Aalto University
School of Science
Degree Programme in Industrial Engineering and Management

Johan-Eerik Haataja

Social media as a source of competitive intelligence in a pharmaceutical corporation

Master's Thesis

Espoo, December 22, 2011

Supervisor: Professor Thomas Keil

Instructor: Johanna Kokkonen, Lic.Vet.Med.

AALTO-YLIOPISTO
Perustieteiden korkeakoulu
Tuotantotalouden tutkinto-ohjelma

DIPLOMITYÖN TIIVISTELMÄ

Tekijä:
Johan-Eerik Haataja

Työn nimi:
Sosiaalinen media lääketeollisuudessa toimivan yhtiön kilpailutiedon lähteenä

Sivumäärä:	Päiväys:	Työn sijainti:
140 + 2	22.12.2011	TU

Professuuri:	Koodi:
Strateginen johtaminen	TU-91

Työn valvoja:
Professori Thomas Keil

Työn ohjaaja:
ELL Johanna Kokkonen

Tämä tutkimus tarkastelee, miten lääketeollisuudessa toimiva yhtiö voi hyödyntää sosiaalista mediaa kilpailutiedon lähteenä. Työn tavoitteena on luoda viitekehys, joka tarjoaa systemaattisen lähestymistavan sosiaalisen median käyttöön kilpailutiedon lähteenä lääketeollisuudessa toimivassa case-yrityksessä.

Työssä sovelletaan konstruktiivista tutkimustapaa, jolla pyritään vastaamaan seuraavaan kysymyksen muodossa esitettävään tutkimusongelmaan: Miten lääketeollisuudessa toimiva case-yritys voi hyödyntää sosiaalista mediaa kilpailutiedon lähteenä? Tutkimusongelmaa lähestytään konstruktiivisen tutkimustavan mukaisesti luomalla viitekehys, joka perustuu sosiaalisen median ja kilpailutiedon tutkimusalojen kirjallisuuskatsaukseen. Tämän jälkeen viitekehystä jalostetaan ulkoisten asiantuntijahaastattelujen perusteella ja lopuksi viitekehystä sovelletaan todellisessa ympäristössä case-yrityksessä.

Tutkimuksessa osoitetaan, että työssä kehitetty viitekehys tarjoaa systemaattisen tavan sosiaalisen median hyödyntämiseen kilpailutiedon lähteenä tarkasteltavassa yrityksessä. Lisäksi tutkimuksessa havaittiin, että lääketeollisuudessa toimivan case-yrityksen useat eri toiminnot voivat hyödyntää sosiaalisesta mediasta kerättyä tietoa strategisessa ja taktisessa päätöksenteossa. Case-yrityksen tapauksessa sosiaalisesta mediasta pystyttiin keräämään strategista ja taktista päätöksentekoa tukevaa kilpailutietoa neljällä eri aihealueella, joita ovat yritys itse, yrityksen brändit ja tuotteet, kilpailijat sekä toimialakohtaiset aiheet. Tutkimuksessa esitetään lisäksi, että kehitettyä viitekehystä voidaan soveltaa myös muissa yhtiöissä sekä lääketeollisuudessa että muilla toimialoilla.

Tähän mennessä sosiaalista mediaa on tutkittu erittäin vähän kilpailutiedon näkökulmasta. Työssä havaittiin, että aiemmat tutkimukset ovat olleet joko erittäin yleisellä tasolla tehtyjä tai ne ovat lähestyneet aihetta vahvasti teknologisesta näkökulmasta. Tämä tutkimus on tiettävästi tähän mennessä ainutlaatuinen siinä, että se tarjoaa perusteellisen katsauksen sosiaalisen median hyödyntämiseen kilpailutiedon lähteenä sekä osoittaa käytönnön tasolla, miten tarkasteltava case-yritys pystyy hyödyntämään eri aihealueista kerättyä tietoa päätöksenteossaan. Siten tämä poikkitieteellinen tutkimus tuo uutta tutkimustietoa sekä strategisen johtamisen että sosiaalisen median tutkimukseen ja tekee tilaa uudelle poikkitieteelliselle kilpailutiedon ja sosiaalisen median yhdistävälle tutkimusalueelle.

Asiasanat:	Julkaisukieli:
kilpailutieto, liiketoimintatieto, sosiaalinen media, strateginen päätöksenteko	Englanti

AALTO UNIVERSITY SCHOOL OF SCIENCE ABSTRACT OF THE MASTER'S THESIS
Industrial Engineering and Management

Author: Johan-Eerik Haataja		
Subject of the thesis: Social media as a source of competitive intelligence in a pharmaceutical corporation		
Number of pages: ation: 140 + 2	Date: December 22, 2011	Library location: TU
Professorship: Strategic management		Code of professorship: TU-91
Supervisor: Prof. Thomas Keil, Dr.Sc.(Tech.)		
Instructor: Johanna Kokkonen, Lic.Vet.Med.		

This thesis examines how a pharmaceutical company can exploit social media as a source of competitive intelligence. The objective of the study is to build a framework that provides a systematic approach to the use of social media as a source of competitive intelligence in the pharmaceutical case company.

The study takes a constructive research approach to solve the research problem that can be expressed as the following question: How the pharmaceutical case company can exploit social media as a source of competitive intelligence? The problem is approached by, first, developing an initial framework based on a literature review of competitive intelligence and social media. After this, the framework is iteratively refined based on external expert interviews and, lastly, the framework is implemented and tested in a real-life environment in the case company.

The study shows that the developed framework provides a systematic approach to the use of social media as a source of competitive intelligence in the company under investigation. Furthermore, we find that several functions of the pharmaceutical case company are able to exploit the gathered intelligence in strategic and tactical decision-making as social media is found to provide actionable intelligence in four key intelligence areas: the company itself, own brands and products, competitors and industry-specific topics. We also argue that the tested and developed framework can be applied in other companies in the pharmaceutical industry as well as in other industries.

When we consider the overlapping area of competitive intelligence and social media and discuss about social media as a source of competitive intelligence, we find that there is a significant lack of academic research. So far, the research has been either very general in nature or the topic has been studied from a highly technological perspective. To our knowledge, the approach of this study is unique as we provide an in-depth view of the use of social media as a source of competitive intelligence and show how the case company is able to exploit the gathered intelligence in several areas. Therefore this interdisciplinary study contributes academically both to strategic management research and research on social media as well as makes a way for a new research area in the confluence of competitive intelligence and social media.

Keywords: competitive intelligence, business intelligence, social media, strategic decision-making	Publishing language: English

Contents

List of figures

List of tables

Abbreviations

B2B	Business-to-business
B2C	Business-to-consumer
BI	Business intelligence
CI	Competitive intelligence
KIT	Key intelligence topic
UGC	User generated content

Part I: Introduction

1 Introduction to the study

This thesis examines how a pharmaceutical company can exploit social media as a source of competitive intelligence (CI). The thesis is carried out as a constructive study with the main objective to build a framework that provides a systematic approach to the use of social media as a source of CI in the pharmaceutical case company.

Based on a literature review of CI and social media, the thesis will first create a social media CI framework that provides a systematic approach to use of social media as a source of CI. The empirical part of the study begins by verifying and refining the findings of the literature review. In practice, the social media CI framework created in the literature review is refined based on external expert interviews. Lastly, the social media CI framework is implemented and tested in a particular situation of the case company.

1.1 Background

Our society is transforming into a knowledge-based society where knowledge is one of the most important resources in many aspects. Drucker (2001) claims that this will also change the dynamics of the competition and summarizes the situation well:

> *"Information technology, although only one of many new features of the next society, is already having one hugely important effect: it is allowing knowledge to spread near-instantly, and making it accessible to everyone. Given the ease and speed at which information travels, every institution in the knowledge society — not only businesses, but also schools, universities, hospitals and increasingly government agencies too — has to be globally competitive, even though most organisations will continue to be local in their activities and in their markets."*

The advent of social media is also part of what Drucker envisioned in 2001. Although some people still label social media as a hype phenomenon, it has already changed the way how many people and organizations communicate with each other. Never before in the history of humankind has communication and access to information been so easy and affordable. With the help of social media, a single message can instantly reach thousands of other people anywhere in the world.

Among other topics, people use social media to discuss about products and companies. This makes social media a particularly interesting subject from a corporation's CI point of view (Mangold & Faulds, 2009). Some corporations are already actively monitoring

social media and some are even using it to engage customers better. However, the social media landscape is very complex and several companies are still struggling to find the right approach to it.

In this thesis social media will be approached from a corporation's CI point of view. The goal is to not only understand what kind of data and information the case company could obtain from social media, but also to create a systematic and holistic model of how data and information can be gathered from social media and transformed into actionable intelligence for the use of the case company.

1.2 Research problem and research questions

The research problem of this study can be expressed as the following question:

How the pharmaceutical case company can exploit social media as a source of competitive intelligence?

The research problem can be divided into four research questions that are the following:

1. *What is competitive intelligence and what kind of a role it has in multinational corporations according to the existing academic literature?*
2. *What is social media and which parts of it are of interest from a corporation's CI point of view?*
3. *How social media can be monitored and how the monitoring can contribute to the CI activities of a corporation?*
4. *How social media can be used as a source of CI in the case company?*

1.3 Objectives of the study

The main objective of the study is to build a framework that provides a systematic approach to the use of social media as a source of CI in the pharmaceutical case company. The main objective can be further divided into several sub-objectives that are related to the different research questions. These sub-objectives are presented in Table 1.

Table 1. *Sub-objectives related to the different research questions.*

Research question	Sub-objectives
1. What is competitive intelligence and what kind of a role it has in multinational corporations according to existing academic literature?	*- Understand the role of CI in organizations.* *- Explore the contemporary views of CI.* *- Define CI in the context of this thesis.* *- Rationalize the need of CI in today's business organizations.* *- Investigate how CI activities can be organized in corporations.*
2. What is social media and which parts of it are of interest from a corporation's CI point of view?	*- Understand the concept of of social media holistically from a corporation's perspective.* *- Study how social media is currently seen as a source of CI.* *- Synthesize the findings of the research questions 1 and 2.*
3. How social media can be monitored and how the monitoring can contribute to the CI activities of a corporation?	*- Determine how social social media is monitored and how monitoring activities can contribute to CI*
4. How social media can be used as a source of CI in the case company?	*- Investigate and evaluate how social media monitoring can contribute to the CI activities of the case company.*

1.4 Scope of the study

The literature review covers the CI function of a corporation as a whole as well as studies social media from a business perspective. The approach of the literature review is very general and there are only few limiting factors when it comes to CI and social media.

The empirical part consists of external expert interviews and a case study of a pharmaceutical corporation. There are two factors that set clear limits to the scope of the empirical part of the study:

1. The focus is solely on how social media can be used as a source of CI. Other sources of CI are not considered.
2. The case study is conducted only in one pharmaceutical company.

The particularity of the case study places significant restrictions on the generalizability of the thesis' results. The study investigates the use of social media as a source of CI

from a specific pharmaceutical corporation's point of view. The presented frameworks, processes and tools may apply also in other contexts, but some of the findings are industry-specific and even company-specific.

It is also important to emphasize that CI is a wide concept by itself. However, in this study we are focusing solely on how social media can contribute to CI. Other sources of CI are not covered in the empirical part although they are discussed in the literature review.

The generalizability of the findings varies between the different research questions. The limitations related to the different research questions are presented in Table 2.

Table 2. *Limitations on the generalizability of the results related to the different research questions.*

Research question	Limitations
1. What is competitive intelligence and what kind of a role it has in multinational corporations according to existing academic literature?	*- As the study is based on a literature review of competitive intelligence, a substantial part of the findings can be generalized to cover corporations in different industries and geographical areas as well as other organizations.*
2. What is social media and which parts of it are of interest from a corporation's CI point of view?	*- The findings can be generalized well to cover businesses in different industries and geographical areas.*
3. How social media can be monitored and how the monitoring can contribute to the CI activities of a corporation?	*- The findings can be generalized well to cover businesses in different industries and geographical areas.*
4. How social media can be used as a source of CI in the case company?	*- The main results apply only to the particular case company, but the presented frameworks, processes and methods may apply also in other contexts.*

1.5 Definitions of the key terminology

B2B, business-to-business

B2B refers to a transaction that takes place between two companies, in contrast to a transaction between a company and a consumer.

B2C, business-to-consumer

B2C refers to a transaction that takes place between a company and a consumer, in contrast to a transaction between two companies.

BI, business intelligence

In this thesis BI is used to refer to the analysis of internal and external information sources. Thus, BI is an umbrella concept and CI is a subset of BI referring to the external information sources.

CI, competitive intelligence

In this thesis we define CI as a systematic and planned process to ethically collect, analyze, synthesize and disseminate accurate, relevant, timely and actionable intelligence about customers, competitors, partners, markets and other environmental factors in order to asses and monitor external environment, provide early-warning signals and support decision-makers in strategic and tactical decision-making. The topic is discussed in more detail in Part II.

SCIP, Strategic and Competitive Intelligence Professionals (formerly Society of Competitive Intelligence Professionals)

The Strategic and Competitive Intelligence Professionals is a global membership organization of CI professionals. It was established in 1986 and it was known as the Society of Competitive Intelligence Professionals until a name change in 2010.

KIT, key intelligence topic

Key intelligence topics are used to identify and prioritize the intelligence needs of decision-makers. The creation of key intelligence topics is an interactive process that involves both decision-makers and CI professionals. (Herring, 1999)

Social media

Kaplan & Haenlein (2010) define social media as *"a group of Internet-based applications that build on the ideological and technological foundations of Web 2.0, and that allow the creation and exchange of User Generated Content (UGC)."* Social media is discussed in more detail in the literature review.

UGC, user generated content

UGC refers to different forms of media content such as blog articles, comments, videos, photos and status updates that are created by end-users themselves and that can be accessed publicly.

1.6 Structure of the study

In addition to the introducing (Part I) and concluding (Part IV) parts, the study consists of two parts. Part II consists of the literature review of CI and social media. In the literature review we build a solid social media CI framework that is later used in the empirical part. Part III consists of the empirical study. In the empirical part, the social media CI framework is first refined based on external expert interviews. Second, the social media CI framework is implemented and tested in the case company. Furthermore, in the case study we investigate and evaluate how social media can contribute to the CI activities of the case company. The structure of the study including the objectives of each chapter is presented in Figure 1.

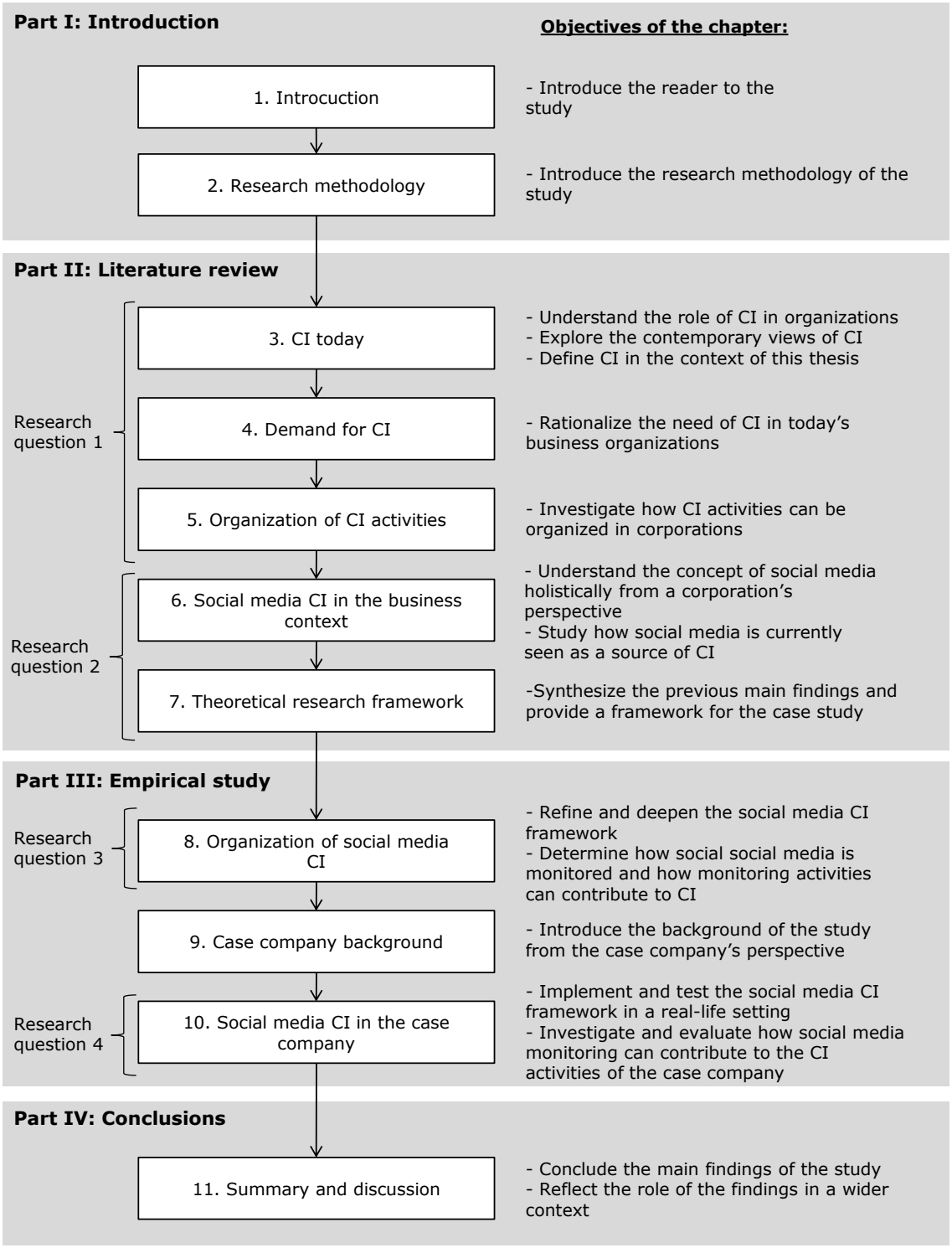


Figure 1. *Structure of the study.*

As can be seen from Figure 1, the research questions are directly linked to different sections of the study. Chapters 3-5 answer the first research question by examining the literature on CI. Chapters 6-7 answer the second research question by reviewing the

literature on social media and synthesizing the findings of the whole literature review into a social media CI framework.

Chapter 8 studies how social media can be monitored and how the monitoring activities can contribute to the CI activities of a corporation. Thus, it answers the third research question and refines the initial social media CI framework developed in the literature review. Finally, chapter 10 answers to the last research question by studying how the case company can use social media as a source of CI.

2. Research methodology

This thesis uses a constructive research approach to provide a solution to the research problem. Furthermore, case study method is used for implementing and testing the developed construct in a real-life organizational setting.

This chapter begins by introducing the constructive research approach followed by an introduction to the case study method. Finally, we discuss how data is collected in the study and describe step by step how the research is executed.

2.1 Constructive research approach

The constructive research approach aims to solve a problem by the creation of constructs that can be, for example, theories, frameworks, models, algorithms, diagrams, organizational procedures, organizations or software (Crnkovic, 2010). This type of research is often used in applied and practical situations where the objective is to provide a solution to a new real-life business problem. Here the constructive approach is suitable as the objective of this study clearly meets the required conditions.

The constructive approach requires that the solution can be tied with the theoretical body of knowledge. In addition, it has to be demonstrated that the solution actually works. This is a challenge, because the practicality of the solution cannot be assessed before it is implemented. In order to give evidence that the solution actually works, the construct should be implemented in a real-life environment. (Kasanen et al., 1991)

The main idea of constructive research is to create a new construct. The construct is based on existing knowledge, but the researcher uses the knowledge in novel ways and often adds some missing links. (Crnkovic, 2010) Furthermore, constructive research can be quantitative or qualitative (or both), and it typically applies the case study method at least in the part where the solution is tested (Kasanen et al., 1991).

Kasanen et al. (1991) recognize that the constructive research approach can be divided into five steps after the problem has been identified:

1. obtain a general and comprehensive understanding of the topic;
2. innovate, i.e., construct a solution idea;
3. demonstrate that the solution works;
4. show the theoretical connections and the research contribution of the solution concept; and
5. examine the scope of applicability of the solution.

The presented steps of constructive research are, however, not completely linear. There is overlapping between the steps and, furthermore, the first and final steps continue throughout the whole research process. (Lindholm, 2008)

In this thesis the understanding of the topic is obtained through a literature review of CI and social media. The literature review is also used in the creation of an initial construct – the social media CI framework. After this, the construct is iteratively refined based on benchmark interviews where external social media CI experts are interviewed. The iterative approach is needed because the exposure to a real-life situation can be expected to cause modifications to the original construct that is based on the findings from the literature. Finally, the social media CI framework is implemented and tested in the case company.

From the perspective of constructive research, the phases of the study are the following:

1. General understanding of CI and social media is obtained through a literature review. (chapters 3-6)
2. An initial construct is built based on the findings of the literature review (chapter 7) and the construct is iteratively refined based on benchmark interviews (chapter 9).
3. A workable solution is implemented and tested in the case company and it is demonstrated that the solution works. (chapter 10)
4. The theoretical connection and contribution to research is discussed. (chapter 11)
5. The scope of applicability of the solution is examined. (chapter 11)

2.2 Case study method

In this thesis the case study method is applied when the developed social media CI framework is implemented and tested in a real-life organizational setting. The case study method can be applied well within constructive research, because it provides an opportunity to investigate in-depth how well the construct works in practice. For instance, Kasanen et al. (1991) have identified that the case method is typically applied in the constructive research approach. In this section our objective is to give an introduction to the case study method and provide further evidence for its suitability for this thesis.

Organizational studies are often conducted using field methods that involve the study of real people, groups, organizations and situations in contrast to studies in laboratories (Ghauri & Grønhaug, 2005). Snow & Thomas (1994) claim that case study method is the most used field method for examining complex processes and social phenomena in organizations. The reason for this is probably the way how case study method allows the researcher to approach and understand complex social phenomena (Yin, 1994).

Yin (1994) claims that the decision of whether or not to use the case study method depends on three criteria:

1. the type of research questions;
2. the extent of researcher's control over behavioural events; and
3. the general circumstances of the phenomenon that is studied.

Yin (1994) proposes that case study is a proper method when the study aims to answer questions like "how" or "why", when the researcher has a little or no possibility to control the events, and when the topic is a contemporary real-life phenomenon.

This thesis fulfills well at least two of the three conditions. The thesis consists of mostly "how" questions and the topic is a contemporary phenomenon. An issue that needs to be considered is the level of control that the author has over the actual behavioral events, because the author has a role in the organization.

In this thesis the created construct is tested using a case study method and the author has a lot of control over these events. However, the issue is tackled by taking as objective and neutral role as possible when the construct is evaluated in the organization. By taking this into account, the case study method is a proper choice for this thesis.

The actual field methods in this case study consist of interviews and participant observations that together provide a holistic understanding of the phenomenon. Interviews provide a method for examining the phenomenon in-depth and actual participation in the organization enables an emergence of an understanding that is similar to that of company's employees (Snow & Thomas, 1994). Other field methods such as surveys and archival analysis were considered unsuitable, because the phenomenon is novel and not well-known.

2.3 Data collection in the study

The study begins with a review of the existing literature on the topics of CI and social media. An extensive literature study is conducted in order to obtain a general understanding of CI and social media. In the literature review we also incorporate the main literature findings into an initial social media CI framework that provides a systematic approach to use of social media as a source of CI.

In the empirical part data and information is collected using two methods: interviews and participant observations. Interviews can be further divided into two categories: external expert interviews and case-company interviews. The participant observations and case-company interviews provide data for the in-depth case-study of the case company. External expert interviews are used to refine the initial social media CI framework and these interviews are considered only as benchmark interviews that are not directly related to the actual case study.

External expert interviews

Several external social media experts were interviewed in order to refine and deepen the initial social media CI construct. The purpose of the interviews was to acquire benchmark data about the planning, organization and implementation of social media CI activities in other companies and to investigate:

1. How a social media CI system should be planned.
2. How data and information can be acquired from social media.
3. How this data and information can be analyzed in order to create actionable intelligence.
4. How companies, in general, are using social media intelligence.
5. What are the contemporary and potential future trends of social media monitoring.

The expert interviews were semi-structured and the structure of the interviews was based on the social media CI framework (see Appendix A for the final interview structure). The interviews were recorded and transcribed *ad verbatim* in order to analyze them later.

