment?**
   a) Yes ☐
   b) No ➔ *Answer i) and continue to question 27.* ☐
      i) Have there been such organized activities in your company but they have been discontinued?

      Yes ☐

      When? Why?

      _____
      _____
      _____

      No ☐

      What means do you use to keep up with changes in your external business environment?

      _____
      _____
      _____

2. **What do you call these activities?**
   a) Business Intelligence ☐
   b) Competitive Intelligence ☐
   c) Liiketoimintatiedon hallinta (In Finnish) ☐
   d) Something else, what?_____ ☐

   Why do you use this particular term?

   _____
   _____
   _____

From now on in this survey these activities are referred to as *competitive intelligence.*

B. IMPLEMENTATION OF COMPETITIVE INTELLIGENCE

3. Is there a person appointed to be responsible for competitive intelligence?

a) Yes ☐

i) What is the title of this person?

_____

ii) Does the person responsible for competitive intelligence report directly to the CEO?

a) Yes ☐

b) No ☐

How many hierarchical levels are there between the the person responsible for competitive intelligence and the CEO?

_____levels

b) No ☐

i) To whom have the responsibilities been assigned?

_____

4. How many people does competitive intelligence employ full time?

_____ people

5. How many people does competitive intelligence employ part time?

_____ people

6. Have you outsourced competitive intelligence activities?

a) Yes ☐

i) What?

_____

_____

b) No ☐

7. Does competitive intelligence have its own budget?

a) Yes ☐

i) What is the budget? _____euros

b) No ☐

8. Does your company have a competitive intelligence strategy?

a) Yes ☐

b) No ☐

9. **Who are the main users of competitive intelligence in your company? Evaluate the user groups according to how important the information produced by competitive intelligence is to them.**
(1 = not important at all, 5 = extremely important)

	1	2	3	4	5
a) Top management	☐	☐	☐	☐	☐
b) Middle management	☐	☐	☐	☐	☐
c) Experts	☐	☐	☐	☐	☐
d) Other employees	☐	☐	☐	☐	☐

10. **What functions in your company use information produced by competitive intelligence? Evaluate the following functions according to how much they use the information.**
(1 = not used at all, 5 = used extremely much)

	1	2	3	4	5
a) Customer management	☐	☐	☐	☐	☐
b) HR	☐	☐	☐	☐	☐
c) Business planning and development	☐	☐	☐	☐	☐
d) Sales and/or marketing	☐	☐	☐	☐	☐
e) Financial management	☐	☐	☐	☐	☐
f) Production planning, supply chain management	☐	☐	☐	☐	☐
g) R&D	☐	☐	☐	☐	☐
h) Something else, what?_____	☐	☐	☐	☐	☐

11. **How does your company obtain employees' competitive knowledge?**

_____

_____

_____

a) How do you assess your company's success in this?
   i) Excellent ☐
   ii) Good ☐
   iii) Satisfactory ☐
   iv) Fair ☐
   v) Poor ☐

C. INFORMATION NEEDS AND INFORMATION PRODUCTS

12. The following list contains information needs that competitive intelligence usually aims to satisfy. Evaluate how important these information needs are to your company.
(1 = not important at all, 5 = extremely important)

	1	2	3	4	5
a) Information regarding customers' industries	☐	☐	☐	☐	☐
b) Customer information	☐	☐	☐	☐	☐
c) Competitor information	☐	☐	☐	☐	☐
d) Market specific information	☐	☐	☐	☐	☐
e) Own industry in general	☐	☐	☐	☐	☐
f) Information regarding parallel industries	☐	☐	☐	☐	☐
g) Technology information	☐	☐	☐	☐	☐
h) General macrotrends	☐	☐	☐	☐	☐
i) Something else, what? _____	☐	☐	☐	☐	☐

13. Which of the following methods does the people responsible for your company's competitive intelligence operations use when trying to identify users' information needs?
(1 = not at all, 5 = extremely much)