The interviewees were chosen by searching for companies that provide social media monitoring tools and related services. First, a letter was sent to the companies to request their willingness to participate in the study and afterwards the companies were contacted by phone.

As in many constructive studies, the sample size was not decided a priori. Instead, the number of interviews was determined with a method called theoretical sampling. In theoretical sampling, new interviews are added as long as they provide new information that is not covered before (Eisenhardt, 1989). In addition, the interview questions were refined as the understanding of the topic developed. New interviews were not added after saturation was noticed and new interviews did not provide any additional meaningful information.

For the external interviews, a total of nine companies were contacted and six of those participated in the study. In these six companies a total of eight interviews were conducted during May and June of 2011. The roles of the interviewees are presented in Table 3.

Table 3. *The roles of the external interviewees.*

Role type	Number of interviews
Upper management	3
Middle management	3
Advisor / specialist	2
Total	8

Case-company interviews

Several employees across the case company's different functions were interviewed during the study. The purpose of the case-company interviews was to, first, plan the social media CI system based on the social media CI framework, and, second, get feedback from the organization about the findings. In contrast to the external expert interviews, the case-company interviews were less structured discussions that often took place in the form of group meetings.

The case-company interviews were documented in two ways. First, the meetings often involved slide presentations that were saved for further use. In addition, observational notes were taken during the meetings.

A total of 13 interviews took place during the six-month period from May, 2011 to September, 2011. Details of the interviews are presented in the end of the thesis.

Participant observations

The author worked in the case-company for six months from May, 2011 to September, 2011 implementing social media monitoring activities. Thus, participant observations provide a third source of data. The advantage of this method is that it provides an

opportunity to understand the phenomenon from the perspective of the company's employee. However, this has also a downside as for example Bruyn (1970) notes that this situation might lead to a problem where the author is not able to approach the studied phenomenon from an objective perspective. Therefore special caution was taken to avoid the emergence of a biased view.

2.4 Reliability and validity

The quality of the study can be measured through the means of reliability and validity. Reliability refers to the extent to which the study yields the same result at another time in the future. In order to be reliable, the study should be repeatable in the future. Validity refers to the degree to which the study is able to measure and explain the phenomenon that the researcher aims to study. (Golafshani, 2003) Considering case studies, validity can be further divided into external and construct validity (Yin, 1994). External validity refers to the generalizability and transferability of the results. Construct validity refers to the extent to how well the used measures in fact measure the phenomenon that was to be measured.

A substantial part of the data collection consisted of interviews. In order to improve the reliability, the research methods were described accurately. Furthermore, the interview structure is presented in Appendix A. In addition, during the investigation the phases of the case study were carefully documented in a case study database. All of the external expert interviews were also recorded and transcribed, and notes from the case company interviews were typed out.

Interviews as a research method raise also other concerns about the reliability of the study. In order for an interview to be reliable, the interviewee has to be objective and truthful, and the same applies naturally to the interviewer (Snow & Thomas, 1994). In this study the objectivity of some of the external interviewees can be questioned, because certain findings of the study can potentially benefit them. This risk was mitigated by taking into account the potentially biased view of some of the interviewees.

The external validity of this study is obviously a major question, because the case study concerns only one pharmaceutical corporation. Case studies are sometimes criticized arguing that the findings of the study cannot be generalized outside the context of the research. However, Stake (1978) argues that there exists a possibility for naturalistic generalization assuming that the case study is otherwise properly conducted. Stake (1978) proposes that the findings of a case study can be generalized to cover situations in other contexts if there are similar issues present. Given this, we

can argue that the findings of this study can be generalized to a larger group, because the issues that this study covers are not limited to the case company. Therefore some of the findings can be generalized to cover any company that faces similar issues.

Construct validity is a challenging issue in case studies. In this study construct validity is improved by following the recommendations of Yin (2003). First, multiple sources of data are used including case company interviews and participant observations. In addition, the key stakeholders of the study reviewed the report in different phases which improves the construct validity of the thesis.

Part II: Literature review

3. CI today

The literature review begins by exploring the contemporary views of CI as well as CI's relation to other intelligence-related concepts. The objective of this chapter is to understand the role of CI in organizations, explore the contemporary views of CI and define CI in the context of this thesis. In the end, the findings of this chapter are incorporated into a corporate intelligence framework that covers the key intelligence activities of a corporation.

3.1 What is CI?

CI is not a new practice although the shift from the industrial age towards an information-based economy has renewed the field substantially (Bergeron & Hiller, 2002). The origins of CI trace back even thousands of years, and, not surprisingly, the concept of CI has deep historical roots in the military. Throughout the history, wars have been won (or lost) because of (or because of the lack of) timely and accurate intelligence. Some CI papers even refer to Sun Tzu's famous book The Art of War as a first literary work on CI - the Art of War was written approximately 500 BC (Prescott, 1999).

The concept of CI itself is extremely wide. Bergeron & Hiller (2002) recognize that CI covers various areas of intelligence including competitors, technology, product/service, environment (ecology), economy, legislation/regulation, mergers and acquisitions, customers, suppliers, market, partners, social/historical/political environment, and the internal environment of the organization. Gilad (1989) argues that a well-organized CI focuses on competitors, suppliers, customers and other external forces that are related to the company. Bergeron & Hiller (2002) claim that in the end the objective of CI is to create actionable intelligence which is information that has been synthesized, analyzed, evaluated, and contextualized. In addition, CI should enhance the organization's creativeness and innovativeness.

Gordon (1989) claims that in the end the main objective of CI is to develop strategies and tactics that help the company to capture market share from its competitors. This indicates that a company should focus especially on tracking competitors in order to identify opportunities to capture market share as well as situations when market share has to be defended. Also Kahaner (1996) focuses on competitors, but he also emphasizes the systemic nature of CI by stating that CI is "a systematic program for gathering and analyzing information about your competitors' activities and general business trends to further your own company's goals".

McGonagle & Vella (1996, p. 39) highlight the term “public” in their definition of CI. According to their definition, CI is “the use public sources to locate and develop data that are then transformed into information, generally about competitors and/or the competition”.

In the 1990s the definition of CI focused on competitors and competition as can be seen from the definitions by Gordon (1989), Kahaner (1996) and McGonagle & Vella (1996, p. 39). In the 2000s a clear change occurred and the academic literature on CI began to approach the subject from a more general process perspective. Rouach & Santi (2001) define CI from a process perspective as they see CI as an activity of collecting, processing, storing and disseminating information that is used everywhere in the organization in order to prepare better for the future and to avoid disasters. In 2000s CI became also more closely related to strategic management. For instance, Prescott & Miller (2001) see CI simply as any actionable intelligence that could provide a competitive edge.

Jaworski et al. (2002) propose a model where CI generation is divided into three phases:

1. organizing for CI;
2. searching for information; and
3. sense-making.

Jaworski et al. (2002) also criticize the traditional CI process where information is first gathered and then reduced. Jaworski et al. (2002) argue that the rationale behind their model is in that the final sense-making process is a dynamic and complex continuous activity that is happening while information is still flowing in. In other words, they argue that the in-flowing information should be analyzed instantly instead of waiting until all the information is gathered. However, they might have also missed the extremely iterative nature of the CI process that is discussed later in this thesis.

Clearly, majority of the academics agree that the main goal of a CI process is to help a company to win in the markets by providing actionable intelligence that executives and managers can use to make more informed strategic and tactical decisions. Thus, the primary purpose of CI has remained the same although the academic definition of CI has evolved over the decades. It seems that that the earlier academic CI literature focused more on the content of CI, which also caused the definitions of CI to

emphasize more the data gathering aspect of it. Later the focus has been more on the whole CI process and in the link between CI and strategic decision-making.

In this thesis we define CI as a systematic and planned process to ethically collect, analyze, synthesize and disseminate accurate, relevant, timely and actionable intelligence about customers, competitors, partners, markets and other environmental factors in order to asses and monitor external environment, provide early-warning signals and support decision-makers in strategic and tactical decision-making.

3.2 Competitive intelligence vs. business intelligence

CI is often used with other intelligence-related concepts in a rather confusing manner. In fact, CI is closely related to concepts such as business intelligence, market/marketing intelligence, customer intelligence, competitor intelligence and environmental scanning. There is a lot of overlapping elements between these concepts and also in the literature these concepts are sometimes used interchangeably and sometimes referring to completely different subjects.

The biggest ambiguity is probably between business intelligence (BI) and competitive intelligence. BI is a popular concept especially in Europe where it is used as an umbrella concept referring to the analysis of internal and external information sources (Lönnqvist & Pirttimäki, 2006). CI has gained more popularity in North America, but it differs from BI in such a way that it emphasizes external information sources.

In this thesis we acknowledge the existence of all the previously mentioned intelligence-related concepts, but in the same time we want to make a distinction between them. Therefore we will consider BI as the top most umbrella concept referring to the use of all internal and external information sources. CI is considered as a concept referring to external information sources. In other words, in this thesis CI is considered as a subset of BI.

3.3 Corporate intelligence framework

To clarify the relationships and definitions of the different intelligence-related concepts, we propose a framework that takes into consideration the issues discussed previously. The corporate intelligence framework organizes the different intelligence-related concepts in a holistic way. Thus, the framework helps to understand the differences between the concepts as well as gives an idea of the different areas related to corporate intelligence management. The framework is presented in Figure 2.

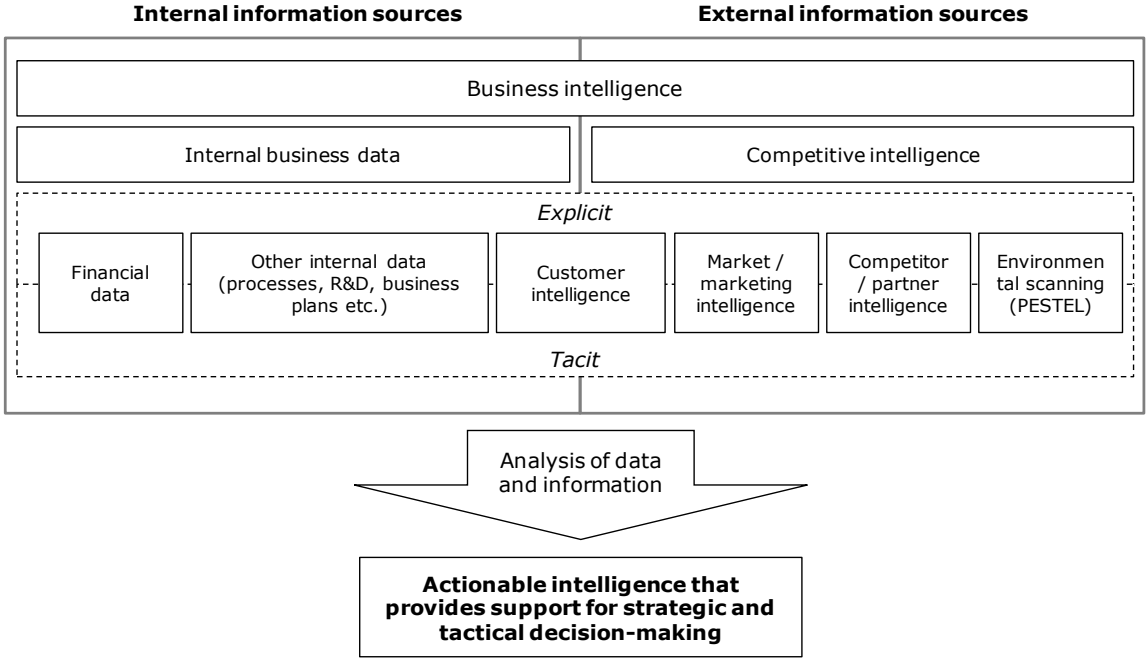


Figure 2. *The corporate intelligence framework that clarifies the relationships and definitions of different intelligence-related concepts.*

The corporate intelligence framework begins by dividing the information sources into internal and external information sources. BI is considered to be the top most umbrella concept that covers both internal and external information sources. This proposal is in line with many academic practitioners.

In the framework, CI is a sub-concept of BI referring to the external information sources (Lönnqvist & Pirttimäki, 2006). Also Hohhof (1994) claims that CI is a subset of BI with a focus on competitors, markets, and industries. We can also argue that CI itself consists of various external sub-areas including customer intelligence, market/marketing intelligence, competitor/partner intelligence and environmental scanning. Most importantly, CI focuses on all aspects of the company's external environment and the objective is to produce intelligence that can be used in decision-making (Prescott, 1999).

In the framework, customer intelligence is the only concept that has both internal and external aspects as customer intelligence can be gathered both from external (e.g. public websites) and internal sources (e.g. sales data or CRM system). Environmental scanning refers to the activity of monitoring the external macro-environment. In this

case, PESTEL analysis is a useful tool as it gives a comprehensive overview of the different macro-environmental factors that a company has to consider. PESTEL analysis consists of political, economical, social, technological, environmental and legal analysis.

The framework also takes into consideration the different types of knowledge. Knowledge can be either explicit or tacit. Explicit knowledge is knowledge that can be coded and documented in a formal way whereas tacit knowledge is personal knowledge that is difficult to codify.

The final part of the framework describes how the information is analyzed no matter what is the type or source of it. Most importantly, the primary objective of all intelligence-related activities is to create actionable intelligence that provides support for strategic and tactical decision-making. In this respect, it is important to emphasize the term “actionable” when we are talking about CI or any other intelligence-related concept. This means that CI should not be only nice-to-know information about the business environment. Instead, it is analysis and synthesis of such information with a goal to help the company to make better and more informed decisions.

4. Demand for CI

This chapter continues to build a solid background for the thesis by showing why there is demand for CI, how CI adds value in organizations and how the value of CI can be assessed. In addition, we examine CI from the perspective of the pharmaceutical industry.

4.1 The need for CI

Today the business environment is changing rapidly and in many industries the competition takes place at a level. Leaders are concerned especially about unpredictable and discontinuous changes in competitive, technological, regulatory and social environments (Gbosbal & Kim, 1986).

Lönnqvist & Pirttimäki (2006) claim that a company needs timely and effective business information not only to succeed – it is essential to survive in the first place. In general, there is a clear consensus that the market environment has become a much riskier place during the last three decades (Gilad, 2003, p. 4). A 2002 survey by the Academy of Competitive Intelligence shows that as many as 92 % of managers reported that during the past five years their company faced at least one surprising event that had the potential to impact their long-term market position. 24 % of the respondents reported that they had faced such an event more than three times during the past five years (Gilad, 2003, p. 7).

In the end, the need for CI is based on the fact that decision-makers need timely and accurate actionable intelligence in order to make good business decisions. To put it simply, CI helps managers and leaders to make more informed forward-looking decisions (Bose, 2008). There exists strong empirical evidence that companies that have significant analytical capabilities, value analytical insights and use analytics across their organization, are performing better than the companies that use and value analytics less. However, Harris (2007) found that although the value of timely and accurate intelligence is known, for instance, in the US, as much as 40 percent of the companies' decisions are based on a gut feeling.

4.2 The value of CI

Today CI is getting more attention from the top management as executives are more concerned about the different threats to the competitive advantages of their companies (Juhari & Stephens, 2006). Thus, CI has become an essential element helping

executives to make better and more informed strategic and tactical decisions. In addition, CI function itself can be a source of competitive advantage (Hughes, 2005).

Companies usually base strategic decisions on certain assumptions (Mintzberg, 1994). In an ideal situation, the company can test and validate the core assumptions with the help of CI. Furthermore, CI can help in identifying the possible gaps that a company did not originally recognize in its assumptions (Bose, 2008). Bose (2008) also recognizes that CI helps the company to better understand its industry, its competitors as well as the company itself. Therefore CI can also contribute to the strategy formulation.

CI itself does not create any value. Value is created when the intelligence is used in decision-making. A study by The Competitive Intelligence Foundation (2006) found that companies expect the value of CI to realize in the following areas:

- new or increased revenue;
- new products or services;
- cost/time savings;
- profit increases; and
- financial goals met.

The study also found that companies are focusing on the following key intelligence topics (in rank order):

1. company profiles;
2. competitive benchmarking;
3. early warning alerts;
4. market or industry trends;
5. customer or supplier profile;
6. technology assessment;
7. economic/political analysis; and
8. executive profiles.

Kim & Mauborgne (1997) use a concept of value innovation to describe the strategic logic of companies that, instead of paying too much attention to competitors, focus on understanding what customers really value the most. By creating unique value propositions that might even be contrary to the conventional industry logic, a value innovator might be able create a quantum leap in the value perceived by its customers (Kim & Mauborgne, 1997).

In a study of about 30 companies around the world, Kim & Mauborgne (1997) found that the companies that were following conventional strategic logic and focusing for example on competitor benchmarking were the least successful in terms of growth in revenues and profits. What the successful high-growth companies had in common was that their strategic logic was to create value innovations. This finding was valid in all industries.

In the context of value innovation, CI can contribute to companies' success by providing timely intelligence about customers and especially what the customers value the most. Thus, CI can play a key role when companies aim to create value innovations.

4.3 Measuring the value of CI

In this context we need to first consider what the concept of value actually means. Lönngvist & Pirttimäki (2006) recognize that in the context of BI or CI, value can be assessed from two perspectives:

1. in terms of improved profit of the company that is using the intelligence; and
2. from the perspective of the individual user in terms of perceived usefulness.

Kelly (1993) also points out that CI does not have any value if the information is not used. The value comes from the decisions that are based on CI.

The profitability of an investment can be measured by calculating the return on investment (ROI):

$$\mathrm{ROI} = \frac{Gain\ from\ investment - Cost\ of\ investment}{Cost\ of\ investment}$$

If we want to calculate the ROI of a CI investment, we need to first take into consideration all the costs related to the CI activity. This includes for example labor costs, software costs and information acquisition costs. However, the most difficult part is to estimate the gain from the investment. Lönnqvist & Pirttimäki (2006) argue that the measurement of the gain from the investment is challenging, because it is difficult to determine what part of the financial outcome was a result of the CI investment. In addition, there is usually a time lag before the financial gains are realized.

Although ROI is a difficult concept in the context of CI, Davison (2001) proposes a measure of the return on CI investment (ROCII) that is calculated with the following formula:

$$\text{ROCII} = \frac{CI\ outputs - CI\ inputs}{CI\ inputs}$$

CI inputs refer to the costs related to the CI project and CI outputs refer to the gains from the CI project. Both costs and gains should be measured in financial terms. However, the monetary value can be only an estimate that is based on several qualitative factors, for example, how satisfied the decision-maker was with the information and how well the objectives were achieved. Furthermore, Herring (1996) claims that there are four areas that can be considered when the value of CI is estimated:

1. time savings;
2. cost savings;
3. cost avoidance; and
4. revenue enhancement.

However, the problem of how to measure these effects still remains.

A survey by Marin & Poulter (2003) provide additional interesting methods on how companies are measuring the value of CI in real life. Actually, more than half of the respondents were not measuring the value of CI in any way, but the rest had implemented some interesting and even creative methods (the category of the method is in brackets):

- The intelligence created by the CI unit is compared to the cost of hiring consultants (cost avoidance).
- The win/loss ratio of strategic deals where the CI team was involved is compared to the same ratio of deals where the CI team was not involved (revenue enhancement and cost avoidance).
- Key intelligence users are surveyed periodically (perceived value of the decision-maker).
- Analysis of revenue-generating opportunities that CI contributed to (estimated revenue enhancement).
- Analysis of cost savings that CI contributed to (cost savings).

In the end, we can summarize that there is not any easy and direct solution to calculate the monetary value of CI. However, we can use the simple ROI-based model to estimate the financial value of CI outputs and CI inputs as presented in Figure 3.

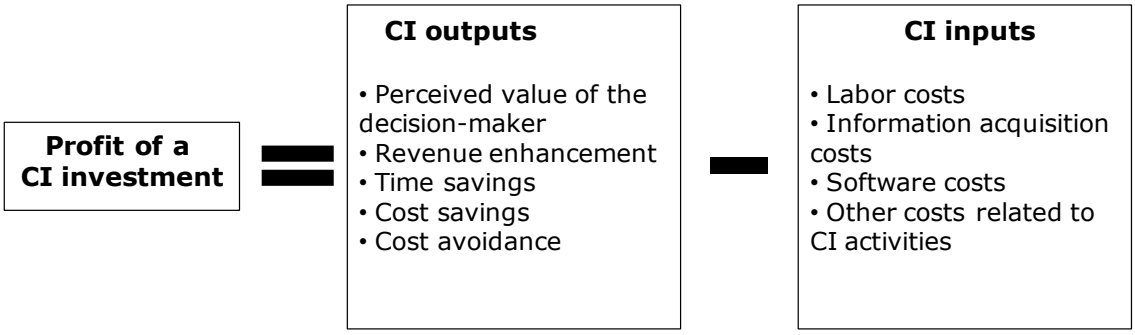


Figure 3. *Profit of a CI investment. Based on work by Davison (2001), Lönngvist & Pirttimäki (2006) and Herring (1996).*

4.4 CI in pharmaceutical corporations

Here we will discuss shortly the CI activities from the perspective of pharmaceutical corporations. Pharmaceutical corporations are given special attention, because the case company in the empirical part is a pharmaceutical corporation. Thus, the industry-specific literature findings have a potential to contribute to this thesis.

Badr et al. (2006) studied the contribution of CI to the strategic decision making process in European pharmaceutical companies. The study reports that CI contributes to the strategic decision making at every level of the decision-making process that consists of four stages:

1. setting strategic objectives;
2. strategic analysis;
3. strategy formulation; and
4. implementation and control.

However, Badr et al. (2006) also found that the European pharmaceutical companies are not taking the full advantage of CI at every stage. 17,7 % of the companies reported that CI was rarely or never contributing in setting strategic objectives and as many as 26,4 % of the respondents reported that CI was rarely or never contributing in implementation and control stage. As can be seen from Figure 4, the contribution of CI was most significant in strategic analysis and strategy formulation stages.

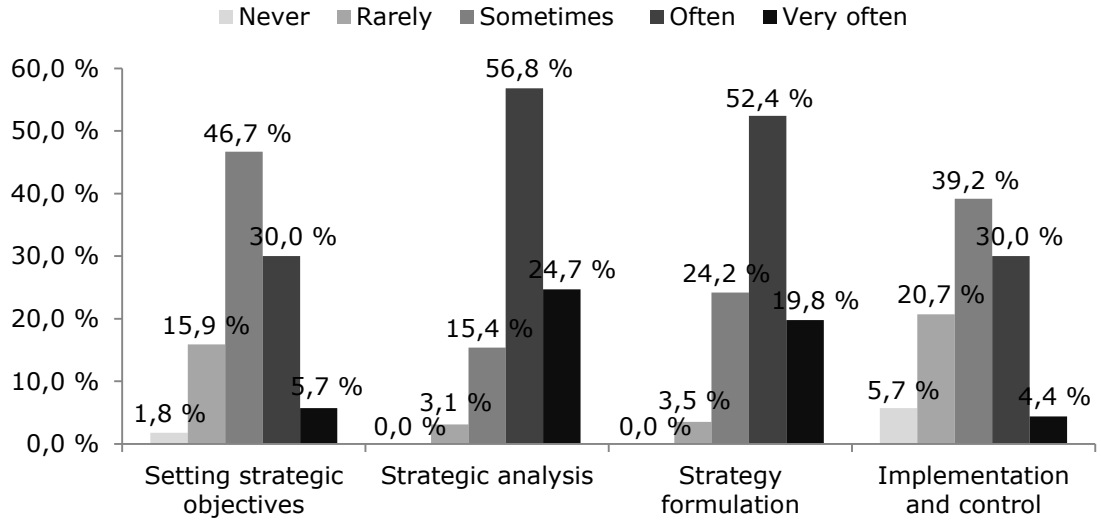


Figure 4. *The contribution of CI to the different stages of strategic decision making process in European pharmaceutical companies. (Badr et al., 2006)*

Even more interesting is to see how CI actually contributed to different stages of strategic decision making process. The results of the study are presented in Table 4.

Table 4. *How CI contributes to different stages of strategic decision making process in European pharmaceutical companies. (Badr et al., 2006)*

CI's contribution to setting strategic objectives	
Understanding competitors strategies and objectives	78,1 %
Better understanding of the business environment	75,9 %
Providing useful intelligence which helps to set achievable marketing objectives	60,4 %
Providing information that can be a platform to develop marketing objectives	41,0 %
Ensures that strategic objectives are developed within a reality perspective	38,0 %
Helps managers to develop sensible and achievable strategic objectives	30,5 %
Do not know	3,3 %
CI's contribution to strategic analysis	
Helps in better understanding of the business environment	73,0 %
Provides intelligence on aspects of the competitive environment	66,1 %
Helps to look at the big picture regarding business environment	60,9 %
Helps managers to identify opportunities in the market and anticipate competitors' move	57,6 %
Informs and supports marketing analysis	52,0 %
Provides clear understanding of the market and adds value to the analysis	44,8 %
Do not know	2,4 %
CI's contribution to strategy formulation	
Up to date intelligence regarding business environment which helps managers to make their decisions	80,3 %
Assesses and evaluates likely competitors reaction	66,8 %
Provides intelligence and suggestion to the senior managers	61,1 %
Predicts the future position of products and markets	57,6 %
Focuses on what to achieve in the market and how to go about it	46,2 %
Do not know	0,7 %
Other	0,3 %
CI's contribution to implementation and control	
Indicators from CI are used as an early warning system to assess success or failure	61,3 %
Provides information about competitors' reaction to the strategy	54,0 %
Checking the validity of the strategy	43,4 %
Provides feedback to enable adjustments to be made	34,1 %
Provides feedback about the strategy performance in the market	33,0 %
Do not know	11,9 %
Other	9,0 %

5. Organization of CI activities

This chapter studies how CI activities are organized in corporations. The chapter begins by introducing the CI cycle that is the main framework exploited also later in the empirical part of the study. After that, we examine the key issues related to the different phases of the CI cycle, and lastly, we discuss the challenges related to the implementation of CI activities.

5.1 CI cycle

CI cycle is intuitively fairly simply, but its operation is quite complex (Prescott, 1999). In this thesis we use a four phase CI cycle which is based on work by the SCIP (see e.g. Bose, 2008; Kahaner, 1997). The CI cycle is presented in Figure 5.

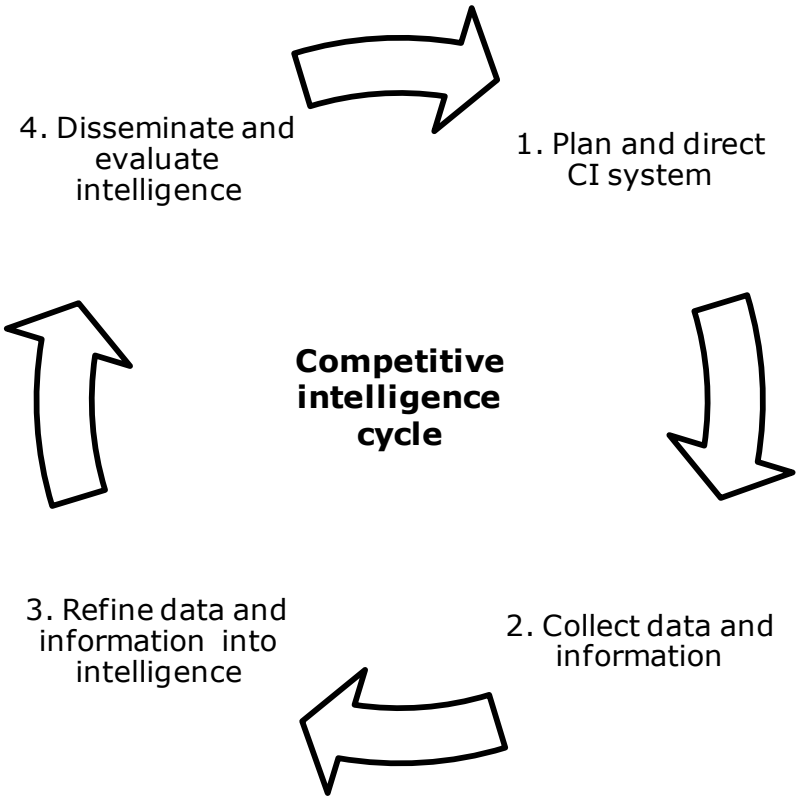


Figure 5. *CI cycle used in the thesis.*

It is important to understand the non-linear and highly iterative nature of the CI cycle. The CI cycle is by no means straightforward. Instead, the cycle is highly iterative and

consists of series of iterations both within and between the different phases (Bergeron & Hiller, 2002). For example, there might first be several iterations only within the phase one when the managers are designing the CI system.

The first phase consists of planning and directing of the CI system. In this phase one of the most important tasks is to define what information is needed and by whom. This requires a systematic and cooperative communication between CI professionals and the intelligence users in order to define the company's intelligence needs (Herring, 1999). These intelligence needs can be also referred as key intelligence topics (KITs) that are used to identify and prioritize the decision-makers' areas of interest. KITs are discussed later in this chapter.

The second phase consists of the actual collection of data and information. There are several possible sources of data and information as well as several methods to collect data and information. The sources of CI are discussed in more detail in section 5.5.

After the data and information has been collected from various sources, the next phase is to transform it into intelligence. This is the part of the CI cycle where most of the value is created. However, this phase is at the same time extremely complex (Bergeron & Hiller, 2002). Most of the actual analytical techniques and frameworks are taken from other disciplines including, for example, management science, marketing, economics, and information sciences (Bergeron & Hiller, 2002). The choice of methods naturally depends on the type of data and information as well as on the type of the topic. As there are various ways in which this phase can be executed, the success of the phase eventually depends on the capabilities of the CI professionals that are responsible for analyzing the information and drawing the conclusions. Taylor (1986) has presented a framework, the value-added spectrum, to examine how data is transformed into productive knowledge that decision-makers can act upon. This framework gives a solid structure for the analysis of data and it will be discussed more in section 5.6.

The final phase of the cycle consists of dissemination and evaluation of the intelligence. Today, technology plays a major role in the dissemination part and technologies like corporate intranets, online discussion groups and e-mail are often used to disseminate the intelligence. Although technology can help and streamline the dissemination of the information, Marin & Poulter (2004) claim that in order to be effective, the dissemination has to be person-focused. The today's challenge is the huge amount of information and therefore the intelligence reports should be customized and targeted to specific decision-makers in order to be effective (Marin & Poulter, 2004).

The value of CI is another issue that has to be considered in the final phase. We covered this issue in section 4.3 and presented a ROI-based framework for assessing the value of a CI investment.

Considering the number of phases in the CI cycle, there is some variation between different authors. Some scholars divide the process into three phases, some into five and some even into seven (Bergeron & Hiller, 2002). However, in the end, the difference between the models is mostly in how much details are presented in the different components of the cycle. Most of the commonly used CI process models cover essentially the same core elements (Bergeron & Hiller, 2002).

It is evident that the CI cycle is such a complex activity that it cannot be automated entirely with any technologies. However, information technology tools are today the core of any CI system. For example, online databases, intelligent agents, intranets, extranets, enterprise resource planning systems, document management systems, text analysis tools and data warehousing solutions play a key role in any modern CI system (Bergeron & Hiller, 2002).

5.2 Types of CI use

Cartwright et al. (1995) suggest that there are four types of CI use in companies: *ad hoc*, continuous-comprehensive, continuous-focused and project-based.

Ad hoc refers to a situation where CI is used in a specific situation, for example, in response to an event in the competitive environment. The nature of *ad hoc* CI's output is one-time and it is usually focused on a competitor, competitor's product or competitive event that may have an impact to the company. *Ad hoc* CI does not require a formal CI function, and in fact, it is often informal and uncoordinated approach to create actionable intelligence. (Cartwright et al., 1995)

Unlike the *ad hoc* type of CI, continuous-comprehensive CI is performed continuously and it covers the whole spectrum of the competitive environment. This usually involves a formal CI staff and even a CI unit, and requires a comprehensive information development and distribution system (Prescott & Smith, 1987).

The continuous-focused type of CI is similar to the continuous-comprehensive type of CI, but the approach is narrower and ongoing analysis is performed only on selected topics. These may include, for example, specific competitors or other strategic areas defined by the key decision-makers. (Cartwright et al., 1995)

Project-based CI is refers to a CI activity that is related to a specific project. The analysis focuses only on the relevant issues related to the particular project and therefore also the outputs are usually more focused compared to the comprehensive type of CI. In a project-based CI the CI activities are usually performed by a project team, which means that the organization for CI is temporary (Prescott & Smith, 1987).

In a study of 428 SCIP member companies Cartwright et al. (1995) found that the *ad hoc* type of CI was the most common CI practice. It was used by 87,8 % of the respondents. Continuous-focused was the least common type of CI used only by 45,9 % of the companies. 29 % of the companies used all types of CI. An interesting finding is that the project-based CI was perceived to be the most useful type of all. The reason for this is probably the fact that in the project-based CI there is usually a timely and explicit need for the intelligence. Also Prescott & Smith (1987) argue that the continuous-comprehensive type is useful for broad strategic decisions, but in a project-driven environment the project-based type may be more useful for the decision-makers.

5.3 The position of CI activities in an organization

Many corporations have formal CI units that provide managers with actionable intelligence that helps them to make more informed decisions about critical business matters such as investment decisions, marketing activities and strategic planning. An influential milestone that speeded up the development of formal CI activities occurred when Porter (1980) argued that it was not nearly enough for companies to have informal intelligence gathering processes. Instead, Porter (1980) saw the need for systematic and continuous intelligence gathering processes in order to identify opportunities and threats. During the 1980s companies started to increasingly hire CI practitioners which also led to the founding of the Society of Competitive Intelligence Professionals in 1986 (Prescott, 1999).

CI encompasses several business activities and organizational elements (Calof & Wright, 2008). CI should not be an independent business unit or a process that operates in isolation from the other business functions or information processes (Bergeron & Hiller, 2002). Instead, CI should be an organizational learning process that via sense-making and knowledge-creation transforms pieces of data into the organization's view of the world (Choo, 2002).

Calof & Wright (2008) argue that CI practitioners should be able to work across different functions acting as a "glue" between disparate functions. This way the CI professionals can influence significantly to the success of the organization.

Bergeron & Hiller (2002) have recognized that the main actors of a CI process can be divided into three categories:

1. the CI professionals who manage the CI process;
2. decision-makers who act upon the actionable intelligence produced by the CI process; and
3. members of the organization who form the human intelligence network.

An organization may have one or more formal CI units or not any formal CI units at all. A corporation can also organize CI in a centralized or decentralized manner (Gilad & Gilad, 1986). In a decentralized approach the CI professionals are scattered around the organization's business units. In a well-organized situation there would be at least some collaboration between the information specialists and analysts that are located in the different business units. In the real life this is not always the case, but it is important to understand that separately working CI units might lead to a piecemeal CI that causes a lack of strategic intelligence.

Prescott (2001, p. 6) proposes that the decision to centralize or decentralize should depend on how similar customers and competitors the different business units have. If business units have similar customers and competitors, a lot of synergies can be achieved by centralizing the CI activities. If the customers and competitors differ significantly between the different business units, the CI activities should be decentralized. However, also in the decentralized situation there should be collaboration between the different CI units at least in the form of best practice sharing. Furthermore, Gilad & Gilad (1986) note that some elements of a CI system remain decentralized in either case. For example, some internal business and technical experts with specific knowledge remain always in their business unit, which means that it is important to enable information exchange and collaboration between different actors.

The organization of CI depends also highly on the size of the company. In general, small and medium-sized companies tend not to have any formal CI units or CI professionals (Bergeron & Hiller, 2002). Instead, CI activities are carried out in a more informal way by the decision-makers themselves or other people working closely with the decision-makers.

Earlier in this chapter we presented the different types of CI use: *ad hoc*, continuous-comprehensive, continuous-focused and project-based. We can argue that in a

situation where a corporation does not have a formal CI unit, the type of CI use is *ad hoc* or project-based. It is also evident that continuous-comprehensive and continuous-focused types of CI units usually require a formal CI unit whereas the *ad hoc* and project-based CI can be organized in an informal way.

Gibbons & Prescott (1996) found that regardless of whether or not a company has formal CI units, individual business units tend to always conduct their own informal CI activities. The problem with this is that these extra CI activities are duplicative and not collaborative with the formal CI units.

Considering the two perspectives of approaching the organization of CI, formal versus informal and centralized versus decentralized, we can propose a two-dimensional framework for analyzing the organization of CI in companies. In the framework, the level of formality is presented on one axis and the level of centralization on another axis. According to this framework, there are four ways to organize CI. Furthermore, we can claim that the different forms of organization involve different types of CI. The framework is presented in Figure 6 and it is based on work by Bergeron & Hiller (2002), Cartwright et al. (1995), Prescott & Smith (1987), Prescott (2001, p. 6) and Gilad & Gilad (1986).

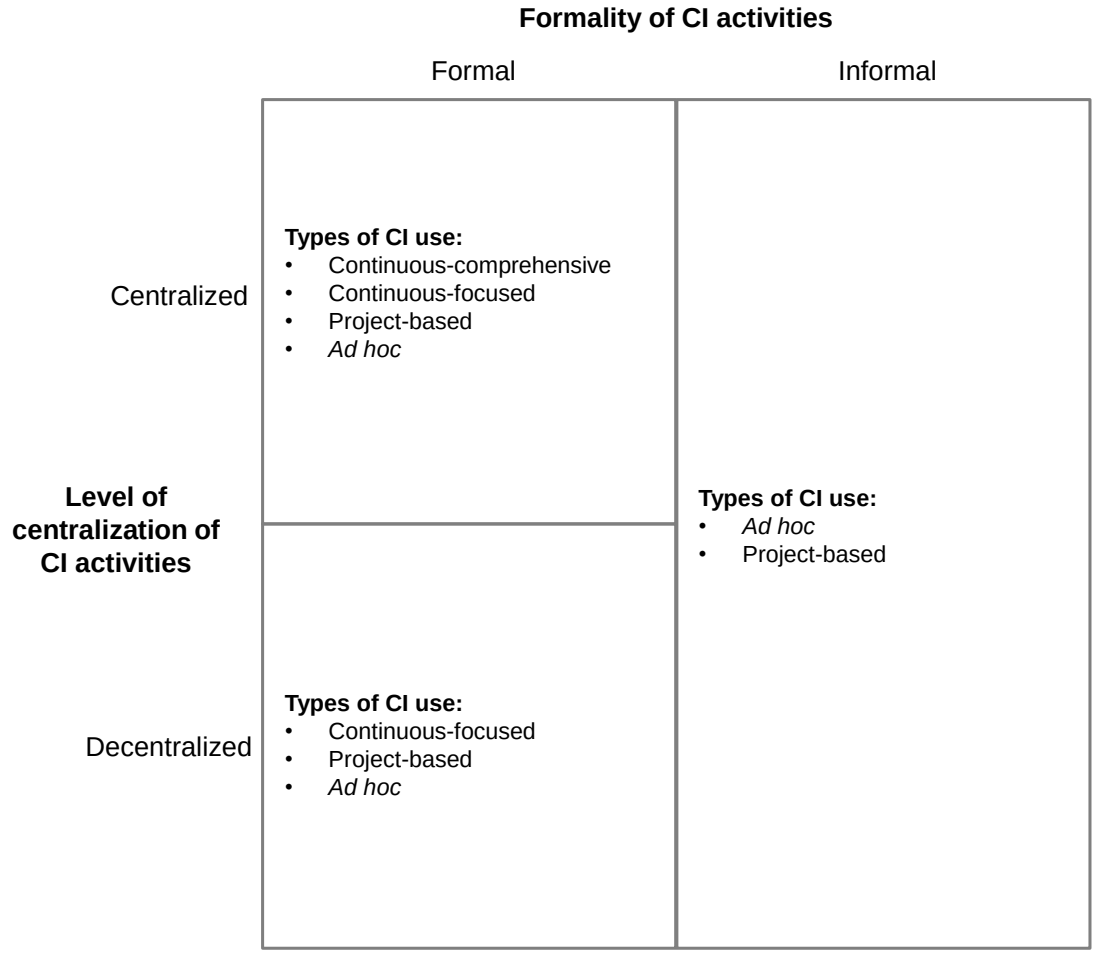


Figure 6. *The dimensions of organizing CI activities and the types of CI use.*

The objective of the framework in Figure 6 is to illustrate the different ways how CI activities are carried out in companies. In the case of informal CI activities, the level of centralization does not apply, because informal activities are always carried out by some independent groups or individuals in the organization. Informal CI activities tend to lack the continuous aspect, so the type of CI use is *ad hoc* or project-based.

It needs to be emphasized that the different ways to organize CI activities are not mutually exclusive. In other words, a company may have a formal centralized CI unit simultaneously with informal CI activities occurring in different business units. It is even possible to have a formal centralized CI unit together with several formal decentralized CI units which is considered as a so called support approach by Gilad & Gilad (1986). The support approach is discussed later in section 5.7.

The role of a formal CI program needs to be considered carefully. A CI program should have a clear focus that is linked to the intelligence needs of the organization (Prescott, 2001, p. 6). According to several studies, CI units usually report to corporate planning, marketing or marketing research, R&D, or economic analysis departments (Bergeron & Hiller, 2002; Prescott & Bhardwaj, 1995). In some companies, CI units may also be independent or under other functions such as library functions or sales departments (Prescott & Bhardwaj, 1995). However, the general consensus today is that CI is of strategic importance and should definitely not be seen as a library function, i.e. just collecting and storing information.

5.4 Key intelligence topics

In any CI program it is important to define the intelligence needs of the corporation. Herring (1999) proposes that particular KIT interviews are held at the beginning of a CI program in order to define the intelligence needs, because only then the CI program can produce actionable intelligence. Herring (1999) has also found that, in general, managers' information needs or KITs fall into three categories:

1) strategic decisions and actions;
2) early-warning topics; and
3) descriptions of the key players.

KITs in the strategic decisions and actions category vary from specific questions to wider topics that need to be studied (Weiss, 2002). Common with the KITs in this category is that the objective is to support managers in strategic decisions. Weiss (2002) lists the following examples:

- analysis of the competitive environment;
- assessment of investment opportunities or acquisition targets; and
- analysis of competitors' response to new products.

The objective of early warning topics is to eliminate or mitigate surprise. Possible examples include the assessment of technological development and monitoring of the activities of competitors, suppliers, key partners or customers. (Weiss, 2002)

Descriptions of the key players refer to profiles of competitors including, for example, their products and financial data. These profiles are used, for example, to benchmark competitors. (Weiss, 2002)

5.5 Sources of CI

A common way to classify the sources of CI is to divide them into primary and secondary data sources (Bergeron & Hiller, 2002). Primary data sources consist of direct observations, participation on trade shows or seminars, reverse engineering and human intelligence networks. Human intelligence networks by itself is a wide area as it can contain several types of contacts including, for example, employees, clients, competitors, consultants, journalists, government officials, shareholders, and suppliers.

Secondary data sources are resources that already exist and are not directly related to the specific problem at hand (Nair, 2009, s. 93). Secondary data sources are, for example, online databases and other internet sources, journals and company's internal documents (Bergeron & Hiller, 2002). Also social media falls into the category of secondary data sources.

Considering the secondary data sources, it is always important to consider the quality of the data. Reliability of the data can be evaluated by investigating who has collected the data and how accurate it is (Nair, 2009, s. 93). A researcher should also consider the suitability and adequacy of the data which depends on the project at hand (Nair, 2009, s. 93).

A study by Marin & Poulter (2003) recognized ten major sources of CI that companies tend to use. The five most important sources were news providers, corporate web sites, trade publications, competitors' annual reports and employees. The big picture has probably not changed after 2003, but we can argue that today social media has the potential to be a new recognized source of CI. In 2003 social media was not recognized as a source of CI, but it can be compared to current awareness services that were the eighth most popular source of CI according to the 2003-study (42 % of the respondents indicating the use of it). The results are presented in Figure 7.

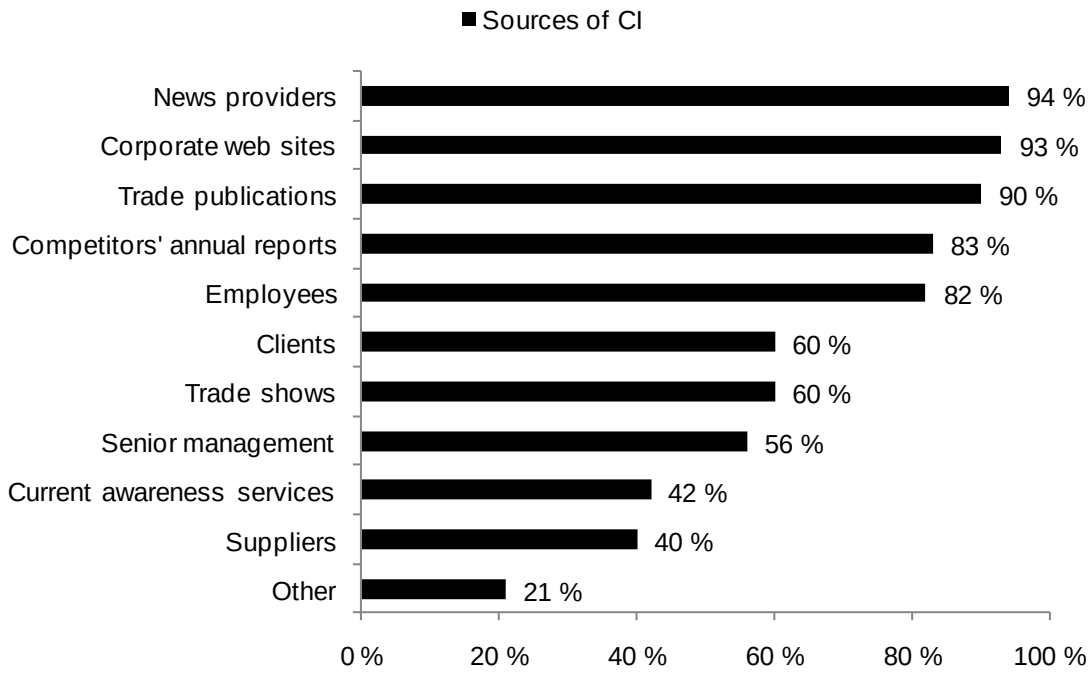


Figure 7. *The sources of CI based on a survey by Marin & Poulter (2003).*

5.6 Transforming data and information into intelligence

Base (2008) argues that there are four fundamental forms of analysis:

1. **Deduction:** Deductive reasoning is a method of applying general rules to a specific problem which thus creates new knowledge.
2. **Induction:** Inductive reasoning refers to the ability to make generalizations and conclusions based on separate pieces of information.
3. **Pattern recognition:** Pattern recognition refers to a process of recognizing and detecting previously learned patterns in a new dataset.
4. **Trend analysis:** Trend analysis refers to the activity of spotting trends in the data often with the objective to predict future development.

Today's computerized CI systems have made it possible to quickly comprehend and analyze massive amounts of data. Wee (2001) recognizes three data analysis methods or tools for analysis of online data:

1. data mining;
2. statistical analysis; and
3. business intelligence tools.

Although technology plays an important role in today's CI systems, non-computerized methods are still required to transform the data into actionable intelligence (Bose, 2008). Many analysis software packages are able to produce graphs and conceptual models, but in the end human judgment is needed to put these analysis products in meaningful contexts and to create actionable intelligence.

Taylor's (1986) value-added spectrum is a model that describes how data is transformed into productive knowledge, i.e. actionable intelligence that decision-makers can act upon. The model is presented in Figure 8 along with the roles of information specialists and analysts (Bergeron & Hiller, 2002).