	1	2	3	4	5
a) Questionnaires	☐	☐	☐	☐	☐
b) Mathematical methods	☐	☐	☐	☐	☐
c) Gut feeling	☐	☐	☐	☐	☐
d) Interviewing the users	☐	☐	☐	☐	☐
e) Following information use (e.g. downloads from a database)	☐	☐	☐	☐	☐
f) General interaction and discussions with the users	☐	☐	☐	☐	☐
g) Something else, what? _____	☐	☐	☐	☐	☐

14. How difficult do you perceive the following problems related to identifying information needs in your company?
(1 = not difficult at all, 5 = extremely difficult)

	1	2	3	4	5
a) Lack of methods or competence	☐	☐	☐	☐	☐
b) Future orientation of information needs	☐	☐	☐	☐	☐
c) Users' inability to identify their needs	☐	☐	☐	☐	☐
d) Users' inability to express their needs	☐	☐	☐	☐	☐
e) Users' unwillingness to express their needs	☐	☐	☐	☐	☐
f) Users' inability to prioritize their needs	☐	☐	☐	☐	☐
g) Something else, what?_____	☐	☐	☐	☐	☐

15. How important are the following information products to your company? (1 = not important at all, 5 = extremely important)

	1	2	3	4	5
a) Ad hoc reports	☐	☐	☐	☐	☐
b) News scanning	☐	☐	☐	☐	☐
c) Short period analyses	☐	☐	☐	☐	☐
d) Long period analyses	☐	☐	☐	☐	☐
e) Regular reports about business environment	☐	☐	☐	☐	☐
f) Case-specific/occasional reports	☐	☐	☐	☐	☐
g) Something else, what? _____	☐	☐	☐	☐	☐

16. How important are the following channels when delivering the information products to the users? (1 = Not important at all, 5 = Extremely important)

	1	2	3	4	5
a) Personal presentation	☐	☐	☐	☐	☐
b) Intranet	☐	☐	☐	☐	☐
c) Portal	☐	☐	☐	☐	☐
d) Telephone discussion	☐	☐	☐	☐	☐
e) Email	☐	☐	☐	☐	☐
f) Something else, what?_____	☐	☐	☐	☐	☐

17. How many regular information products does competitive intelligence produce?

a) None ☐
b) 1–5 ☐
c) 5–10 ☐
d) More than 10 ☐

18. Do your company's competitive intelligence activities follow a push approach or pull approach?

a) Push: Regular information products, needs defined in advance ☐
b) Pull: case-specific reports done based on the users' requests ☐
c) Equally push and pull ☐

19. Evaluate the importance of the following analysis methods and tools for your company's competitive intelligence analyses.
(1 = not important at all, 5 = extremely important)

	1	2	3	4	5
a) Value chain/value network analysis	☐	☐	☐	☐	☐
b) Benchmarking	☐	☐	☐	☐	☐
c) Win/loss analysis	☐	☐	☐	☐	☐
d) Mc Kinsey 7S	☐	☐	☐	☐	☐
e) Driving forces analysis	☐	☐	☐	☐	☐
f) Patent analysis	☐	☐	☐	☐	☐
g) PESTEL/APESTE/STEEP	☐	☐	☐	☐	☐
h) Porter's Five Forces	☐	☐	☐	☐	☐
i) Portfolio analysis	☐	☐	☐	☐	☐
j) Risk analysis	☐	☐	☐	☐	☐
k) SERVO	☐	☐	☐	☐	☐
l) Scenarios	☐	☐	☐	☐	☐
m) SWOT	☐	☐	☐	☐	☐
n) Technology forecasting	☐	☐	☐	☐	☐
o) Trend analysis	☐	☐	☐	☐	☐
p) Company/market profiling	☐	☐	☐	☐	☐
q) Company reputation analysis	☐	☐	☐	☐	☐
r) War gaming	☐	☐	☐	☐	☐
s) Something else, what?_____	☐	☐	☐	☐	☐

D. TECHNOLOGICAL SOLUTIONS

20. How much do different functions utilize technological solutions for analysing information obtained from own operative information systems?
(1 = not at all, 5 = extremely much)