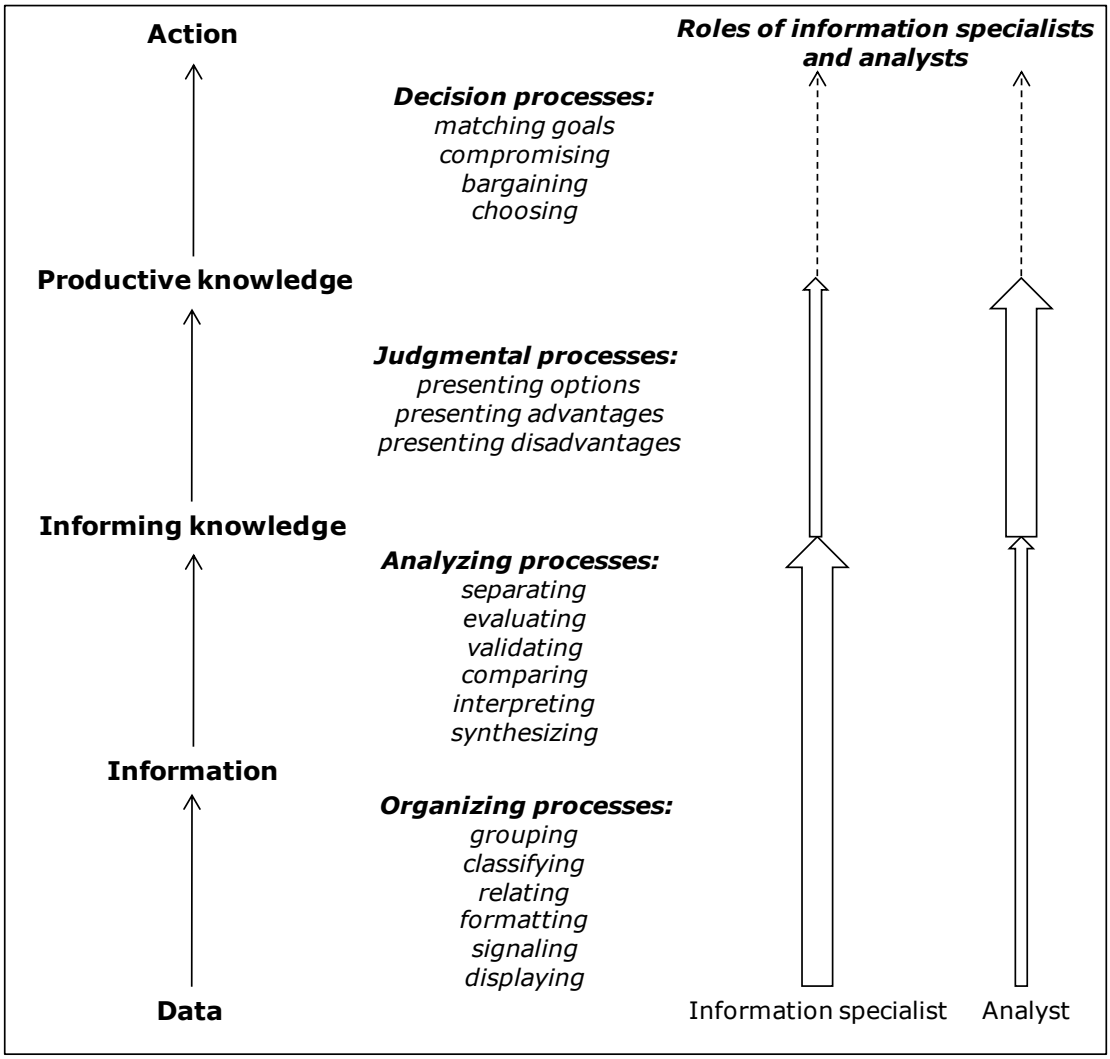


Figure 8. *Taylor's (1986, p.6) value-added spectrum and roles of information specialists and analysts related to it (Bergeron & Hiller, 2002).*

In Taylor's (1986) model, data is first transformed to information by grouping, classifying, relating, formatting, signaling and displaying the data (organizing processes). Next, the information is refined into informing knowledge by separating, evaluating, validating, comparing, interpreting and synthesizing the information (analyzing processes). In an ideal situation, organizing and analyzing processes are conducted by an information specialist, but often also analysts have a role in these phases. In addition, today, organizing and analyzing processes can be at least partly automated with software systems.

Bergeron & Hiller (2002) emphasize that the CI analysis has to go beyond information knowledge in order to become value-adding. Information knowledge is transformed into productive knowledge by presenting options, advantages and disadvantages (judgmental processes). In an ideal situation, the main task of an analyst is to transform informing knowledge into productive knowledge. In the final phase the decision-makers can act upon the productive knowledge by matching goals, compromising, bargaining and choosing (decision processes).

5.7 The challenges of organizing CI

Although the importance of an effective CI system is widely recognized, there are still a lot of challenges that companies are facing with CI. Companies are struggling with recognizing the useful information sources, finding the right tools and integrating CI into the actual decision-making processes (Juhari & Stephens, 2006).

Considering the level of centralization of CI activities, there exists challenges both in a centralized and decentralized approach. Gilad & Gilad (1986) have identified four problems that corporations often face when they are implementing centralized CI systems:

1. **Number of collection targets:** For a centralized CI unit it is challenging to track a big number of topics.
2. **Expertise:** Collection and especially evaluation often requires specific expertise. The particular expertise of the CI professionals in a centralized CI unit is by necessity limited. In addition, a centralized CI unit may lack expertise in technical areas and, in general, the distance to operating units might be too distant.
3. **Relevance of analysis:** There is a risk that a centralized CI unit produces reports that are considered irrelevant by the managers of the individual business units.

4. **Politics:** A centralized CI unit tends to become very dependent on certain people which might lead to political issues.

Furthermore, Gilad & Gilad (1986) have identified three challenges that corporations face with decentralized CI systems:

1. **Resources:** An individual business unit has often very limited resources when it comes to intelligence gathering and analysis.
2. **Perspective:** The focus areas of an independent business unit differ from the corporate parent's. Therefore a decentralized system may lack the strategic point of view of the parent.
3. **Efforts:** In a decentralized approach the different business units may have duplicate resources which mean that the corporation as a whole is putting too much effort to CI causing inefficiencies.

As we discussed in section 5.3, corporations conduct also informal CI activities. With informal CI activities, companies face lack of best practices and, lack of early warnings and timely intelligence (Bergeron & Hiller, 2002). Furthermore, similar to decentralized approach, informal activities often lead to overlapping activities between different business units.

The challenges related to the different dimensions of organization are summarized in Figure 9.

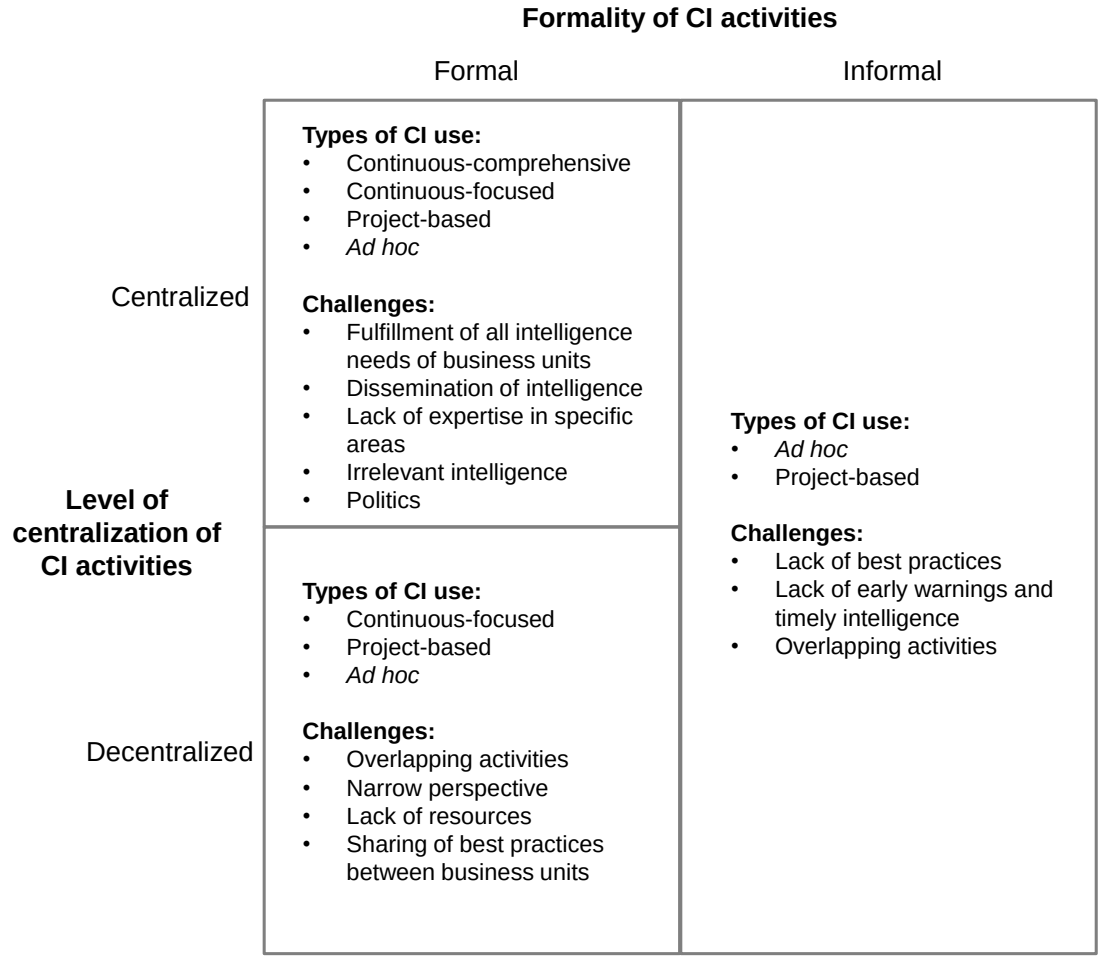


Figure 9. *The dimensions of organizing CI activities and the challenges of organizing CI.*

To deal with the challenges that both centralized and decentralized CI systems have, Gilad & Gilad (1986) have found a so called support approach to work well in many companies that have first tried both centralized and decentralized organization models. In the support approach, there exists a corporate level as well as business unit level intelligence units. The objective of the corporate level intelligence unit is to support business level intelligence units and conduct intelligence activities that are of interest at the corporate level. More specifically, Gilad & Gilad (1986) propose that the corporate level intelligence unit is responsible for educating managers and employees, acting as a quality control to the intelligence activities, conducting intelligence activities at the corporate level and offering other expertise to the business unit level intelligence functions. The business unit level intelligence functions can then focus solely on areas that they find to be the most important in the specific business unit.

Furthermore, Bose (2008) sees two general problems that companies have with CI: ignorance and arrogance. First, some companies are simply missing the skills of gathering and analyzing external information properly and effectively. Secondly, some companies arrogantly ignore the use of CI, because they believe they are already serving customers better than anyone.

The findings of Bose (2008) are also important in the context of this thesis. Social media provides a new potential source of CI and for corporations there is a high risk of both ignorance and arrogance. Companies may have a lack of capabilities that are needed to monitor social media properly and effectively. If these capabilities are not acquired, social media as a source of CI is ignored. Secondly, some companies may take an arrogant attitude towards social media and think it does not provide any value for them.

6. Social media CI in the business context

When the popularity of the Internet began to grow exponentially in the 1990s, the role of the consumer was first mainly to consume the online content that web portals created. However, the rapid development of new web technologies made a way for new services and platforms, and, increasingly, consumers themselves started to create, modify, share and discuss the content on the Internet (Kietzmann et al., 2011).

The global breakthrough of social media has been strongly influenced by the convergence of inexpensive, powerful, and ubiquitous devices that are connected through global networks (Pitt & Berthon, 2011). Today, the ease of use, speed and reach of social media has made it a powerful tool that is used to influence the public discourse as well as setting trends in several areas of life including, for example, politics, environment, technology and entertainment (Asur & Huberman, 2010). Social media can also have a significant impact on a company's reputation, sales and even survival (Kietzmann et al., 2011). However, many companies and managers are still struggling with questions like what is social media and how the company should approach it.

This chapter aims to give an introduction to the topic of social media from a company's CI perspective. In this chapter we define the concept of social media, examine the different approaches that businesses can take to social media and review briefly the relevant academic research on social media from the CI perspective.

6.1 What is social media?

Social media is a phenomenon that is not easy to define. Safko (2010, p. 4) surveyed more than 1 000 professionals associated with social media and 66,4 percent of them said that they are not able to give an exact definition of social media. The consensus is yet to emerge and therefore at the moment social media lacks a consistent and formal definition (Laine & Frühwirth, 2010). Given this, it is not surprising that the definition of social media depends highly on the perspective that the author takes on it.

Kaplan & Haenlein (2010) have a strong technological perspective as they define social media as *"a group of Internet-based applications that build on the ideological and technological foundations of Web 2.0, and that allow the creation and exchange of User Generated Content (UGC)."* Asur & Huberman (2010), in contrast, emphasize the social activities that social media enables. They refer to social media as a category of online discourse where people network with each other as well as create content,

share it and bookmark it. Safko (2010) defines social media from a philosophical perspective by stating that *"social media is the media we use to be social."* According to him, the hundreds of web technologies are just tools that enable this in an efficient way. Kim et al. (2010) propose a definition that focuses on three areas: people, communities and user-created content. Instead of social media, Kim et al. (2010) use a concept of social web sites that they define as *"those web sites that make it possible for people to form online communities, and share user-created contents (UCCs)"*.

One of the most elaborate definitions of social media has been made by Kietzmann et al. (2011). Kietzmann et al. (2011) define social media by using seven functional blocks that describe the different levels of social media: identity, conversations, sharing, presence, relationships, reputation, and groups. The model is presented in Figure 10 with more detailed descriptions of what each block represents. It is important to note that not every block has to be present in a single social media activity. There are also significant differences between social media platforms – different social media sites tend to focus only on some of these blocks (Kietzmann et al., 2011).

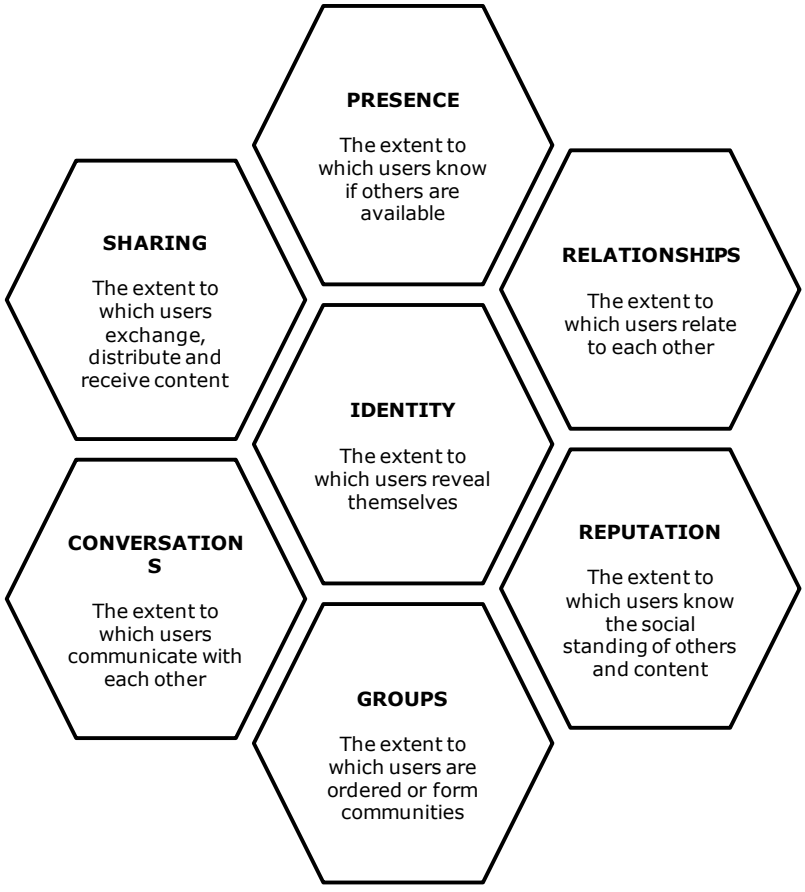


Figure 10. *Seven functional building blogs of social media according to Kietzmann et al. (2011).*

From the definitions presented above, we can identify three types of approaches to define social media: philosophical, technological and functional. Philosophical approach focuses on the ideological characteristics of social media. Technological approach focuses on the technologies behind social media. Functional approach focuses on the features of social media sites. Based on these findings we can argue that an exhaustive definition of social media should take into consideration all of the three types of approaches. This view is summarized in Figure 11.

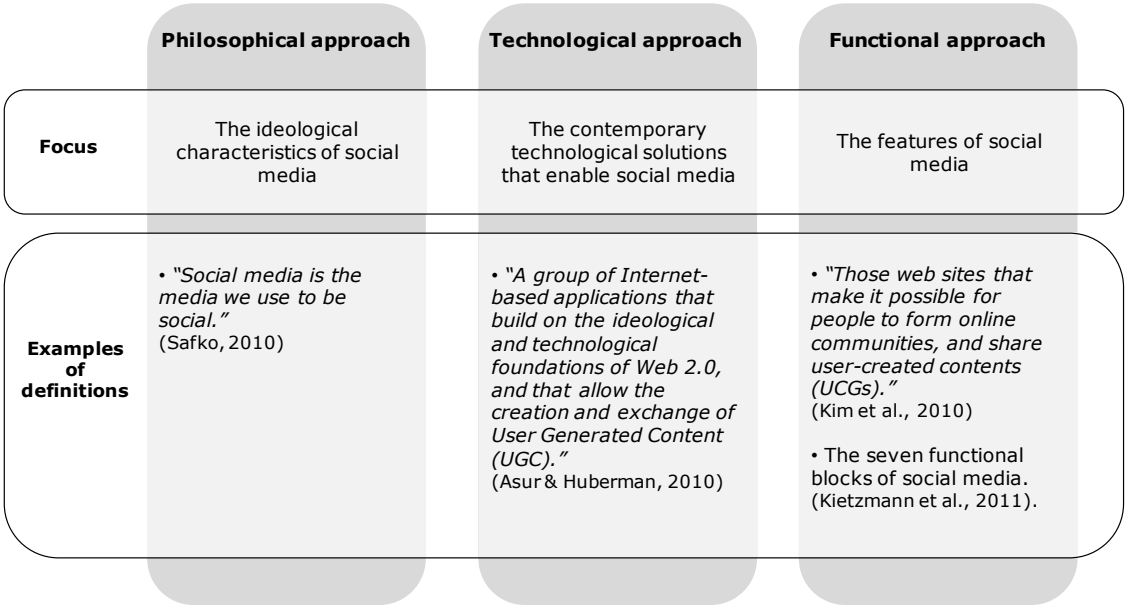


Figure 11. *The three approaches to define social media.*

Because there are significant differences between the contemporary definitions of social media, we can propose the following three-part definition that takes into consideration the different approaches to social media:

- From a philosophical point of view social media is a media that people use to realize their need to be social.
- From a technological point of view, social media is built around the several layers of information technologies.
- From a functional point of view, social media enables people to form online communities, and create and share various types of content.

Social media encompasses a wide range of online services and platforms, for example, blogs, discussion forums, social networking sites, collaborative websites and virtual worlds (Mangold & Faulds, 2009). Some platforms such as Facebook, YouTube and

Wikipedia are aimed for the general masses. Other platforms have a focus on niche audiences (Kietzmann et al., 2011) and there are even closed invitation-only platforms (Mangold & Faulds, 2009). Table 5 presents the categorization of popular social media sites that is based on work by Boyd & Ellison (2008), Kietzmann et al. (2011), Kim et al. (2010) and Mangold & Faulds (2009). However, the categorization is by no means completely exhaustive, because the social media landscape is evolving all the time.

Table 5. *Categorization of popular social media sites and platforms (Boyd & Ellison, 2008; Kietzmann et al., 2011; Kim et al., 2010; Mangold & Faulds, 2009)*

Category	Examples of services
Blogs	*The so called blogosphere consists of more than 100 million blogs maintained by individuals, groups, non-profits and companies.*
Discussion forums	*Millions of discussion forums and communities with a focus from niche groups to mainstream audiences.*
Media sharing sites	*YouTube (videos), Flickr (photos), Instragram (photos)*
Social networking sites	*Facebook, Google+*
Professional networking sites	*LinkedIn, StartupNations*
Collaborative websites	*Wikipedia, Quora*
Micro-blogging services	*Twitter, Foursquare (location-based micro-blogging)*
Virtual worlds	*Second Life, World of Warcraft*
Commerce communities	*eBay, Amazon, Groupon*
Social bookmarking services	*Digg, Reddit, Delicious*

6.2 How companies can approach social media

From a company's perspective, the biggest challenge of social media is related to the realization that social media was not made for companies or brands. It was made for people (Pitt & Berthon, 2011). This situation has led many companies to struggle with social media – especially those brands that rushed into social media using the familiar tactics from the conventional media (Fournier & Avery, 2011). The challenge lies in the

fact that the broadcasting nature of the conventional media differs significantly from that of social media (Laine & Frühwirth, 2010). Traditionally, companies were able to control the message that was sent to consumers and consumers themselves did not have any power over the message. However, in the case of social media the situation is completely different. Consumers have a lot of power over the messages that are broadcasted in social media and they even participate in the creation of the content (Kim et al., 2010). Given this, we can claim that corporate communication has been democratized and it is more transparent than ever before. Individuals and groups have a significant role in the communication about companies and brands in social media. From a corporation's perspective, this can be both an opportunity and challenge.

The challenges described above are strongly related to the companies that aim to engage with consumers in social media. However, there are also other approaches that a company can take towards social media. Based on literature findings, there are three major types of approaches that companies can take to exploit social media:

1. monitoring social media (e.g. Laine & Frühwirth, 2010);
2. engaging in social media (e.g. Mangold & Faulds, 2009); and
3. using social media tools internally (e.g. Zhao & Rosson, 2009).

The rationale and objectives behind the three approaches differ significantly. To put it briefly, the objective of social media monitoring is to conduct market research, spot trends, and identify opportunities and threats. The goal of engagement activities is to build brand, and educate and engage customers. When social media tools are used internally, the objective is to streamline communication and increase innovation, which in the end leads to improved productivity. The three major approaches to social media are summarized in Figure 12.

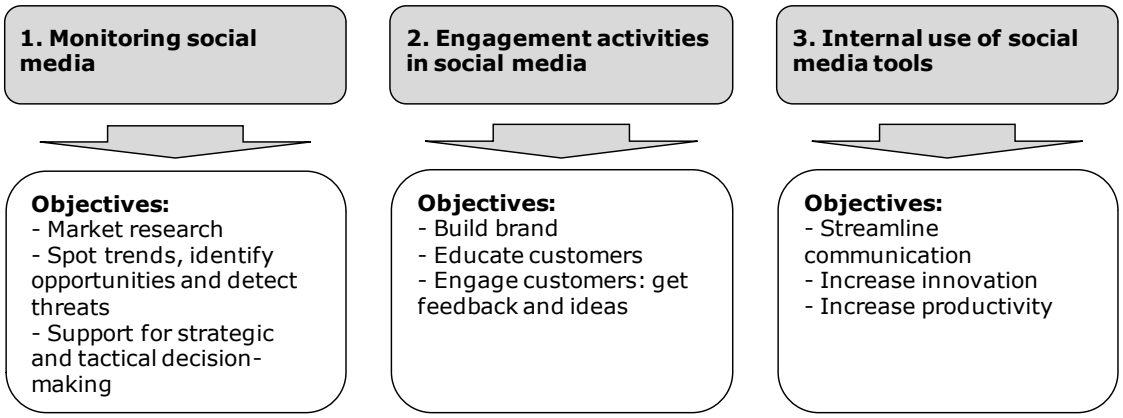


Figure 12. *The three major approaches to social media from a company's perspective.*

The three approaches presented in Figure 12 are not mutually exclusive. A company can be active in all of these areas or it can focus only on those areas that it finds most useful to be active in. This thesis focuses solely on social media monitoring as the objective is to study how social media can be used as a source of CI. In other words, this study aims to investigate how information can be collected from social media with proper monitoring software and how this information is transformed into actionable intelligence in the context of the pharmaceutical case company.

6.3 The adoption of social media as source of CI in the US

Already in the 1990s some companies recognized the potential that the Internet enables to CI activities (Cronin et al., 1994). An explorative study by Cronin et al. (1994) shows that especially US-based companies were very fast in adopting the use of the Internet in their CI activities. Already in the first half of the 1990s some US-based companies were using the Internet to follow what people discuss about their products and competitors. Also industry trends were actively followed. In addition, the respondents reported that they were using the Internet to marketing activities including customer relationship management and discovering prospects.

In the 1990s, some US-based companies began to monitor newsgroups and list servers. Although the concept of social media was then unknown, newsgroups and list servers can be considered as the early social media platforms. By mirroring newsgroups and list servers to the seven building blocks of social media presented in section 6.1, we can conclude that most of the building blocks were present already back then. For example, newsgroup users had an online identity (block of identity) and they were organized around groups where they communicated with each other (blocks of groups and conversations). They were also able to distribute content (block of sharing). Furthermore, the use of identities meant that reputations emerged (block of reputation). The two blocks that were not so strongly present in the early days are relationships and presence. Otherwise, newsgroups and list servers fulfill the definitions of social media quite well.

A substantial part of the early day use of the Internet as a source of CI was focused on newsgroups and list servers. Illustrative and fruitful comments from the study by Cronin et al. (1994) include for example the following:

> *"Following technical newsgroups is absolutely vital to maintaining products at the state of the art and to understanding where developments in our areas of interest are leading."*

> *"Using listservs and newsgroups helps us keep our ear to the ground and to keep up what's new… many times items of interest will hit the nets before they are seen anywhere else."*
>
> *"We monitor listservs to identify competitor problems and future intensions."*
>
> *"We have employees monitor industry specific lists to keep track of the comments/problems people are reporting with our products."*
>
> *"We watch for new products announcements, and read candid customer comments on products, both ours and competitors."*

The examples from the 1990s prove that some companies adopted the use of social media as a source of CI very early. These early adopters were monitoring customers' discussions and competitor's actions years before the concept of social media actually emerged.

6.4 The contemporary view of social media as a source of CI

Today, many academics note that online and social media sources are an important part of a meaningful CI function (see e.g. Wee, 2001). Chen et al. (2002) argue that the Internet in general is an excellent source of information and it provides great opportunities for CI professionals. Bose (2007) argues that publicly available online sources such as blogs, discussion forums, wikis and social network sites often reveal public information about companies that the companies themselves would like to keep by themselves. This is both an opportunity and a challenge.

Without a doubt, there is a significant opportunity to exploit the information that flows in social media. We can say that the availability of information and easy access to it are the revolutionary forces of the Internet. The challenge is that at the same time the world has become more transparent (Fournier & Avery, 2011). Tapscott & Ticoll (2003) discuss about the phenomenon as "the naked corporation". Tapscott & Ticoll (2003) argue that we are entering the age of transparency where businesses are transparent to all of their stakeholders including customers, competitors, employees, shareholders, partners and the society as a whole.

Wee (2001) argues that a continuous flow of information is the lifeblood of a successful intelligence system. Given the high volume and massive amount of data that is created every day in social media, it can be argued to have a great potential to contribute to CI.

Fournier & Avery (2011) show that today many companies are taking social media monitoring very seriously. Many global brands have even units that are monitoring social media 24 hours a day serving several purposes. First, they can collect intelligence that can be used to support strategic and tactical decision-making. Secondly, they can proactively engage consumers in discussions. Third, they can spot potentially harmful events in the early stage and act quickly to mitigate the effects.

In more general terms, Teo & Choo (2001) found clear empirical support for the hypothesis that the use of Internet as a source of CI has a positive impact on the quality of CI information. In addition, there is evidence that the improved quality of CI information leads to higher strategic benefits in terms of revenue generation, cost reduction and managerial effectiveness. Teo and Choo (2001) argue that a company gains a competitive advantage from the use of Internet as a source of CI, because the company is then able to improve business planning, new product introductions and new market development.

Although the study of Teo & Choo (2001) covered the Internet as a whole, we can argue that in some extent the results apply also to social media. To sum up, the study identified the following reasons to monitor the Internet either manually or by using intelligent agents:

1. investigate the presence, posture, products and prices of other players in the industry;
2. study the customers' views of products (both own and competitors');
3. find out new ideas; and
4. gather data from databases of government agencies, foundations, universities, and research centers.

6.5 The predictive power of social media

Asur & Huberman (2010) propose that social media can be seen as a form of collective wisdom. Therefore it is not surprising that social media data is also used to make quantitative predictions. Especially micro-blogging platforms such as Twitter have proved to be a fertile source of data for quantitative predictions – probably because of their real-time nature (Zhao & Rosson, 2009). Twitter posts, or so called Tweets, are usually created as things happen in real time and therefore they provide an interesting opportunity to spot trends and make predictions.

Especially the prediction of sales is an important issue in any company (Gruhl et al., 2005). The prediction of sales influences many strategic decisions that companies have to make including pricing, production planning, inventory planning, distribution channels as well as promotional activities.

There are several studies that prove the predictive power of social media. For example, Asur & Huberman (2010) showed how the chatter from Twitter can be used to forecast box-office revenues of upcoming movies. Their simple mathematical model that was based on the volume and sentiment (positivity, neutrality or negativity of the post) of the discussion about the movie was able to predict the box-office revenues very accurately. In other words, they found a strong correlation between the amount of attention that the movie raised beforehand and the actual realized box-office revenues of the movie.

Also Tong (2001) showed how opinions about movies posted on news sites can be used to predict box-office revenues. In addition, Whitman & Lawrence (2002) found that an increased volume of blog mentions about music artists was seen in record sales within two weeks.

Gruhl et al. (2005) studied how the volume of books' blog mentions is related to the sales of the books. The study found that the volume of blog mentions is a very strong predictor of the spikes in the sales. The study was very extensive as it was based on an analysis of 2 340 books over a period of four months. Sales data was obtained from Amazon.com and blog data was collected from approximately 300 000 different blogs where approximately 200 000 blog articles were posted every day (Gruhl et al., 2005).

There have also been studies examining how the discussion about companies correlates with the companies' stock prices. Antweiler & Frank (2004) found a correlation between the volume of posts related to stocks and the volatility of the stocks. However, they were not able to predict the returns based on these discussions. Also Tumarkin & Whitelaw (2001) showed that there was a correlation between discussion activity and abnormal returns. However, nor were they able to predict the returns of the stocks.

Although the examples presented above are from various and somewhat unrelated fields, they clearly prove that social media monitoring should be a topic of interest to any company. Today, a substantial part of the global discourse is taking place in social media in forms of blogs, social networking sites, discussion forums and other emerging platforms. The presented examples show that at least in some areas the discussion

has already reached a point where it is reflecting what is happening in the real world. Given this, we can argue that social media monitoring is today a strategically important activity to any corporation that wishes to succeed in the local and global markets.

6.6 The challenges of using social media as a source of CI

In addition to the significant opportunities, there are also many technical, cognitive and organizational challenges related to the use of social media as a source of CI. As the growth of the Internet sources and content is exponential, one of the biggest challenges is related to information overload (Chen et al., 2002). This has led to a situation where CI professionals have to find ways to deal with massive amounts of data.

Many CI professionals are using public search engines, such as Google, to manually search information on the Internet. Also Teo & Choo (2001) recognized this kind of manual method as an option. However, at least the following issues hinder the use of public search engines in CI activities (Chen et al., 2002):

1. The internet is largely unregulated and the nature of web sites is often dynamic. Part of the content is changing daily or sometimes even every minute. Therefore it is often difficult to locate the latest relevant information using only public search engines that have pre-indexed databases. This is a big challenge especially when we consider the highly dynamic nature of social media.
2. The so called deep web or hidden web is not available to search engines. The deep web consists of databases that are not indexable to conventional search engines.
3. The recall rate of public search engines tends to be low especially when the user is looking for obscure or unusual material

Chen et al. (2002) also note that many managers tend to think that more information is better. This is not necessarily true, because this view might lead CI professionals to spend too much time on data collection when they in fact should focus on data analysis. The raw data has to be transformed into actionable intelligence in order to add real value to the organization as was already discussed in chapters 5 and 6.

In addition to manual research, Teo & Choo (2001) identified that CI professionals can use intelligent agents to gather data from the Internet. A study by Chen et al. (2002) indicates that an intelligent agent outperforms a public search engine in terms of precision, recall rate and ease of use. An intelligent agent, or a web spider, is a

computer program that is designed to perform real-time collection of web pages from the sites specified by the user. In addition, the spider automatically indexes and categorizes the documents that are collected. Even the quality of automatic indexing can remain good as Salton (1986) has shown that automatic indexing can be as effective as human indexing.

Also many of the contemporary social media monitoring software tools are based on some kind of an implementation of intelligent agents or web spiders described by Chen et al. (2002). The clear advantage of a spider is its ability to provide the user with a timely and comprehensive view of the web sources the user has identified as important.

One challenge related to social media is that the sources consist mostly of unstructured or semi-structured data. Therefore it is important that this data is collected and pre-processed automatically. The pre-processing might include text-mining, categorization and other algorithms that create meta-data about the original data. Bose (2008) recognizes that the ability to automatically collect data from the Internet is a very powerful ability. Especially the possibility to map relationships between these data points and visualize it is a powerful analysis tool that helps in discovering new knowledge.

So far, we have discussed the challenges related to the implementation of social media as a source of CI. There is also the ethical aspect of social media monitoring. A person posting a comment or a blog article about a company or a product might be unaware that the company is monitoring actively what is being said about its products. A study by Kietzmann & Angell (2010) shows that some social media users of have serious concerns about how the content and information that they have posted is used by secondary firms as a source for data mining and surveillance. In the future, this might have two negative consequences from the perspective of social media monitoring. First, social media users might become more cautious which can lead to more closed social media platforms. Secondly, companies who take part in the social media monitoring activities might be put in a bad light if the social media users turn strongly against this kind of an activity.

7. Theoretical research framework

In this final chapter of Part II, the main findings of the previous chapters are synthesized into a social media CI framework that is utilized in the empirical part of the study.

7.1 Social media CI framework

Based on the literature findings, we can propose that social media should be considered as a source of data and information among the other sources of CI. The social media CI cycle is therefore based on the CI cycle presented in chapter 5.1 and it contains accordingly the four following phases:

1. plan and direct social media as a part of the CI system;
2. collect data and information from social media;
3. refine social media data and information into intelligence; and
4. disseminate and evaluate social media intelligence as a part of the CI system.

We can also propose that the social media CI cycle should be considered as a sub-process of the general CI cycle. In some cases, for example, when the CI activities are informal as covered in Chapter 5.3, the social media CI cycle might be a distinct process from the other intelligence activities of the corporation. However, in more formal situations the social media CI cycle is a sub-process of the general CI cycle that is a part of the corporate intelligence management.

The objective of the social media CI framework is to provide a proper structure and approach for a corporation that aims to use social media as a source of CI. In the empirical part, the framework is first verified based on expert interviews and later refined to fit to the particular situation of the case company.

Figure 13 illustrates the social media CI cycle and its relation to the CI cycle and corporate intelligence management. Next, each of the four phases in the social media CI cycle is discussed separately with the objective to synthesize the key issues related to the different phases.

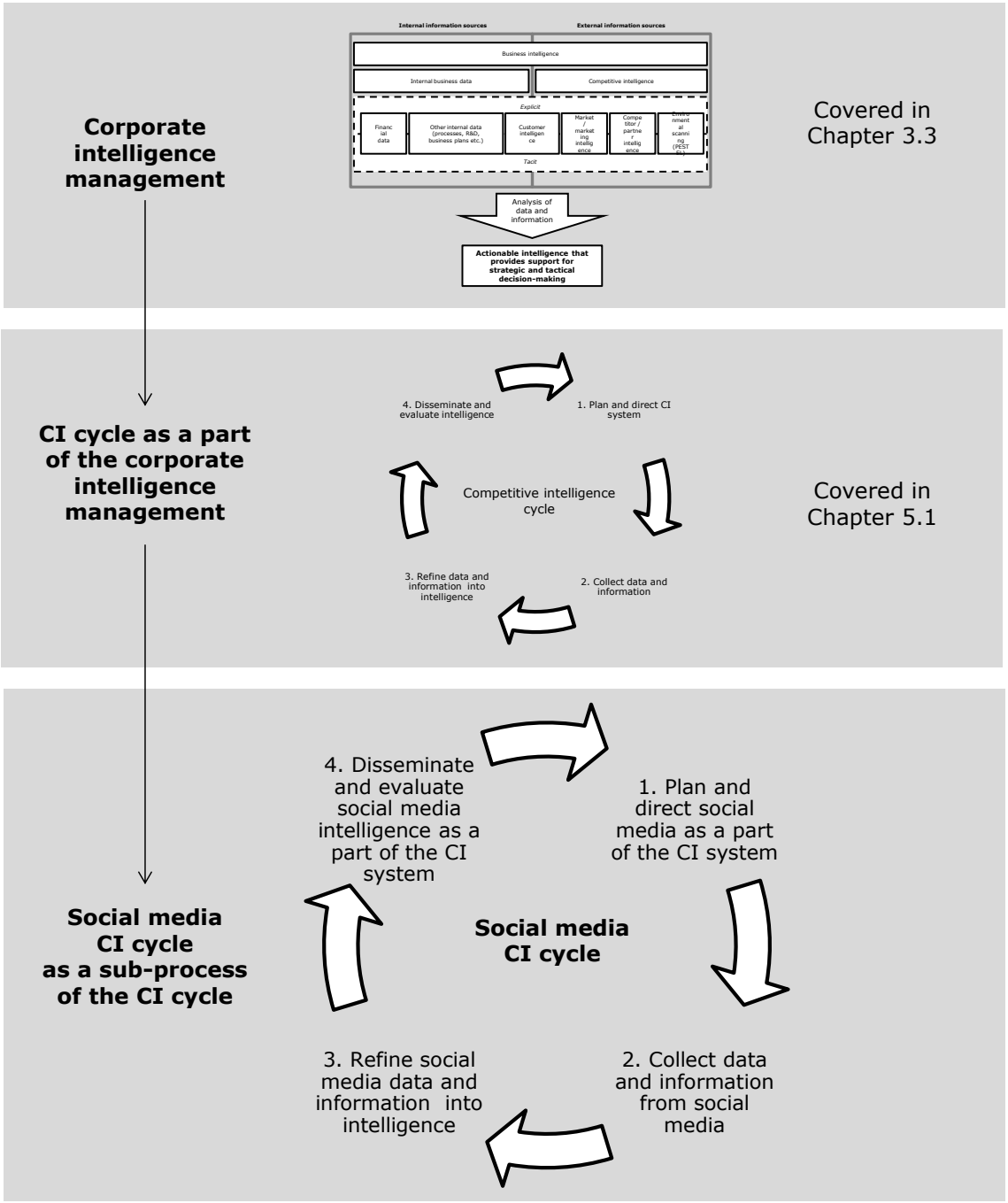


Figure 13. The social media CI framework.

7.2 Key issues of the phases in the social media CI cycle

Next, the literature findings related to the different phases of the CI cycle are synthesized and incorporated into the social media CI framework. The objective is to build a framework that identifies the key issues that need to be considered in the different phases.

Planning and directing social media as part of the CI system

Issues that need be considered in this phase include:

- Who are the users of social media intelligence?
- What are the key intelligence topics?
- What type of social media CI use is it?
- How the social media CI system should be organized?

The users of social media intelligence are the decision-makers of the company. In chapter 4 we discussed the value of CI and concluded that CI creates value when the decision-makers are able to make better decision based on the information. Given this, we can claim that the user of social media intelligence is a function of the organization that can make better decisions with the information. Therefore the users of the social media intelligence depend on the particular context.

In section 5.4 we presented the concept of key intelligence topic and argued that KITs should be used in the beginning of a CI program to define the real intelligence needs of the organization. We can argue that this also applies to social media CI.

In section 5.2 we identified four types of CI use: continuous-comprehensive, continuous-focused, project based and *ad hoc*. Logically, the same applies also to social media CI. Furthermore, in section 5.3 we identified the two dimensions related to the organization of CI activities: formality and level of centralization. We can propose that these dimensions can be used also in the case of social media CI. In addition, as we identified in section 5.3, also the type of social media CI is related to the organization of the activities (Figure 14).

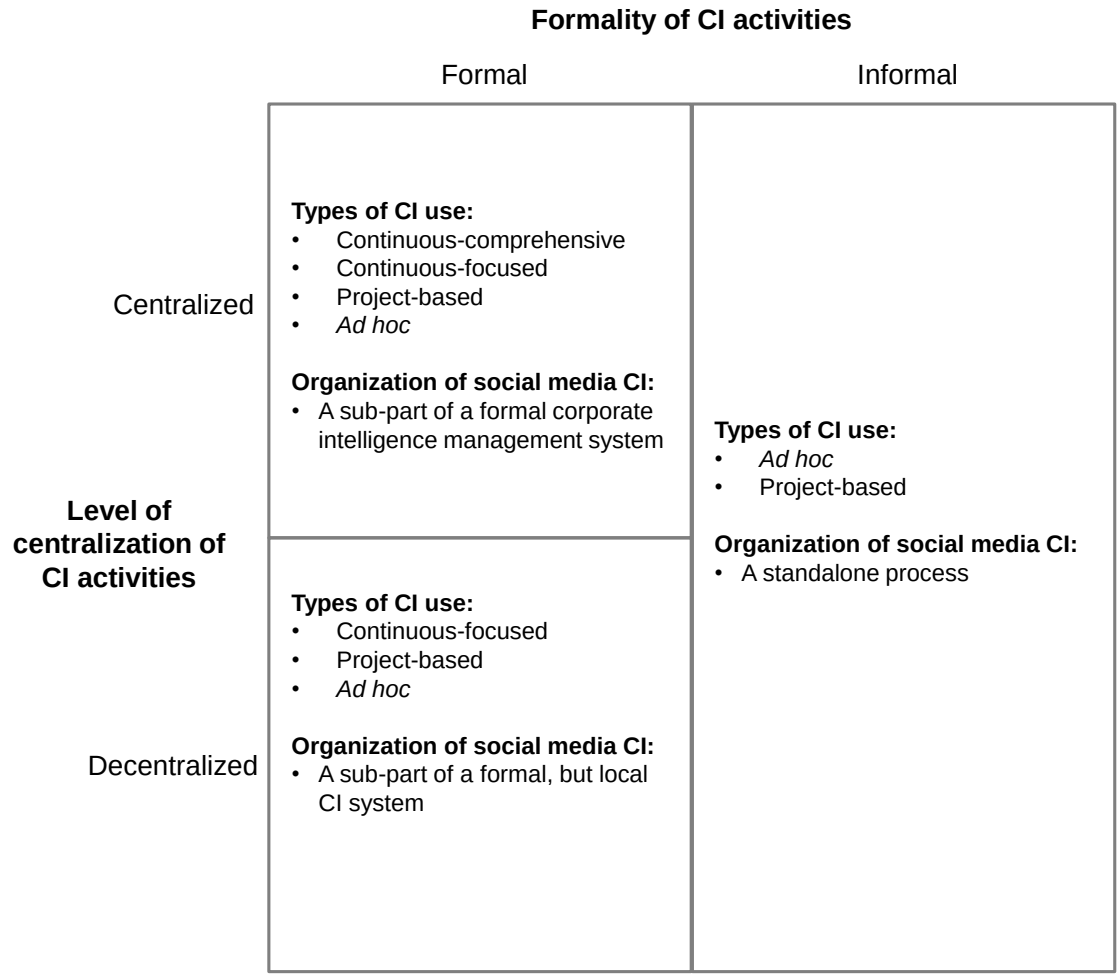


Figure 14. *Organization of social media CI: the relationship between the type of use, formality and level of centralization.*

We can argue that in a situation where CI activities are formal and centralized, the social media CI is organized as a sub-part of the formal corporate intelligence system. If CI activities are formal but decentralized, the social media CI is a sub-process of the CI system. When the CI activities are informal, the social media CI functions as a standalone process.

Collecting data and information from social media

There are two important issues that need to be considered in this phase:

- What are the sources that are used?
- How the data is actually gathered?

In section 6.1 we identified a total of ten categories of social media sites and platforms. Intuitively, most of them have the potential to contribute to CI, but naturally some of

them can be expected to be more valuable than others. Based on the findings presented in section 6.6, we can hypothesize that blogs, discussion forums, social networking sites and collaborative websites are the most potential sources, because on those platforms people often discuss and reveal public information related to companies.

To synthesize the findings of sections 6.3, 6.4 and 6.6, we can conclude that there are two major ways to gather data from social media:

1. Manually by monitoring specific sites or using public search engines.
2. Automatically using software systems that are based on intelligent agents or web spiders.

Refining social media data and information into actionable intelligence

In this part of the cycle the following issues need to be considered:

- What are the methods used in analysis?
- What is the role of the analyst?

As we discussed in Chapter 6.6, the unstructured and semi-structured nature of web documents creates a challenge for the analysis. One way to tackle this is to use automatic algorithms that create meta-data. This meta-data can then be analyzed with more conventional methods, for example, by visualizing it.

In Chapter 5.6 we identified that although computer systems can automate some parts of the intelligence process, humans are still needed to transform the data into actionable intelligence. Therefore, capable analysts are still needed and they have an important role also in the social media CI process.

Disseminating and evaluating social media intelligence as part of the CI system

In the last part we are interested about two issues:

- How the intelligence can be disseminated?
- How the intelligence can be evaluated?

In Chapter 5.1 we identified that CI is usually disseminated with e-mail, intranets and other online portals. We can expect that the same applies also to social media CI.

As we showed in Chapter 4.3, the ultimate method and criteria to evaluate CI is to estimate its monetary value. Therefore, we can propose that the value of social media CI is evaluated with a ROI-based framework that will be discussed later in Chapter 8.4.

7.3 Application of the social media CI framework in the empirical part

The social media CI framework presented in section 7.1 provides a basis for the empirical part of the thesis by addressing the key issues that need to be considered in the different phases. Figure 15 summarizes the areas discussed in this chapter and presents the social media CI cycle with the key issues related to the different phases of the cycle.

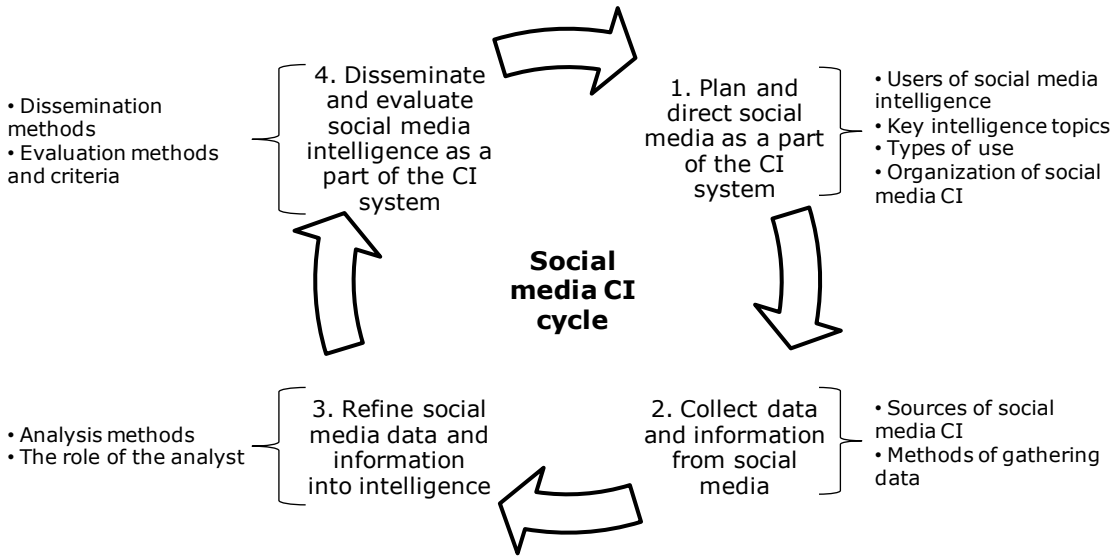


Figure 15. *Social media CI cycle with key issues related to different phases.*

In chapter 8 the social media CI framework is first refined and deepened based on the external expert interviews that provide benchmark data about the planning, organization and implementation of social media CI activities in other companies. From the external expert interviews we expect to learn more details about the key issues related to the different phases of the social media CI cycle. Furthermore, we expect to learn how social media can be monitored in practice and how the monitoring can contribute to the CI activities of a corporation. In the end, the objective is to deepen our knowledge so that the framework can be applied in a real-life situation when social media CI activities are implemented in the case company.

Finally, in chapter 10 the framework is applied in the case company where social media CI activities are implemented. The social media CI cycle provides a systematic approach for the planning, organization and implementation of the activities. The purpose of the case study is twofold. First, we test that the framework can actually be used in a practical situation. Secondly, we expect to learn how social media can contribute to the CI activities of the corporation.

Part III: Empirical study

8. Organization of social media CI

This chapter examines how social media CI can be implemented in practice. The chapter is based mostly on the external expert interviews as discussed in Chapter 2.3. In addition, some of the case-company interviews as well as secondary data sources are used to provide additional support for the findings and to avoid a biased view of the topic. The main objective of the chapter is to refine and deepen the social media CI construct presented in chapter 7 as well as to provide an answer to the third research question: How social media can be monitored and how the monitoring can contribute to the CI activities of a corporation?