	1	2	3	4	5
a) Customer management	☐	☐	☐	☐	☐
b) HR	☐	☐	☐	☐	☐
c) Business planning and development	☐	☐	☐	☐	☐
d) Sales and/or marketing	☐	☐	☐	☐	☐
e) Financial management	☐	☐	☐	☐	☐
f) R&D	☐	☐	☐	☐	☐
g) Production planning, supply chain management	☐	☐	☐	☐	☐
h) Something else, what?_____	☐	☐	☐	☐	☐

21. In which functions do you plan to start utilizing or substantially increase the utilization of technological solutions within the next year?

a) Customer management	☐
b) HR	☐
c) Business planning and development	☐
d) Sales and/or marketing	☐
e) Financial management	☐
f) R&D	☐
g) Production planning, supply chain management	☐
h) Something else, what?_____	☐
i) Nowhere	☐

22. How much do you utilize the following methods regarding information obtained from internal information systems?
(1 = not at all, 5 = extremely much)

	1	2	3	4	5
a) Ad hoc query and reporting	☐	☐	☐	☐	☐
b) OLAP	☐	☐	☐	☐	☐
c) Data visualization	☐	☐	☐	☐	☐
d) Data mining	☐	☐	☐	☐	☐
e) Measuring (Balanced Scorecard etc.)	☐	☐	☐	☐	☐
f) Planning solutions (budgeting, forecasting)	☐	☐	☐	☐	☐

23. Which of the following methods do you plan to start utilizing or substantially increase utilizing within the next year?

g) Ad hoc query and reporting ☐
h) OLAP ☐
i) Data visualization ☐
j) Data mining ☐
k) Measuring (balanced scorecard etc.) ☐
l) Planning solutions (budgeting, forecasting) ☐
m) None of the above ☐

E. BENEFITS OF COMPETITIVE INTELLIGENCE

24. Evaluate the benefits achieved with competitive intelligence in your company. (1 = does not apply to our company, 5 = applies to our company well).

With the use of competitive intelligence our company has…

	1	2	3	4	5
a) recognized opportunities and threats earlier than before	☐	☐	☐	☐	☐
b) improved product or customer profitability	☐	☐	☐	☐	☐
c) made information gathering and analysis more sensible	☐	☐	☐	☐	☐
d) increased sales and market shares	☐	☐	☐	☐	☐
e) accumulated knowledge	☐	☐	☐	☐	☐
f) increased knowledge sharing	☐	☐	☐	☐	☐
g) made decision-making process faster	☐	☐	☐	☐	☐
h) optimized acquisitions and costs	☐	☐	☐	☐	☐
i) improved quality of production or products	☐	☐	☐	☐	☐
j) improved the quality of information	☐	☐	☐	☐	☐
k) achieved cost savings	☐	☐	☐	☐	☐
l) saved time	☐	☐	☐	☐	☐
m) made operative reporting more efficient	☐	☐	☐	☐	☐
n) made the decision-makers to understand the value of knowledge	☐	☐	☐	☐	☐
o) recognized new business opportunities	☐	☐	☐	☐	☐
p) Something else, what?_____	☐	☐	☐	☐	☐

25. Do you measure the benefits achieved with competitive intelligence?

a) Yes ☐

i) How?

_____

_____

b) No ☐

ii) Why not?

_____

_____

26. Do you collect feedback from users about competitive intelligence?

a) Yes ☐

i) How?

_____

_____

b) No ☐

ii) Why not?

_____

_____

F. THE FUTURE OF COMPETITIVE INTELLIGENCE

27. Do you believe that your company's investments in competitive intelligence in the next five years will…

a) **increase substantially** ☐
b) **increase moderately** ☐
c) **remain the same** ☐
d) **decrease moderately** ☐
e) **decrease substantially** ☐

Please give reasons for your answer:

_____
_____
_____

28. What parts of competitive intelligence will the investments be focused on and what parts will face the cuts?

_____
_____
_____

29. Evaluate the possible areas of improvement in competitive intelligence in your company.
(1 = not important at all, 5 = extremely important)

	1	**2**	**3**	**4**	**5**
a) Being on schedule	☐	☐	☐	☐	☐
b) Increasing users' attention of competitive intelligence	☐	☐	☐	☐	☐
c) Personnel resources	☐	☐	☐	☐	☐
d) Management commitment	☐	☐	☐	☐	☐
e) Identifying critical information needs	☐	☐	☐	☐	☐
f) Better use of information systems	☐	☐	☐	☐	☐
g) Utilizing employees' competitive knowledge	☐	☐	☐	☐	☐
h) Developing information systems and tools	☐	☐	☐	☐	☐
i) Making more profound analyses	☐	☐	☐	☐	☐
j) Measuring the benefits	☐	☐	☐	☐	☐
k) Commercializing the operations	☐	☐	☐	☐	☐
l) Prioritizing and satisfying information needs	☐	☐	☐	☐	☐
m) Counterintelligence	☐	☐	☐	☐	☐
n) More effective knowledge sharing	☐	☐	☐	☐	☐
o) More efficient information gathering	☐	☐	☐	☐	☐
p) Something else, what?_____	☐	☐	☐	☐	☐

30. Rate your company's success in competitive intelligence:

a) Excellent ☐
b) Good ☐
c) Satisfactory ☐
d) Fair ☐
e) Poor ☐

31. Which questions would you like to get answers to with the help of competitive intelligence?

_____
_____
_____

32. What kind of changes and developments do you believe competitive intelligence will face in the next five years?

_____
_____
_____
_____
_____

APPENDIX 2: Social media study interview themes

1. Brief description of the
    a. company (adopting companies/service provider companies)
    b. interviewee's background (experts)

2. What is social media?

3. The premises for adopting social media

4. Current use of social media

5. The potential and realized benefits of using social media

6. The problems and challenges of using social media

APPENDIX 3: Case study questionnaire form

TAMPERE UNIVER

SHARING KNOWLEDGE CONCERNING EXTERNAL BUSINESS ENVIRONMENT

The objective of this questionnaire is to find out how the knowledge Alpha's/Beta's employees might have on external business environment is currently shared within the company. Another objective is to understand what factors affect its effective sharing through a collaborative platform.

The questionnaire is part of Vilma Vuori's doctoral dissertation, which is made in co-operation with Alpha/Beta. The results will give a picture of the current practices of knowledge sharing in Alpha/Beta and reveal employees' attitudes and motivation to use an alternative method.

The questionnaire consists of 9 questions followed by some background questions. The answers are given anonymously. Answering the questionnaire takes approximately 10-15 minutes.

Thank you for taking the time and voicing your opinion!

Next -->

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CURRENT KNOWLEDGE SHARING PRACTICES

In this questionnaire the word "knowledge" refers to information and insight concerning *external* business environment (for example issues related to competitors and markets).

1) How much knowledge do you consider yourself having about following issues?

1=not at all, 2=slightly, 3=moderately, 4=very much, 5=extremely much

	1	2	3	4	5
Competitors	○	○	○	○	○
Customers	○	○	○	○	○
Economic situation	○	○	○	○	○
Environmental issues	○	○	○	○	○
Legislative issues	○	○	○	○	○
Macro trends	○	○	○	○	○
Markets	○	○	○	○	○
Overall industry development	○	○	○	○	○
Political situation	○	○	○	○	○
Suppliers	○	○	○	○	○
Technology development	○	○	○	○	○

2) How much do you share your knowledge…

1=not at all, 2=slightly, 3=moderately, 4=very much, 5=extremely much

	1	2	3	4	5
within your own division/function	○	○	○	○	○
outside your own division/function	○	○	○	○	○
within your own department/unit	○	○	○	○	○
outside your own department/unit	○	○	○	○	○
with people from other functions/divisions or departments/units you normally work with	○	○	○	○	○
with your colleagues	○	○	○	○	○
with your manager/supervisor	○	○	○	○	○
with your subordinates	○	○	○	○	○
competitive intelligence department (Alpha)	○	○	○	○	○
other	○	○	○	○	○

If other, please specify:

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CURRENT KNOWLEDGE SHARING PRACTICES

3) How do you share your knowledge (scale 1-5)? Evaluate the ways of knowledge sharing also according to how well they work (scale A-C).