The structure of the chapter is based on the social media CI framework presented in chapter 7. The framework with related key issues is presented in Figure 16. The chapter begins by investigating how social media CI system is planned and directed. After that we explore how data and information can be gathered from social media by using different social media monitoring tools and how this data and information is transformed into actionable intelligence. Finally, we investigate how companies can disseminate and evaluate social media CI. In the last section we also cover the contemporary and potential future trends of social media CI.

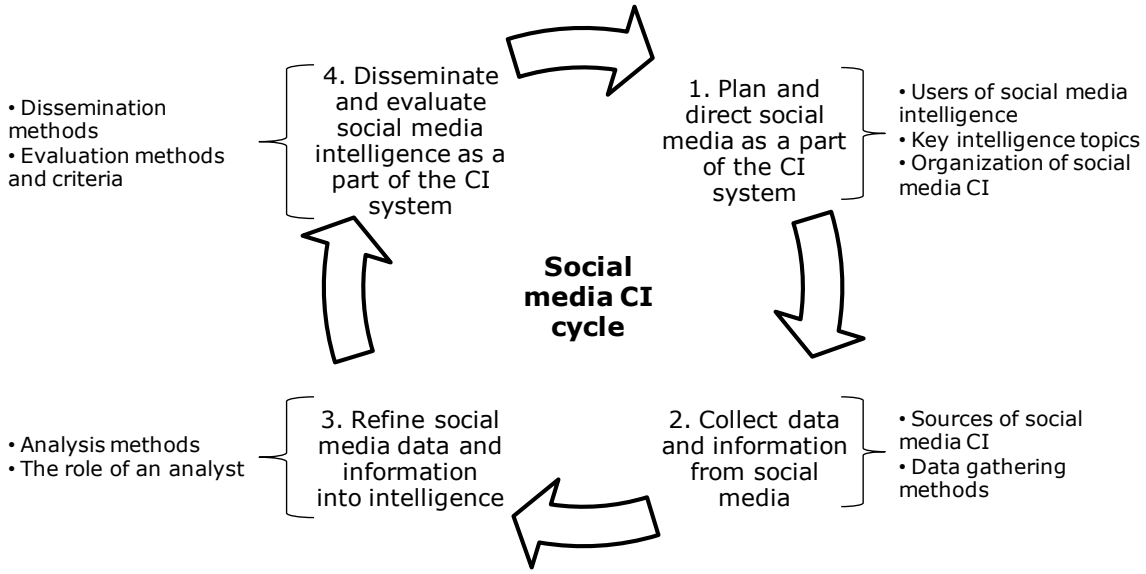


Figure 16. *The social media CI cycle and the related key issues.*

8.1 Planning and directing social media as part of the CI system

Social media as a source of CI is still a new topic for many companies. There is also a clear consensus among the interviewees that most companies are still far away from utilizing the full potential of social media CI:

> *"I can say that Microsoft and Dell are good examples of global companies that are monitoring social media very intelligently. The problem with most companies, especially in Finland, is that they have just begun to do conduct some social media analysis, but they have not yet fully realized the ways how they can integrate and utilize the data from social media."* (IV_EX3)

> *"Most companies, in Finland and also in other parts of the world, are still experimenting with social media. They have just bought or are planning to buy their first commercial software product for monitoring and analysis of social media. It can be a bit like… when one company is experimenting with it also other companies decide to experiment with it. I believe at the moment only a few companies are really exploiting the opportunity well."* (IV_EX2)

Users of social media intelligence

The interviewees identified a total of eight organizational users of social media intelligence:

- marketing;
- corporate communication;
- customer service;
- business intelligence;
- product development;
- top management; and
- human resources.

Every interviewee mentioned marketing and corporate communication as users and there are clear signs that at the moment these functions are the most active users of social media CI. There was also a consensus that marketing and corporate communication functions have usually been the first functions that have realized that there is some value in social media CI. One interviewee sums it up well:

> *"I really think that marketing has been the first active user. They have noticed that they are able to gather such information from social media that benefits the planning of marketing, sales and advertising. During the last couple of years also corporate communication has woken up and realized that there is something in social media that they can benefit from."* (IV_EX6)

In addition to marketing and corporate communication, especially customer service, business intelligence and product development are functions that can benefit by exploiting social media CI better. However, the problem seems to be that in many corporations customer service, business intelligence and product development are slow to adopt new innovative operating models as can be interpreted from the following comments:

> *"Social media doesn't affect only corporate communication and marketing. It affects the whole corporation and some companies are finally starting to realize it. Social media offers great opportunities that companies can exploit. It can be product development, business intelligence, customer service, human resources and so on. Every company should become aware of that."* (IV_EX3)

> *"Some companies are beginning to use social media to learn from their industry. Kind of from the perspective of business intelligence. However, I think the development in this area happens still a bit slowly."* (IV_EX1)

The lack of resources seems to be one issue preventing the implementation of social media CI systems:

> *"Some companies simply don't know how they can exploit the intelligence. They ignore the issue and claim that they don't have the resources to process the data and information in order to exploit it."* (IV_EX6)

There are also significant differences among companies in different industries. Not surprisingly, B2C companies and especially consumer brands have been the most active in this area. However, this does not mean that B2B companies could not exploit social media as there are even case examples of traditional industrial corporations exploiting social media in an intelligent way:

> *"One global forest products company had a big project related to sustainability. They used social media monitoring to understand how people discuss about this topic. From social media they discovered the type of language that they should use when they discuss about sustainability. In addition, they identified certain opinion leaders in the area, for example bloggers, that they began to lobby in order to convey their message. That's a great example of a strategic use of social media."* (IV_EX3)

> *"B2C companies were the first ones that started to exploit social media. This natural, because they deal directly with consumers, and consumers discuss about brands. However, now also B2B companies are starting to be more active in the area." (IV_EX1)*

Although companies of all sizes are able to utilize the social media intelligence, there were signs that mostly big corporations have the resources to set up more formal and exhaustive monitoring activities:

> *"Our monitoring tool is used only by big companies that have global operations. Companies like the oil-company Total, Danone and MusicTV are using it internally."* (IV_EX8)

Key intelligence topics

In the beginning of a CI program it is important to define the intelligence needs of the organization. Also the expert interviews support this view and the interviewees identified a total of eight potential KIT areas where social media CI can be exploited:

- company;
- own brands and products;
- competitors;
- industry-specific topics;
- competitors' brands and products;
- business units or functions;
- individual persons; and
- sales leads.

Two of the areas were mentioned in all interviews: the company and the company's own brands or products. This is not a surprising finding, because companies tend to be interested first in the information that they can find about themselves:

> *"So far, the most common case has been to just to monitor the areas related to the company itself. This is limited to gathering information about what is being said about the company and its products."* (IV_EX4)

However, companies are starting to realize that social media is also a source that can provide information about other useful areas including competitors, competitors' products and industry specific topics:

> *"At the moment we are working with several clients to create systems that link social media intelligence to the strategic goals of the clients. We define the topics that are of interest from the strategic perspective of the client and then build the systems to disseminate the intelligence to the right persons. The idea is to, for example, spot events that can affect to the industry where the client is active."* (IV_EX6)

> *"In the end you want to know all the same things about your competitors that you monitor about yourself. It's pretty logic. Then if you think about the different functions that can exploit this intelligence, the value of it at least doubles if not even more."* (IV_EX2)

Organization of a formal social media CI system

The diversity of different users creates a big challenge for an organization that aims to use social media CI systematically. As it was identified above, there are at least eight different functions that might use social media CI and these user groups have very different intelligence needs. Many interviewees are aware of this problem and they see some kind of a matrix organization as a solution:

> *"Social media as well as other information flows affect the whole organization. Therefore I see some kind of a matrix organization as a solution. I mean that there should be someone in the organization that understands holistically what you can do with these different information sources. This person should work as an internal consultant who can help the different units and functions. In the end it all comes down to the objectives and needs of different units and functions in the organization."* (IV_EX6)

> *"In an optimal situation a firm has at least one person fully dedicated to social media and this person should have the knowledge and tools to be aware of everything. This person should also take care that marketing,*

> *corporate communication, HR and other functions get the intelligence that the particular function needs."* (IV_EX4)

This thesis argues that social media CI is a sub-process of the general CI that is usually the responsibility of the BI function. The interviews provide a slight support for this argument as many interviewees believe that social media CI should be organized as some kind of a matrix organization. Also the fact that social media is an additional source of CI supports the view that social media CI should be a sub-process of general CI.

In the long run, a centralized approach controlled by the BI function might be the most optimal way to organize the formal CI process in large corporations. This also tackles the problems that the decentralized systems often face. There is a high risk that a decentralized situation leads to inefficiencies, because the different functions have overlapping activities, a narrow perspective, lack of resources and lack of best practices (as identified in Chapter 5.3).

However, it must be noticed that the situation is far from being clear. The reason for this ambiguity might be the fact that the corporate communication and marketing functions have often been the first ones to adopt social media CI. Therefore social media monitoring is still viewed as a responsibility of the corporate communication or marketing function:

> *"One problem is that social media monitoring is often considered as a responsibility of the corporate communication. It's doesn't touch just the corporate communication. There is no reason to just monitor social media. Companies should learn from it and think how they can exploit the data in a more strategic way. If they are trying to lead it from bottom up, the strategic perspective is often forgotten. Therefore the initiative should come from the top."* (IV_EX3)

8.2 Collecting data and information from social media

The interviewees recognized two main methods of collecting data from social media:

1. social media monitoring software systems; and
2. public search engines.

These two methods are in line with the literature findings discussed in Chapter 6.6.

Most of the interviewees preferred a special social media monitoring software arguing that it enables the most comprehensive and effective use of social media as a source of CI. Naturally the interviewees' views might be biased, because they are all representing companies that are providing social media monitoring software or related services. However, from a practical perspective their view is justified and there is also empirical evidence that supports this view. As it was discussed in section 6.6, for example a study by Chen et al. (2002) showed that intelligent web spiders outperformed public search engines in terms of precision, recall rate and ease of use.

Social media monitoring software

All the six companies that participated in the expert interviews had social media monitoring software at least in internal use. Some of the companies were representing their partner's software and some had special software that was developed in-house. Three of the six monitoring systems were also given to test use for this study.

From a high-level technological perspective, all of the monitoring software systems gather the social media data in a similar way. The systems are based on web crawlers or intelligent agents that visit different sources at regular intervals and fetch the discovered new data into a database. Figure 17 shows the high-level representation of the functioning of a social media monitoring tool.

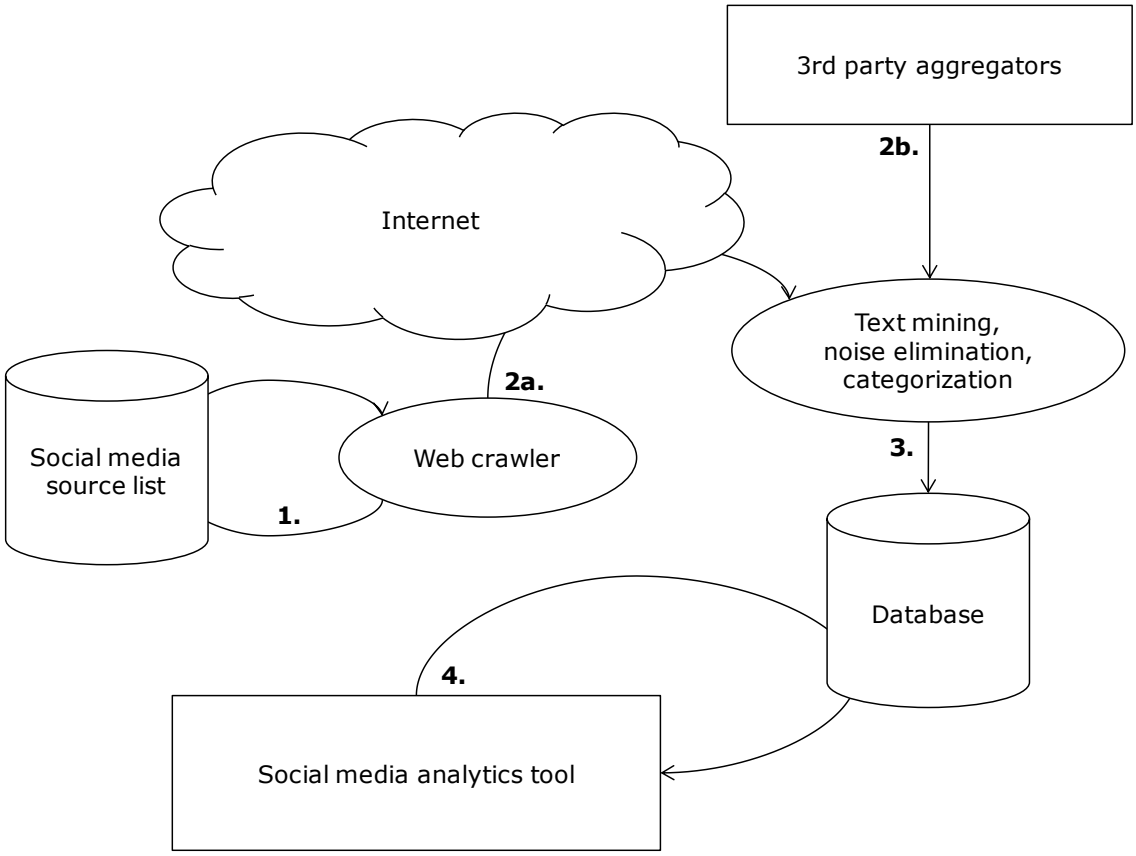


Figure 17. *A high-level representation of the functioning of a social media monitoring system.*

The functioning of a social media monitoring tool can be divided into four major phases as illustrated in Figure 17:

1. A web crawler or intelligent agent retrieves the source information from the source list.
2. a) The web crawler visits the source regularly to check for new data. Usually the source is visited several times per day in order to get almost real-time data from social media.

   b) In addition, some monitoring systems use third party aggregators that function as a pool covering several social media sources.
3. The raw data is refined by using text mining, noise elimination and categorization algorithms. Finally the refined data is stored into a database.
4. The user of a social media analytics tool performs boolean search queries to the database and uses several analysis methods to analyze the data.

Although from a high-level perspective the different social media monitoring systems function in a similar way, they have also significant differences. Referring to Figure 17, there are differences in how source lists are managed, how the systems perform categorization and noise elimination, and what data is stored in a database and for how long. In addition, there are remarkable differences in the actual analytics tools in terms of how the data can be analyzed. These issues will be discussed in more depth in chapter 10.

Some of the monitoring systems are so called black boxes where the end-user has an access only to the final database. In these cases the end user has no control over the actual data gathering process. These kinds of systems have pre-defined source lists managed by the supplier and also the different text mining, noise elimination and categorization algorithms are pre-defined. On the other hand, some of the systems are more transparent and in some cases the end-user can even make changes to the source lists and to the criteria on how the data is mined, filtered and categorized. However, most of the systems function in a black box manner which is criticized by some of the interviewees:

> *"There are a lot of social media monitoring systems in the market and most of them are so called black boxes. We have an idea that our tool is not fixed by us. The user can change different definitions in the system and this means that the results become more and more reliable."* (IV_EX2)

> *"The problem with the pre-defined systems is that you don't know if there is bias in the results. One day it can be quite accurate, but if the next day there is different kind of data, the system might crash. It could work better if there would be some consistence in the data, but this is not the case here."* (IV_EX7)

Informal social media CI

Interviewees also recognized the informal ways to use social media CI. Informal use of social media CI takes place usually by individuals who use free public search engines to gather data from social media. Some interviewees note that this can be a good and risk-free way to learn about social media CI:

> *"Google Alerts is a good free tool to monitor social media and I even recommend it to some of our clients before they invest in a more comprehensive system. Before you start more formal monitoring*

> *activities, you should have some kind of an understanding of what you want to monitor and why. A free tool offers a good opportunity to experiment and learn, because a more formal system always involves costs and requires more resources."* (IV_EX3)

Some interviewees see the free tools even as competitors, although at the same time they argue that the more comprehensive tools are needed to conduct analysis more effectively and systematically:

> *"Some companies use free tools, for example Google's services. I think Google is our competitor in many respects."* (IV_EX1)

> *"There are also dozens of search engines and light monitoring systems that are built on top of the search engines."* (IV_EX3)

> *"You need a good automatic system in order to gather data from social media. For example, we have about 300 million sources in our database. It's a huge challenge for companies and you really need effective tools to manage it all."* (IV_EX1)

Sources of social media data and information

The interviewees recognized a total of seven categories of social media sources:

- blogs;
- discussion forums;
- micro-blogs;
- social networking sites;
- news discussions;
- media sharing sites; and
- collaborative websites.

The interviewees considered blogs and discussion forums to be the most important sources from the CI perspective. Also micro-blogs and social networking sites were considered somewhat important sources, but the consensus appears to prefer blogs and discussion forums:

> *"Discussion forums and blogs are important especially to B2C companies, because these sources provide information about consumers… what consumers say about the company, their products, the competitors, and so on. I actually think that in this respect blogs are*

> *even more important than discussion forums, because blogs contain more factual discussion. In blogs, people often use their real names and the discussion is more intellectual."* (IV_EX5)

> *"We use the term channel to divide the social media sources into different categories. One important channel is blogs. It's one entity. Another one is discussion forums. Then comes micro-blogs like Twitter and social networking sites like Facebook and LinkedIn."* (IV_EX1)

The interviewees also point out the differences between geographical areas:

> *"For example, in Sweden there are about five times more blogs than in Finland in proportion to the population. In Finland, discussion forums are very popular."* (IV_EX1)

> *"There are definitely geographical differences. If we think about social networking sites, Facebook has quite a global coverage. However, in Russia they have a local networking site that is very popular. In China, there are very influential gaming sites. In South America they have also their own platforms."* (IV_EX3)

Reliability and validity of the social media data

One important question related to the use of social media as a source of CI is the reliability and validity of the data. One argument that defends the use of social media data is based on the fact that social media is an unfiltered source and reflects what people are really thinking:

> *"Social media provides unfiltered information about consumers and what they are thinking at the moment about companies, brands and products. I think this is a significant advantage. These discussions have been going on always, but for the first time in the history we have now an easy method to monitor these discussions."* (IV_EX1)

Another interviewee compares social media intelligence to the traditional market research methods and argues that traditional methods might also produce biased results:

> *"Many people argue first that the data is not reliable, because it is not produced in a controlled environment. The traditional methods neither give you the absolute truth. Also they have margins of errors and the results might be biased."* (IV_EX2)

To improve the reliability and validity of the data, some companies use methods to filter the data. However, this slows down the process:

> *"The less we perform checks, the faster the data is available. Roughly said, the corporate communication wants that the information is as real-time as possible, because they want to be able to act quickly. On the other hand, marketing values more data that has gone through quality assurance. In our process the data goes through a quality check where we for example remove duplicates and spam messages before the data is stored in a database.* (IV_EX4)

Another issue related to the reliability and validity is the choice between quantity and quality. Some interviewees emphasize the exhaustiveness of their systems while other emphasize that instead of the quantity, a more important aspect is the quality:

> *"We have about 300 million sources in social media. This is partly possible because of aggregators, which means that there is a big pool of blogs or discussion forums behind an aggregator that functions as a supplier for us."* (IV_EX1)

> *"I think that quantity is not the most important point here – it's the quality. There is no reason to monitor every small blog. I believe social media should be analyzed qualitatively instead of quantitatively. We have to be also aware of the fact that there is no tool that can cover all of the possible sources. It's a case impossible. (IV_EX3)*

> *"We have a source list that is updated manually by us. When we have a new client, we perform a source check and make sure that our system has the most important sources for that client."* (IV_EX4)

> *"The most important sources depend on the needs of our clients. We always try to figure out what are the needs of our client and then define the most important sources accordingly. In the end, if the information doesn't serve the client's need, it is usually nice-to-know information and companies don't waste resources on that for long."* (IV_EX5)

8.3 Refining social media data and information into actionable intelligence

Analysis is the part of the social media CI process where most of the value is created. It is definitely also the most complex part of the process. Therefore it is not a surprise

that it raises a lot of debate. One of the biggest debates relates to the use of built-in metrics. Roughly half of the interviewees emphasize the importance of metrics while another half emphasizes a more holistic approach:

> *"We have about 15 different report models that you can use to analyze the data. You can for example follow the volume of discussion over time, the types of media, sentiments and so on."* (IV_EX4)

> *"Our clients often want to know what is said about them, where the discussion is and what is the sentiment of the discussion. These kinds of reports can be pretty much automated."* (IV_EX1)

> *"Many of the firms that sell automated monitoring systems are still relying on metrics where you, for example, measure the volume or sentiment over time. You might feel being safe when you think that you are measuring things accurately with these automatic systems. However, we have the idea of doing this in a more holistic way."* (IV_EX5)

> *"In my opinion most of the automated metrics systems don't bring so much practical value. We are trying to cover more interesting issues. For example the semantic concepts that are affiliated with a brand, product, company or person. I think these are much more interesting issues that can, for example, contribute a lot to the marketing activities."* (IV_EX6)

Indicators used in social media analysis

Although metrics create a lot of debate, all of the monitoring systems have at least some built-in semi-automatic indicators that can be used in the analysis of the social media data. Many of the interviewees recognize that the different indicators provide at least a starting point for the analysis although in some cases the practical value can be questioned. The interviewees recognized a total of seven basic indicators that many of the today's monitoring systems are able to provide:

- volume of the discussion;
- sentiment;
- media type;
- related key words and concepts;
- specific site;
- influencer score; and
- location.

Volume of the discussion is the only indicator that was recognized by all interviewees. The volume of the discussion is a simple count variable that measures how many results are found from the database with a specific search query.

The variable is often mapped over time in order to recognize trends. Analysts often look for discontinuity points in the data as it usually indicates an unusual event in social media:

> *"The volume of the discussion over time is the simplest way to monitor social media. A peak in the data usually means an event or a phenomenon if your search query is well designed."* (IV_EX4)

Another way to use the volume of the discussion is to compare the volumes of different topics. Some of the interviewees refer to this as a share of voice analysis:

> *"Then you can also do a share of voice analysis meaning that you, for example, compare yourself to your competitors. Typically you monitor yourself and your brands and then compare the volume to your competitors or the whole industry."* (IV_EX3)

Sentiment refers to the categorization of individual posts based on their tone. The most common way is to label a post as a positive, negative or neutral message. Some monitoring tools do this automatically based on natural language processing algorithms that try to recognize the tone of the discussion. In the end, the idea of the sentiment analysis is very similar to that of the volume of the discussion analysis. The objective is to recognize trends and events, or compare yourself to your competitors or the whole industry. However, many of the interviewees question the rationality and the value of the sentiment analysis:

> *"What do you benefit if you see that your sentiment has improved 5 % during the last six months? Is it actionable intelligence? I'm not sure. I would say that not in the most cases. You probably knew already the only conclusions that you can make from this information."* (IV_EX2)

> *"If you have one negative and one positive word in a sentence or some kind of sarcasm there, today's algorithms probably don't understand it. I don't have anything against measuring the sentiment and we can do it. We have however decided that if we measure the sentiment, our analysts do it manually. It is quite a big job and we only do it for a sample, not for the whole data."* (IV_EX3)

> *"Clients often ask us to find out where people are talking about them in a positive or negative way. Or where their competitor is discussed in a positive or negative light. These questions are often asked first, but I would question that are these really interesting and useful issues? I think you should be more interested, for example, about where people are discussing about your industry, but you are not mentioned. I think these kinds of approaches are much more interesting and can provide valuable information."* (IV_EX7)

Media type is a simple categorization of the posts into different social media channels. The most common channels are blogs, discussion forums, social networking sites and micro-blogs. Other possible types include news comments, media sharing sites and collaborative websites.

Related key words and concepts is an indicator that is based on text-analysis algorithms that try to recognize the main themes in the discussion. The idea of the indicator is to give an overview of the main themes that are present in a large data mass:

> *"From a key words cloud you can recognize the themes related to the discussions. If there is, for example, some alarming themes, you can penetrate deeper to the discussions and figure out what is the discussion about, who are discussing and so on."* (IV_EX3)

Influencer score aims to measure the importance of a website or specific user. It is often used to find the most popular and influential channels and users, and to filter the data based on the importance of the source:

> *"The influencer score of a person or a website is another indicator that is based on many factors, for example, the number of followers a person or website has, how active the person is and so on. For instance, this score is useful for prioritizing the handling of customer comments and complaints that the monitoring tool finds on the web. Normally, a company's customer service agents are not able to handle all of them because there are so many questions, comments and complaints on the web, so the most influential comments are handled first.* (IV_EX2)

Specific site refers to the particular web site from where the post is fetched.