1=not at all, 2=slightly, 3=moderately, 4=very much, 5=extremely much
A= good, B=fair, C=poor

	1	2	3	4	5	A	B	C
Blogging	○	○	○	○	○	○	○	○
Commenting blogs	○	○	○	○	○	○	○	○
Email	○	○	○	○	○	○	○	○
Groupware (collaborative software)	○	○	○	○	○	○	○	○
Hallway / coffee table discussions	○	○	○	○	○	○	○	○
Intranet	○	○	○	○	○	○	○	○
Official meetings	○	○	○	○	○	○	○	○
Competitive intelligence portal (Alpha)	○	○	○	○	○	○	○	○
Telephone discussions	○	○	○	○	○	○	○	○
Uploading it into a database	○	○	○	○	○	○	○	○
Other	○	○	○	○	○	○	○	○

If other, please specify:

4) Evaluate the following sources of knowledge within your company according to their quality (scale 1-5) and importance (scale A-C).

1=very poor, 2=poor, 3=fair, 4=good, 5=very good
A=very important, B=moderately important, C=not important

	1	2	3	4	5	A	B	C
Competitive intelligence department	○	○	○	○	○	○	○	○
Colleagues	○	○	○	○	○	○	○	○
CRM databases	○	○	○	○	○	○	○	○
Databases and subscriptions	○	○	○	○	○	○	○	○
Managers	○	○	○	○	○	○	○	○
Market reports by external provider (e.g. consultants, associates)	○	○	○	○	○	○	○	○
Internal market reports (e.g. Monthly market review, Technology market news)	○	○	○	○	○	○	○	○
Subordinates	○	○	○	○	○	○	○	○
Network drives	○	○	○	○	○	○	○	○
Other	○	○	○	○	○	○	○	○

If other, please specify:

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CURRENT KNOWLEDGE SHARING PRACTICES

5) Consider the following statements according to your own opinion.

1= strongly disagree, 2=disagree, 3=neither agree nor disagree, 4=agree, 5=strongly agree, 0=cannot say

	1	2	3	4	5	0
My organization supports knowledge sharing	○	○	○	○	○	○
In my organization knowledge is located in silos and is not shared efficiently	○	○	○	○	○	○
Knowledge sharing with others in my organization is valuable	○	○	○	○	○	○
Knowledge sharing with others in my organization is pleasant	○	○	○	○	○	○
Knowledge sharing with others in my organization is beneficial	○	○	○	○	○	○
The opportunities to share knowledge within my organization are sufficient	○	○	○	○	○	○
There are valid processes/channels to share knowledge between different locations and departments	○	○	○	○	○	○
It is easy to find the person with the knowledge I need	○	○	○	○	○	○
It is hard to share knowledge in other ways than in discussions because it is hard to express my knowledge in written form	○	○	○	○	○	○

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USING A COLLABORATIVE PLATFORM FOR KNOWLEDGE SHARING

Collaborative platform can be defined as "a set of software components and software services that enable individuals to find each other and the information they need and to be able to communicate and work together to achieve common business goals" (c.f. Wikipedia).

Consider that your company would have an organization-wide technological collaboration platform for sharing knowledge. The platform would allow you to publish your knowledge and insights, ask questions, comment and discuss with others about external environment related issues, and search for knowledge and people within the platform.

6) How important do you consider following elements in such platform?

1=not at all important, 2=not important, 3=slightly important, 4=important, 5=very important, 0=cannot say

	1	2	3	4	5	0
Interactivity with other users	○	○	○	○	○	○
Personal profiles of users	○	○	○	○	○	○
Discussion forum	○	○	○	○	○	○
Search function for finding knowledge within the platform	○	○	○	○	○	○
Linking to internal and external pages	○	○	○	○	○	○
Tagging pages, posts and people	○	○	○	○	○	○
Commenting	○	○	○	○	○	○
Creating documents collaboratively	○	○	○	○	○	○
Always available: can be consulted when needed	○	○	○	○	○	○
Quick response to posted questions	○	○	○	○	○	○
Finding experts i.e. possible knowledge sources	○	○	○	○	○	○
Ease of depositing knowledge (how much time/work it takes)	○	○	○	○	○	○
Degree of completeness of data (raw data vs. aggregated knowledge)	○	○	○	○	○	○
Ease of finding knowledge (only search function vs. having metadata and categorization)	○	○	○	○	○	○

7) Would you like to share knowledge through a collaborative platform?

- ○ Yes
- ○ No
- ○ Cannot say

Please give reasons for your answer:

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USING A COLLABORATIVE PLATFORM FOR KNOWLEDGE SHARING

8) What would motivate you to share your knowledge through such platform?

1=not at all, 2=slightly, 3= moderately, 4=very much, 5= extremely much

	1	2	3	4	5
I believe it secures my job	○	○	○	○	○
It may bring me promotion opportunities	○	○	○	○	○
Getting financial rewarding	○	○	○	○	○
Getting recognition from colleagues and superiors	○	○	○	○	○
Strengthening ties between other members in my organization and myself	○	○	○	○	○
Extending my scope of association: expanding my social network and making new contacts	○	○	○	○	○
Expecting to receive knowledge in return	○	○	○	○	○
Believing that my future requests for knowledge will be answered	○	○	○	○	○
I enjoy helping my colleagues by sharing my knowledge	○	○	○	○	○
I want to help my organization to reach its goals	○	○	○	○	○
Getting more acknowledgement and better acceptance of my person and my ideas	○	○	○	○	○
I want to reach my own goals	○	○	○	○	○
I want to show off my experience	○	○	○	○	○
I am curious	○	○	○	○	○
I feel that I have something to give	○	○	○	○	○
It is part of my job	○	○	○	○	○
It makes my job easier	○	○	○	○	○

9) What would keep you from sharing knowledge through such platform?

1=not at all, 2=slightly, 3=moderately, 4=very much, 5=extremely much

	1	2	3	4	5
I feel insecure on how my knowledge might be received and understood	○	○	○	○	○
I am afraid of losing the ownership of the knowledge	○	○	○	○	○
I am afraid of losing power and leverage brought by my knowledge	○	○	○	○	○
I am not being adequately rewarded or acknowledged	○	○	○	○	○
I takes too much time and effort	○	○	○	○	○
I am afraid that if I reveal what I know people think I am not as proficient as they had expected	○	○	○	○	○
I think the current channels to share knowledge are efficient enough	○	○	○	○	○
I do not know with whom to share the knowledge	○	○	○	○	○
I am not getting enough knowledge in return	○	○	○	○	○
I do not think my knowledge is important enough	○	○	○	○	○
I am not sure whether my knowledge is reliable and do not want to risk losing my face	○	○	○	○	○
I am afraid of criticism	○	○	○	○	○
I do not want to share my knowledge with people I do not know well	○	○	○	○	○
I already have a good knowledge sharing network and I do not want to contribute to another	○	○	○	○	○
I do not believe I can get good quality knowledge from there	○	○	○	○	○
It is just another information system	○	○	○	○	○

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BACKGROUND QUESTIONS

This information will not be connected to your earlier answers by anyone else than the researcher: your personality will not be identified through this information.

Division/function

Department/unit

Country/region

Age

Sex

- Female
- Male

How familiar are you with following web services?

1=never heard of it, 2=heard of it but haven't used, 3=used it a few times, 4=use it sometimes, 5= use it frequently

	1	2	3	4	5
Blogger					
Facebook					
Flickr					
LinkedIn					
Second Life					
Skype					
Twitter					
Wikipedia					
World of Warcraft					
YouTube					

If you have anything to add to the questionnaire or you want to give feedback, please use the space below:

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APPENDIX 4: Case study interview themes

1. Defining competitive knowledge

2. Current situation
    a. Methods and frequency of knowledge sharing
    b. Unofficial knowledge sharing networks
    c. Utilizing employees' knowledge in the decision-making process

3. Collaborative platform for competitive knowledge sharing
    a. Features and technological elements
    b. Motivating personnel
    c. Other issues

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