Location refers to the geographic location from where the specific post was originally posted. It is usually an approximation based on the Internet Protocol (IP) address of the site or the original poster.

From analysis to actionable intelligence

Although the monitoring tools provide many built-in indicators and automatic reports, the interviewees recognize the importance of competent analysts in order to create actionable intelligence. The indicators and automatic reports provide only a starting point for the analysis:

> *"You have to go behind the graphs and explore what's there if you want to make solid conclusions."* (IV_EX3)

> *"If you want high-quality analysis and actionable information you still need a human there. There is no doubt about it."* (IV_EX7)

> *"The systems can automatically analyze some quantitative things like volume of the discussion, source of discussion, media type, discussion type and so on. However, the qualitative analysis is very difficult to automate. I would say at the moment it is impossible."* (IV_EX5)

This view is in line with the literature findings discussed in Chapter 5.6. Reflecting the case of social media monitoring to Taylor's (1986) value-added spectrum (covered in Chapter 5.6), we can conclude that the organizing and analyzing processes can be partly automated with social media monitoring systems (Figure 18). However, analysts are still needed especially in judgmental and decision processes. Also Bose (2008) argues that non-computerized methods are still needed to transform the data into actionable intelligence.

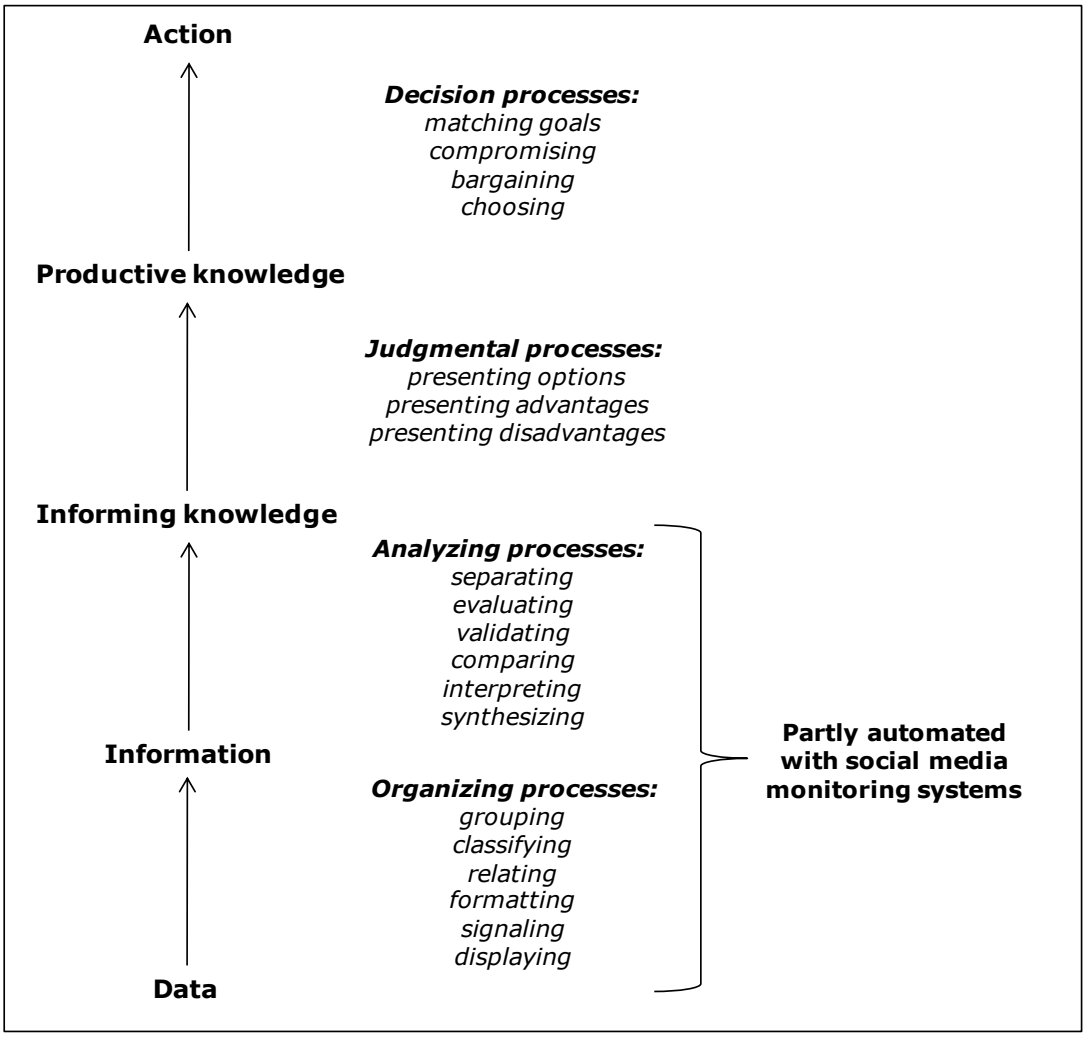


Figure 18. *The relationship between Taylor's (1986) value-added spectrum and social media monitoring systems.*

The next question is naturally that in what types of situations the social media information can become actionable intelligence that contributes to strategic or tactical decision-making. As discussed in Chapter 8.2, the interviewees recognized eight potential users of social media intelligence. Table 6 shows case examples of situations where social media CI was seen to have the potential to contribute to strategic or tactical decision-making. However, the objective is to only illustrate the potential areas where social media CI can be exploited. As the practice of social media monitoring is still quite novel, these examples provide by no means a completely exhaustive nor validated list.

Table 6. *Types of use cases where social media intelligence can contribute to decision-making.*

User of social media intelligence	Types of use cases
Marketing	Market research, evaluation of marketing campaigns, refinement of brand or marketing message, choice of online promotion channels, trend spotting, discovering opinion leaders
Corporate communication	Repuation management, refinement of PR message, crisis management
Customer service	Handling of customer complaints, resource planning
Business intelligence	Detecting weak signals, monitoring of competitors' activities
Product development	New product ideas, product improvement ideas
Top management	N/A
Human resources	Head hunting, measurement of employer's reputation
Sales	Discovering sales leads

Market research is one of the use cases that most of the interviewees recognized as an area where social media CI can be utilized. One interviewee describes it illustratively:

> *"Traditionally you conduct market research by using surveys, focus group interviews and so on. I'm not saying that the traditional methods will disappear, but social media intelligence will complement the big picture. I think that a company is very stupid if it doesn't exploit the data that is available online. It's available to all and it's free."* (IV_EX2)

Other examples of marketing's use of social media data are related to evaluation of marketing campaigns and refinement of brand or marketing messages:

> *"I think that marketing has been leading the development when it comes to exploiting the social media data. They have noticed that social media*

> *provides such information that can be used when they plan marketing and advertising."* (IV_EX6)
>
> *"We have many examples in our history where our clients have refined their marketing messages based on analysis of the response in social media."* (IV_EX4)
>
> *"The evaluation of marketing campaigns is one area. You can monitor if the campaign causes any response in social media and you can compare the performance before and after the campaign. Today's marketing campaigns try to more and more cause a response among the consumers. Often the goal is to activate people to discuss about the campaign. I believe that in the future one very common way to analyze the success of a marketing campaign is to measure the response it causes in social media."* (IV_EX2)

Many of the marketing examples can be considered as tactical decisions, but trend spotting is an activity that has the potential to contribute to more strategic decisions. However, trend spotting is seen as a very challenging activity:

> *"It is difficult to spot a trend before everyone already knows that it is a trend. Or let's say it is very difficult to say if something becomes a trend or not. Anyway, I think that in order to sport trends you need metrics that are measured regularly. I would say that you need regularity and consistency. When you systematically measure something over time, you have the chances to discover trends in the early phase."* (IV_EX5)

The marketing function can also use social media intelligence to target their online promotion activities better:

> *"Companies can discover channels where their target group is active and focus their promotion activities there. Similarly, companies have traditionally targeted their tv commercials to be shown alongside such tv programs that their target group is watching."* (IV_EX1)

Product development is an area that can use social media CI in a very strategic way:

> *"We have a telecommunications client that has been using social media data for years. First of all, they are following what people say about their products and services. They are also analyzing their competitors and the whole industry. This intelligence is disseminated to many parties and one*

> *area is product development, because social media provides them direct feedback from customers and sometimes even new product ideas."* (IV_EX6)
>
> *"If you have some kind of an idea of a hypothetical product and its features, you can create a search query for that and try to find discussions that are related to similar products and features. Especially in today's global markets you might find that some company in some part of the world has already that kind of product in the market. This is a great opportunity to learn."* (IV_EX7)

Also corporate communication, customer service and human resource functions can benefit from social media CI by understanding better their stakeholders:

> *"For example forest product companies are interested about what the environmental activists think and what kind of discussions people are having related to sustainable development. This intelligence contributes to the planning of the sustainable development programs."* (IV_EX6)
>
> *"Especially in the United States customer service functions are often using social media intelligence in a very smart way."* (IV_EX3)
>
> *"Even traditional industries are interested about what their current and potential employees discuss and how the company is seen as an employer. In addition, companies are interested about the opinions of their nearby residents from the perspective of a corporate responsibility."* (IV_EX6)

Analysis internally versus analysis as a service

Another issue that companies have to consider is whether to organize social media analysis internally or outsource it. This is also an issue that caused a lot of debate among the interviewees. Some interviewees argued that the client companies need ready-made analyzed actionable information while other believed that the analysis should be done internally:

> *"Our customers get reports that contain the conclusions and filtered relevant information. Instead of spending hours in analyzing the data and trying to figure out if there is anything interesting for them, they can read our report in five minutes and make the conclusions and decisions right away."* (IV_EX5)

> *"There are actually many ways to analyze the social media data. Our idea is to bring good tools that are needed to conduct the analysis effectively. However, our client has the contextual knowledge related to the company and the industry. Therefore we think it is better if they are also conducting the analysis themselves.* (IV_EX1)

Although there was a debate on whether or not a company should conduct social media analysis internally, there were strong signals indicating that companies are increasingly beginning to conduct the social media analysis by themselves:

> *"If we have 100 customers that are monitoring social media, about half of them have a tool in internal use and another half wants that we conduct the analysis and provide them with ready-made reports. Those companies that are actively utilizing the information in their daily work usually want a tool that they can use internally. There are also many customers who can't cope by themselves, don't know what to look for or don't have time and resources. This kind of customers usually want just a ready-made report."* (IV_EX3)

> *"I think the focus is starting to be more on tools than services, because people are starting to know what they can do with the tools and they are also able to use the tools themselves in an effective way. The market demands do push product development, which is the reason why our traditionally service oriented company is making also do-it-yourself tools available in the near future."* (IV_EX5)

In the end, there are many factors indicating that a company that aims to integrate social media CI in its general CI activities, can achieve more by organizing the analysis activities internally. Based on the interviews and the literature findings, we can argue that when a company is conducting the analysis internally, it is able to utilize more the contextual knowledge related to the company and the industry, which in the end enables intelligence that better meets the demand of the company. Also the case company interviews support this view. For example, one BI professional summarizes briefly:

> *"We are able to gain more when we are able to utilize fully the company's existing knowledge."* (IV_CO9)

8.4 Disseminating and evaluating social media intelligence as a part of the CI system

Tools to disseminate social media intelligence

The dissemination of social media intelligence does not differ radically from the dissemination of other intelligence in the organization. The most common ways to disseminate the information includes e-mail, intranets and other online portals. In this respect the interviews, do not add anything new to the literature findings discussed in Chapter 5.1:

> *"Some of our clients are using our web portal. Some of the clients have integrated the data feeds to their intranet or some other internal portal. I know a couple of cases where the data from social media is integrated into a bigger knowledge system. Usually these kinds of integrations are implemented only in large international corporations. Most of the companies are still relying on intranets."* (IV_EX5)

> *"These reports can be customized and automated so that particular persons get particular reports. These reports are then sent regularly and automatically by-email. Then there are different kinds of feeds that you can for example integrate with intranets or other systems."* (IV_EX1)

> *"There are two main ways to use the tools. First, the client can use our portal to analyze the information and this is where the actual utilization happens. Another way is to use automated reports that our systems generate and send by e-mail for example once a week. You can also create e-mail alerts that notice you when the search query finds something significant."* (IV_EX4)

Evaluating the value of social media intelligence

In Chapter 4.3 we recognized that there are not any easy ways to measure the value of CI. The same applies to the value of social media CI. The interviewees recognized that in the end the value of social media CI is measured by ROI although it is not known exactly how it should be calculated:

> *"In the end you are measuring ROI. The goal of a company is to make profit and thus maximize shareholders' value. From this respect, the use of social media intelligence should have an effect to the bottom line by*

> *increasing revenues or by decreasing costs. These are the ultimate indicators."* (IV_EX1)

Considering the value of social media CI, the interviews clearly support the literature findings presented in Chapter 4.3. Therefore we can propose that also the value of social media CI investment should be evaluated with a ROI-based framework presented in Figure 19.

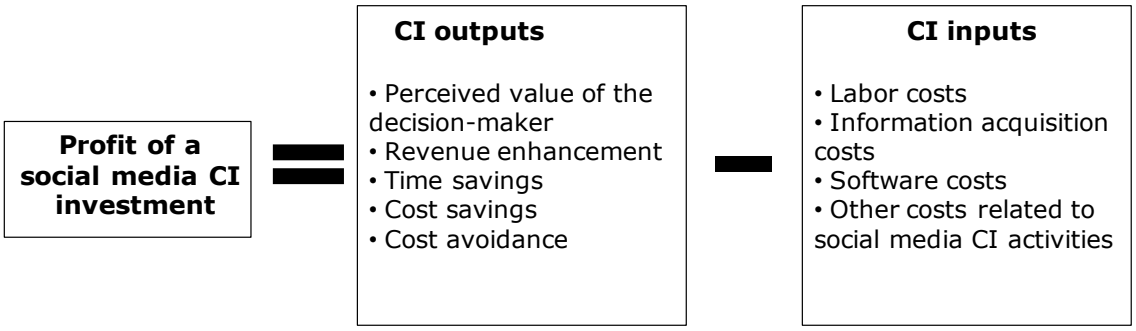


Figure 19. *Profit of a social media CI investment.*

8.5 Contemporary and potential future trends of social media CI

There are four contemporary and possible future trends that emerged in the interviews:

1. Formal social media monitoring becomes more common and diversifies.
2. The metrics and methods used in the analysis become more standardized.
3. Social media intelligence is combined with other business intelligence systems.
4. The whole social media landscape is in transition and faces changes all the time.

Formal social media monitoring becomes more common and diversifies

Most of the interviewees recognized that many companies have just begun to realize the potential of social media monitoring. It is expected that formal social media monitoring activities become more common and the systems are used in more versatile ways:

> *"The companies that have had good experiences and cases begin to understand the potential of social media monitoring and analysis. The*

word starts to spread. Companies also start to understand that with a good monitoring tool they can save a lot of time and resources. Social media is also seen in a more holistic way." (IV_EX4)

"This is not just simple monitoring of social media. Social media is a huge knowledge pool that can be utilized in many parts or functions of an organization. I believe that in the future we will have even more versatile applications as well as service providers." (IV_EX6)

"Social media monitoring becomes more common and normalizes. Although there is a lot of hype at the moment, social media monitoring provides big opportunities and companies can really benefit from it." (IV_EX2)

Standardization of the metrics and methods

At the moment there is a wide range of indicators and methods that are used to analyze social media data. There appears to be a consensus among the interviewees that, in the future, the situation clarifies and only the most useful indicators and methods remain:

"Five years from now and we can probably say that what are the most essential and important indicators that companies should use in different situations. In a way the situation standardizes." (IV_EX2)

"Today metrics are emphasized a lot. I believe this hype will slow down and the most important metrics are found." (IV_EX5)

Combining social media intelligence with other business intelligence

The combination of social media data with other business intelligence data and processes is another trend than emerged in the interviews. This view is also in line with the argument that social media CI is a sub-process of a company's whole CI process (Chapter 7.1). Today, some companies are already combining social media data with other business data and this trend is expected to continue:

"One trend is that social media data is linked or filtered in relation to other business data. It means that companies are not only plotting what is happening in social media. Instead, they try to understand what it means by evaluating social media data in relation to other data. I think in an optimal situation social media data is combined with other business

> *intelligence data. Then you can really see whether or not there is something interesting."* (IV_EX7)

> *"You can combine social media data with the company's internal data. I have an example where the volume of discussion is compared to sales. This allows you to see if there is any correlation present. Then if you think about all the data sources that you have in companies and think about cases where you can investigate if there is any correlation and possible business benefits… I can quickly make up at least 50 things."* (IV_EX2)

Another trend related to combining data from multiple sources is related to the customer relationship management systems (CRM). The concept of social CRM has become popular meaning a CRM system that uses also data from social media:

> *"At the moment social CRM is on the rise. It means how social media is integrated with CRM systems and there are some quite interesting applications in the market."* (IV_EX5)

> *"Engagement is the next step. Companies are participating in the discussions and also CRM systems are linked with social media."* (IV_EX1)

The changing social media landscape

The whole social media landscape is also in a constant transition. The interviewees have a clear consensus that social media is here to stay. However, the specific tools, platforms and services are changing all the time:

> *"The tools and channels like Twitter and Facebook can change, but I'm sure that social media will not disappear."* (IV_EX1)

> *"It's not even interesting whether or not Facebook will be there in the future. It is evident that at some point something will happen to Facebook. This is not a static world. It's changing all the time. The situation was the same about ten years ago. At that time some argued that the Internet is a phenomenon that will fade away. Well, look at where we are now.* (IV_EX3)

There is also an issue that can pose a threat to social media monitoring activities. Several interviewees were worried that the social media world could possibly become

more closed. This would prevent or at least hamper the social media monitoring activities:

> *"In the year 2000 everything was open and easily available. Today we have closed platforms like iPad. Then we have closed online communities that are not open to public. If the privatization becomes more common, it is a big challenge for us."* (IV_EX7)

> *"Social media might become more closed, because people are understanding the risks of full transparency."* (IV_EX8)

> *"The privatization of data creates a big challenge for data acquisition. Some expect that in the future there will be more that kind of small and private online communities that you are not able to monitor. It would be a pity, because there is so much valuable information."* (IV_EX6)

9. Case company background

This chapter introduces the case company where the social media CI framework is implemented and tested. The chapter starts with a brief introduction of the case company and the division where the case study is conducted. After that, we discuss the recent developments of the pharmaceutical industry in order to give a broader context for this case study. Then we continue to discuss the case company's current strategy and the previous social media activities in the case company. Finally, we link everything together and sum up the case company's research needs related to this particular study.

9.1 Case company

The case company is a medium-sized European pharmaceuticals and diagnostics corporation that develops, manufactures and markets human and veterinary pharmaceuticals, active pharmaceutical ingredients and diagnostic tests for global markets. The direct customers of the company are mainly healthcare service providers and professionals such as hospitals, clinics, laboratories, pharmacies, doctors and vets. Naturally, the end users of the products are often consumers. (DOC1)

The corporation is organized into six business divisions based on the different types of the products. The company employs about 3 300 persons. In 2010, the corporation had revenues of approximately 850 million euros and a market capitalization around two billion euros. Although the case company has clients globally, its main market is in Europe and recently it has been growing especially in Scandinavia and Eastern Europe. (DOC1)

The case study is conducted as a pilot project in the corporation's Animal Health division that develops, manufactures and markets veterinary pharmaceuticals. The division is the third largest division of the corporation representing about 8 % of the corporation's revenues. At the moment the Animal Health division is not considered to be one of the most crucial divisions of the corporation, but it is, however, actively seeking new growth opportunities. Furthermore, although the case study focuses on one division, the findings are expected to benefit the whole corporation.

9.2 The changing business environment

The case company has identified four issues that drive the change in the pharmaceutical sector (DOC1):

1. The fastest growth is in developing markets where the annual growth is expected to be on average 17 %. The global market is expected to grow 5-8 % annually.
2. Aging and expiring patents is the biggest challenge for many pharmaceutical companies in the near future.
3. Governments are saving money by renewing reimbursement requirements which has led to more intense competition.
4. Customer relationships are changing. Traditionally, doctors and other health care professionals were the most important customers, but the role of other parties has been increasing. These include payers such as government authorities and insurance companies as well as individual end-users.

In a 2011 pharmaceutical industry report, the professional services firm Ernst & Young states that the pharmaceutical industry is in the early stages of moving to a radically different future. The change drivers that Ernst & Young identified are somewhat in line with the issues identified by the case company. Ernst & Young emphasizes four main drivers that are health care reforms, the development of health IT, consumerism and value mining. Value mining refers to the activity of extracting value from large data masses with data mining technologies. (Ernst & Young, 2011)

Ernst & Young refers to the recent developments in the pharmaceutical industry as a Pharma 3.0 stage. They state that in the Pharma 3.0 stage, the company's success is not based solely on how much drugs they sell. Instead, it is based on how their holistic solutions are able to improve the actual health outcomes. (Ernst & Young, 2011)

The E&Y study identifies three stages of the development in the pharmaceutical industry: Pharma 1.0, Pharma 2.0 and Pharma 3.0. According to the study, during the first stage companies relied on blockbuster drugs. Furthermore, in the Pharma 1.0 stage the main customers were often physicians or other health professionals. The main driver of the pharmaceutical industry's move from the Pharma 1.0 stage to the Pharma 2.0 stage was the aging patent portfolios of the pharmaceutical companies. R&D-focused pharmaceutical companies had to find ways to replenish their pipelines and compete with generic manufacturers. Instead of a few blockbuster drugs, pharmaceutical companies began to build diversified drug portfolios. Companies started to focus their R&D in selected therapy areas and at the same time they expanded into other segments like over-the-counter medicines, animal health products, generics and consumer products. Companies also began to expand geographically,

especially to emerging markets. In addition, a lot of effort was put to increase productivity and manage costs. (Ernst & Young, 2011)

Today, pharmaceutical industry is still mostly in the Pharma 2.0 stage and obviously also the case company lives still in the Pharma 2.0 world. However, Ernst & Young (2011) argue that the transformation from Pharma 2.0 to Pharma 3.0 has already begun. The change is driven by two major trends. First, many countries are in the middle of reforming their health care systems which is also identified by the case company. Secondly, new information technologies have emerged. These two major trends are also catalyzing each other, and, in general, the focus is now shifting from drug sales to actual health outcomes. In addition, more often the real customer is actually the payor or the patient instead of the physician or other health professional. (Ernst & Young, 2011)

Ernst & Young (2011) recognize that the health care ecosystem is becoming more complex and there are not any easy recipes for success. To succeed, pharmaceutical companies need to approach the health care ecosystem more holistically. Ernst & Young (2011) propose the following strategies to move from the Pharma 2.0 stage to the Pharma 3.0 stage:

1. Form radical partnerships with non-traditional partners in order to create value for each other.
2. Engage and work together with patients to co-create value.
3. Experiment systematically with new business models in order to build and manage a portfolio of business models. Successful experiments should be scaled up and failures should be forgotten quickly.
4. Extract value from data that is gathered from diverse and sometimes even unfamiliar sources.

The three stages of development are summarized in Figure 20.

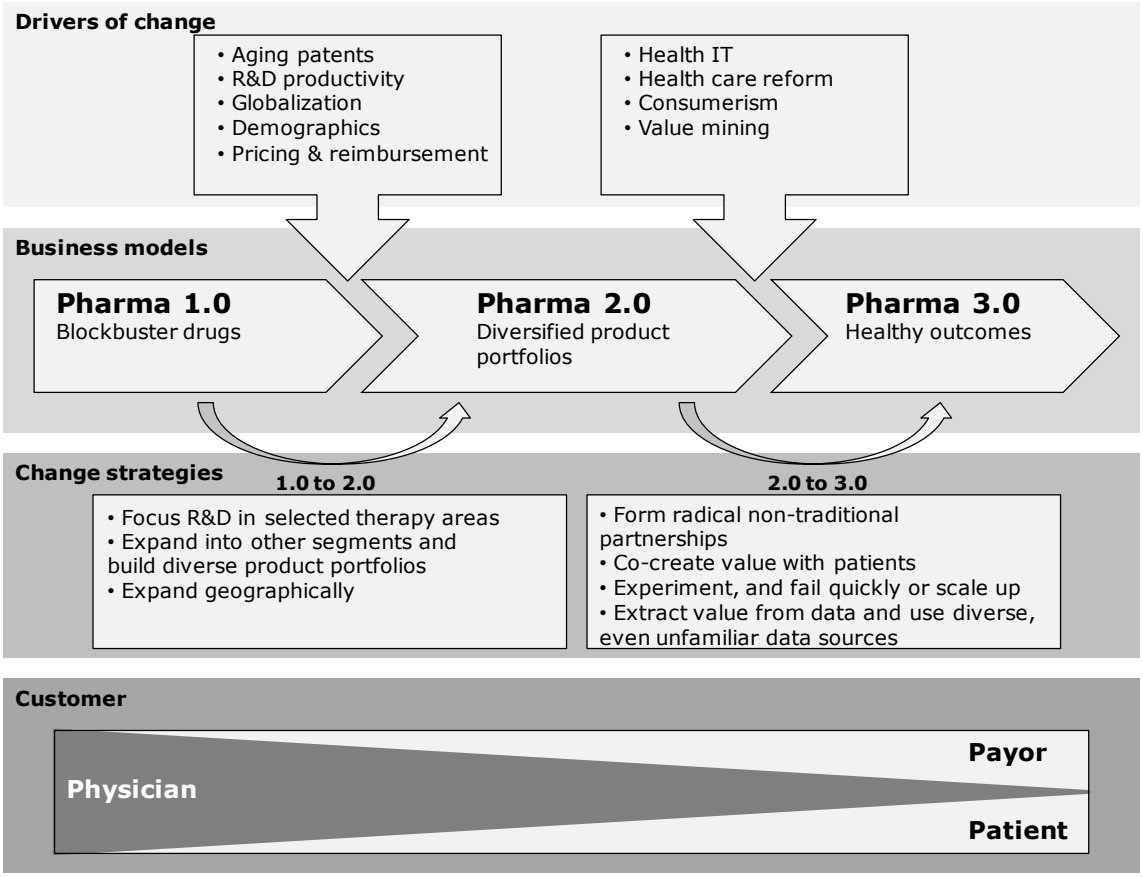


Figure 20. *The changing pharmaceutical industry according to a study by Ernst & Young (2011).*

The radical change in the pharmaceutical industry gives a wider context to this study. Social media monitoring is a new and innovative approach to create value in a pharmaceutical corporation and therefore this thesis falls in the middle of the industry's transformation from the Pharma 2.0 stage to the Pharma 3.0 stage.

9.3 Strategy of the case company

The case company's strategy is focused on four key pillars (DOC1):

1. growth of business operations through a competitive product portfolio;
2. strengthening the market position in Europe;
3. improving the flexibility and efficiency of operations; and
4. development of partnerships and collaboration networks.

Similar to many other pharmaceutical companies, the case company is having a big challenge with the aging patent portfolio. The traditional way to respond to this challenge is to actively invest in R&D and also the case company is active in R&D with

a focus on selected core therapy areas. Furthermore, the case company has started to renew and expand its product ranges and market areas. The company aims to develop its product portfolio through in-house R&D, collaborative research and product acquisitions. However, the priority is to exploit all the business opportunities in the current product portfolio. Furthermore, the company seeks potential new early-phase product candidates that it can purchase in order to reinforce its own research projects. (DOC1)

As the business environment is changing rapidly, the case company has identified that the agility and flexibility of operations is one of the crucial success factors in the near future. The case company has already improved its operating efficiency by implementing a new model for R&D, building up early-phase research partnerships, increasing efficiency in the supply chain and improving the competitiveness of its sales operations. Although the environment is becoming increasingly challenging, the company aims to continue operating as an independent pharmaceuticals and diagnostics company that provides new products and engages in R&D. (DOC1)

9.4 Previous social media activities in the case company

Previously, there have been some social media activities in the case company, but the approach to social media has not been very systematic. (IV_CO1; IV_CO2) In Chapter 6.2 we identified that there are three approaches that a corporation can take to social media: monitor social media, engage in social media and use social media tools internally. Although this thesis focuses on social media monitoring, all of the three areas are covered here briefly to give a clear idea about the company's current approach to social media.

Social media monitoring has been recognized as a development area, but previously there have been only some informal monitoring activities where individual employees have been monitoring social media using mostly public search engines. (IV_CO1; IV_CO2; IV_CO8; IV_CO9) Corporate communication monitors actively the public image of the corporation, but so far the resources have been used to monitor editorial news media. However, social media has been identified as an area that needs to be investigated (IV_CO2).

The corporation's BI professionals have been using online sources and tools for years, but the use of social media as a source of CI has been limited to a few selected professional blog sources. Social media as a whole has not been used systematically as a source of CI, but also BI professionals have identified it as an area that should be

investigated. (IV_CO9) Otherwise, it is known that several individual employees around the different divisions and country organizations have been informally monitoring, for instance, discussion forums and blogs. However, these activities have remained very limited and the used tools have been mostly public search engines. (IV_CO1; IV_CO2)

Social media monitoring activities have been very informal, but there have been some more systematic projects in the area of engagement activities. There has been one big project where the case company and a partner-company created an online platform to educate patients and their relatives about a disease. The objective of this project was to also learn to understand better the needs of the patients. The launch of this project caused concerns in the case company, because some of the managers were afraid of the possible negative feedback from the public. After a long debate, the project was finally implemented. So far the results have been promising, but it is still too early to say any final words. (IV_CO3) There have been also some smaller initiatives that have been mostly led by individual "product champions" in the different divisions and country organizations. However, the results from these experiments have been somewhat mixed. (IV_CO1; IV_CO2)

The case company has also started to use social media tools internally. Recently the company launched a new intranet system that contains social media tools such as online group workspaces, internal blogs and instant messenger. The overall attitude towards the new tools seems to be somewhat positive. (IV_CO8)

The case company's past social media activities are summarized in Figure 21. To sum up, the company has lacked a systematic approach especially in the area of social media monitoring. However, it has been identified as an area that should be investigated in more depth. Given this, there is a clear need to investigate how social media monitoring activities can be exploited in the corporation.

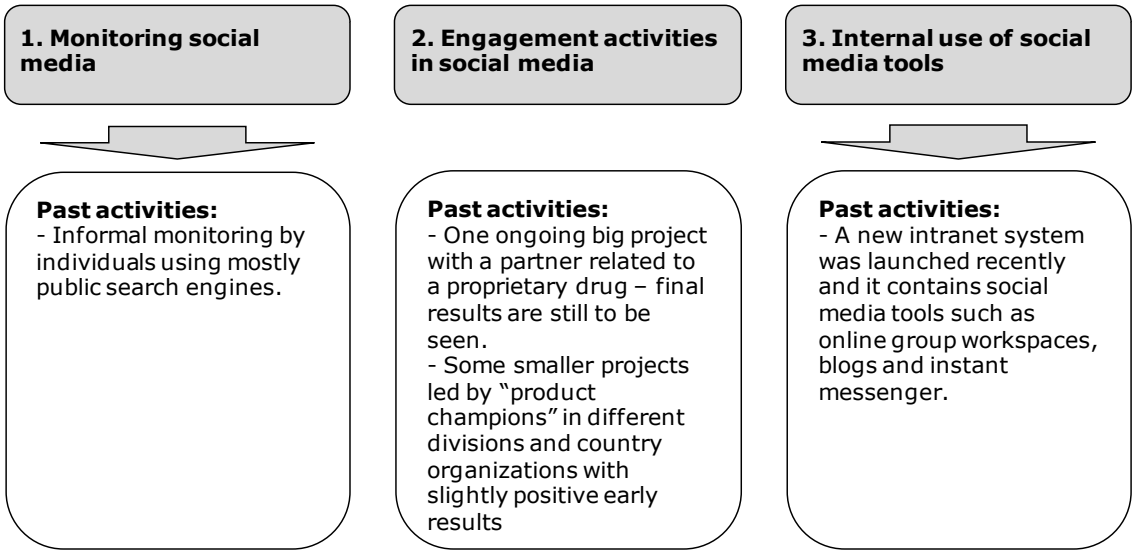


Figure 21. *The past social media activities in the case company.*

9.5 Case company's research needs in social media CI

Given the strategy of the company, we can claim that timely and effective CI plays an important role in the successful realization of the strategy. Well-informed decisions about market entries, product acquisitions and allocation of R&D resources require that the decision-makers have accurate, relevant and timely intelligence about customers, markets, competitors and other environmental factors. Therefore, CI can, for instance, contribute to the development of a competitive product portfolio that is one of the key pillars in the case company's strategy.

Today, a substantial part of the global discussion is taking place in social media and at least in some areas the discussion has reached a point where it is reflecting what is happening in the real world. Therefore social media is an interesting area from the company's CI perspective and we can argue that social media has a significant potential to contribute to the CI activities of the corporation.

As we discussed in section 8.4, the case company has not yet systematically investigated the opportunities in social media CI. However, several managers have identified it as a development area that should be examined more systematically. As we address here the question of how social media can be used as a source of CI in the case company, this thesis has the potential to contribute significantly to the case company's understanding of the possibilities in social media CI.

10. Social media CI in the case company

This chapter presents how social media CI activities were conducted in the case company as a pilot project. Thus, the chapter answers to the fourth and final research question: How social media can be used as a source of CI in the case company?

The actual implementation activities followed the structure of the social media CI framework presented in chapter 7 and refined in chapter 8. Furthermore, one purpose of the case study was to test the framework in a real-life organizational setting and thus fulfill the requirements of the constructive research approach. Therefore also the structure of this chapter is organized around the four phases of the social media CI cycle.

This chapter can be seen as the final construct of this thesis and it is built on top of the previous findings. We can clearly identify the three key steps of this thesis (Figure 22). First, in chapters 3-7 the theoretical foundations of social media CI were laid down and the initial social media CI framework was created. Then, in chapter 8 we refined and deepened the social media CI framework. Finally, in this chapter, we implement and test the framework in a real-life setting and present the findings of the case study.

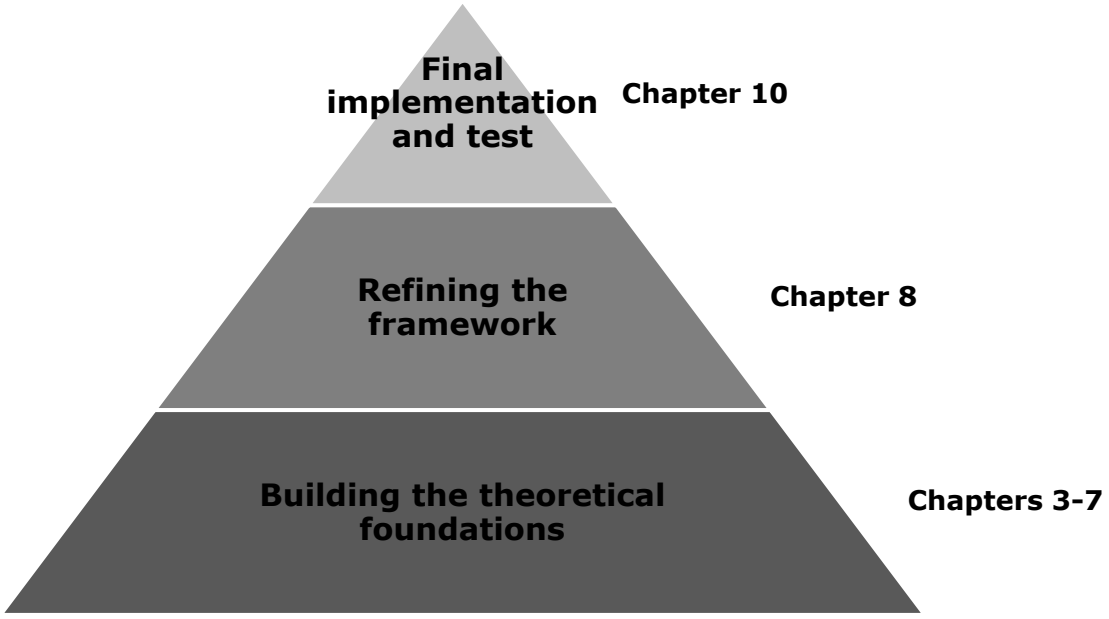


Figure 22. *The three key steps of this study.*

10.1 Planning and directing social media as a part of the CI system

In the beginning of the project the intelligence needs were identified by defining the key intelligence topics and the users of the intelligence. However, the objective was not to cover exhaustively all the possible topics that the company might be interested in. Instead, the goal was to prioritize and identify the most important areas for the particular decision-makers who participated in the case study. Given this, a total of four KIT areas were prioritized from the eight possible KIT areas identified in Chapter 8.1. Table 7 shows the KIT areas and the numbers of topics created within the different KIT areas. (IV_CO1; IV_CO4; IV_CO5; IV_CO7)

Table 7. *The number of defined topics in different KIT areas.*

KIT areas	Number of topics
Company	1
Own brands/products	4
Competitors	12
Industry-specific topics	4
Competitors' brands/products	N/A
Business units or functions	N/A
Individual persons	N/A
Sales leads	N/A

In the company category the only topic refers to the division of the corporation where the case study was conducted. The objective was study the following issues:

- Whether or not the division has a presence in social media?
- If there is a presence, what is the context of it and should the company take some actions?
- In addition, the objective was to provide possible early-warning signals in real-time.

A total of four topics were created in the category of own brands. These are the most important products of the division and the objective was to investigate the following issues:

- Do the brands and products have a presence in social media?
- If there is a presence, where is it and what is the nature of it?

- How are the products viewed in general?
- Are the customers having any issues or questions related to the products?
- What kind user experiences and use cases are related to the products?
- Are there any competing products mentioned and how the products are viewed in relation to the possible competitors?

In the category of competitors, a total of 12 topics were created referring to 12 main competitors of the case-company's division. The objective was to cover the following questions:

- What kind of presence the companies have in social media?
- Is it possible to follow the competitors' actions by using social media data and get early-warning signals?

Finally, the division of the case-company identified four medical therapy areas that are of strategic interest. These therapy areas can be classified as industry-specific topics. The goal was to investigate if social media CI can provide insights to the following questions:

- What kind of discussions people are having related to the therapy areas and how people understand them?
- How significant problems people are having within these therapy areas and in what kind of situations?
- What kind of solutions and treatments are used and what are the most popular ones?
- How well the different solutions and treatments work and what kind of attitude people have towards them?
- Do the customers have any unmet needs related to the therapy areas?

Organization of social media CI

The implementation of the social media CI was systematically planned meaning that the social media CI system was organized in a formal manner. However, it took place only in one division of the corporation, so the form of organization was decentralized. The social media CI system was implemented as a pilot project, so the type of CI use was project-based. When we reflect these facts to the organization models discussed in section 7.2, we can conclude that the implemented social media CI system fits well to the bottom left corner of the framework: It is formal, decentralized and project-based (Figure 23). In the pilot project, the objective was not to implement a continuous

process, because the goal was to explore the possibilities that social media CI could provide to the case company.

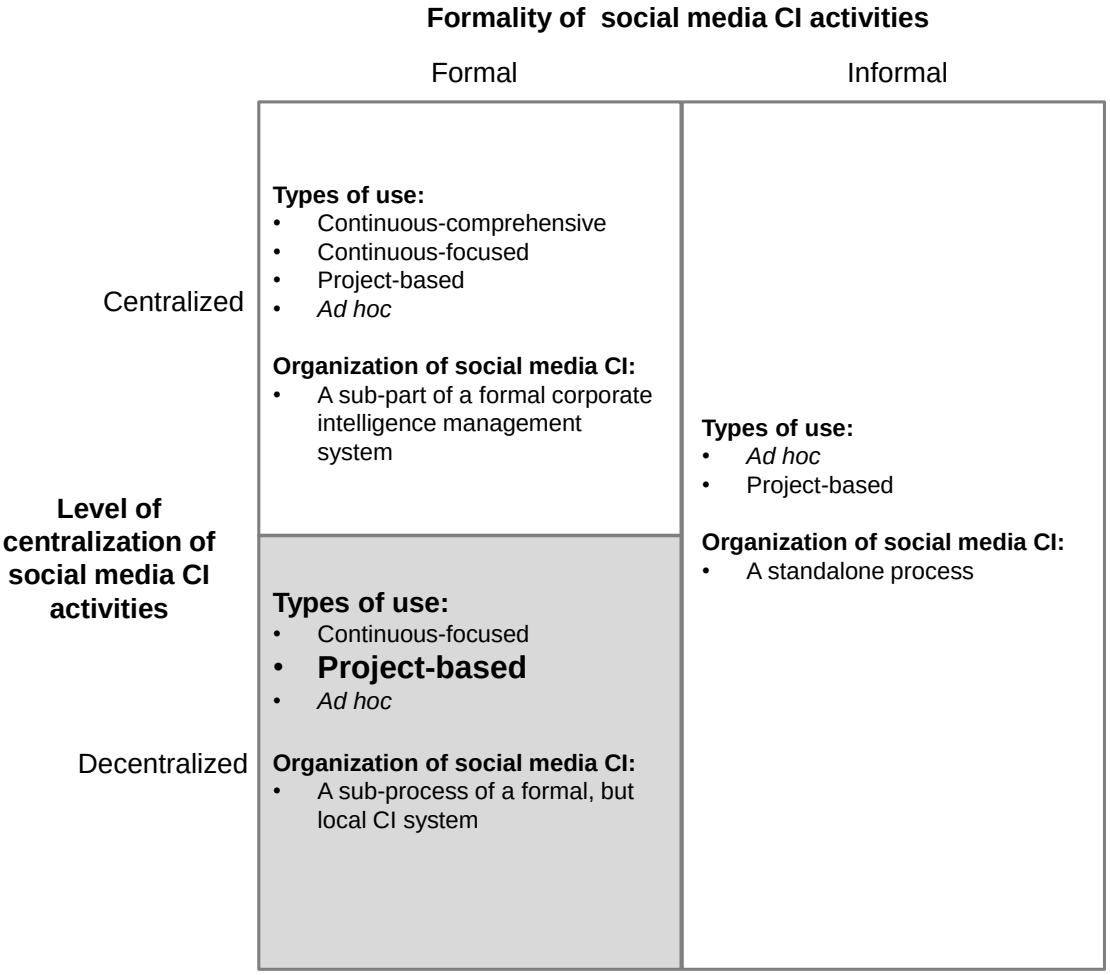


Figure 23. *The organization of social media CI in the context of this study.*

10.2 Collecting data and information from social media

Initially, a total of eight software tools were evaluated to determine the most suitable methods to gather data from social media (Table 8). The test of multiple tools enabled the emergence of a broader understanding, because the tools have significant differences. Four of the eight tools are publicly available free tools and the other four tools are commercial products that require the purchasing of a license. The annual cost of a license varies from approximately 2 000 euros to more than 10 000 euros.

Table 8. *The software tools used in the pilot project for gathering data from social media.*

Name of the tool	Company	Free	Analysis capabilities
Radian6	Salesforce.com	No	Extensive
Meltwater Buzz	Meltwater Group	No	Extensive
Digimind	Digimind Inc.	No	Extensive
Chat Reports	Whitevector Oy	No	Extensive
Icerocket real-time search	Icerocket LLC (acquired by Meltwater Group in 06/2011)	Yes	Limited
Google Blog Search	Google	Yes	No
Google Discussion Group Search	Google	Yes	No
Google Alerts	Google	Yes	No

The publicly available free tools were used in the very early phase of the project. However, it was soon realized that these tools are not enough in order to gather and analyze social media data efficiently (IV_CO5). The free tools work well for discovering individual data points and for investigating whether or not there is any potentially interesting data. However, the free tools had several weaknesses:

- The methods for organizing, filtering and exporting large data masses were non-existent or very limited.
- Important social media sources were missing including, for instance, most of the micro-blogs and social networking sites.
- In some respect, there was a lack of real-time data.
- There was a severe lack of analysis methods. Even the most basic indicators were missing (such as the volume of the discussion over time).

In order to gather and analyze the data more efficiently, the use of free tools was discontinued at an early stage of the project.

Table 9 shows the main differences of the commercial social media monitoring systems. In section 8.2 we defined blogs, discussion forums, micro-blogs and social networking sites to be the most important social media sources. However, only two of the four tools cover each of the sources. One of the tools covers only blogs, and another tool covers blogs and discussion forums.

Table 9. *Comparison of the features of the commercial social media monitoring systems used in the project.*

Name of the tool	Summary	Blogs	Discussion forums	Micro-blogs	Social networking sites	Users can manually add new sources	E-mail alerts	Data archive
Radian6	Extensive tool covering the whole social media landscape. Covers sources globally in several language areas.	x	x	x	x	-	x	2 months
Meltwater Buzz	Extensive tool covering the whole social media landscape. Covers sources globally in several language areas.	x	x	x	x	-	x	2 months
Digimind	Focusing mostly on pre-validated blog sources. In addition, users can manually add new sources.	x	-	-	-	x	x	Not limited
Chat Reports	At the moment can be classified as a niche player that aims to cover the most important sources in selected geographical areas (Nordics and some parts of Europe).	x	x	-	x	-	x	8 months

Considering the source lists, most of the tools function in a black box manner meaning that the user cannot influence the used sources. Only one of the tools allows the user to manually add new sources. However, in this project this was not seen as a practical feature as the goal was to gather data from social media as a whole and not from any particular pre-defined location. (IV_CO5; IV_CO7)

Another significant differentiator of the systems is the length of the data archive. Radian6 and Meltwater Buzz store historical data only for two months, Chat Reports stores it for eight months and Digimind has not limited the length of the data archive at all. However, this feature seems to be related directly to the extensiveness of the system. The more sources the tool covers, the less time it tends to store the data. This is naturally a question of data storage resources.

As we discussed in Chapter 8.3, there are several built-in indicators that are often used as a starting point in the analysis. In terms of analysis methods there are not any big differences between the systems although some of the common indicators were missing from Digimind and Chat Reports as presented in Table 10. Considering data analysis, one of the most important features is actually the ability to export data out of

the system, because then more advanced analysis can be conducted with Excel or other statistical software packages. Digimind was the only tool that did not provide this feature.

Table 10. *Comparison of the available analysis methods in the evaluated social media monitoring systems.*

Name of the tool	Indicator / analysis method						
	Volume of discussion	Sentiment	Media type	Key words / concepts	Influence of the channel	Geographic location	Data export
Radian6	x	x	x	x	x	x	x
Meltwater Buzz	x	x	x	x	x	x	x
Digimind	x	-	x	x	-	x	-
Chat Reports	x	x	x	x	x	-	x

In addition to the comparison of the features, a performance test was conducted to compare how well the tools perform in practice. The performance test was conducted in the following manner:

1. Five of the 21 key intelligence topics introduced in Chapter 10.1 were chosen as test topics. One of the topic referred to an own product, one to a therapy area and four to competitors.
2. Boolean search queries were created for the topics. Exactly the same queries were used in all different systems.
3. The systems were used to gather data from the same time period (8.5.2011–31.5.2011).
4. The number of discovered data points was used as an indicator of the performance.

Table 11 shows the results of the performance test. There are clearly significant differences in how well the systems discover data. Radian6 proved to be the most extensive system as it discovered over three times more data points than Meltwater Buzz that was the second best system in terms of discovering data. Considering Digimind and Chat Reports, we can clearly see the effect of their decision to have a narrower focus. For example, Radian6 found over 20 times more data than Digimind. Chat Reports was largely excluded from the test because of its geographically focused approach.

Table 11. *Results of the performance test between the used social media monitoring systems (conducted during 8.5.2011–31.5.2011).*

Topic	Number of discovered data points (hits)			
	Meltwater Buzz	**Radian6**	**Digimind**	**Chat Reports**
Own product 1	12	20	2	9
Therapy area	133 229	464 115	20 435	N/A
Competitor 1	427	1 875	330	N/A
Competitor 2	927	4 273	215	N/A
Competitor 3	0	7	1	N/A
Competitor 4	12	962	20	N/A
Total hits (all topics)	134 607	471 252	21 003	N/A
Comparable performance	28,6 %	100,0 %	4,5 %	N/A

The performance test provides only one perspective to the comparison of the systems. The biggest issue with this approach is that the number of hits does not tell anything about the quality of the data. As we discussed in Chapter 8.2, there is a big ongoing debate between the quantity and quality of data. There is not any right answer to this issue and neither option can be said to be categorically better or beneath the other. However, in this project the quantity of data was valued more, because the objective was to analyze social media in as holistic way as possible.

Finally, a framework was developed for deciding the most suitable monitoring system for this project. The framework contains six factors that are assessed: built-in indicators, data export features, the scope of the system, the performance of the system, the length of the data archive and e-mail alerts. The selection of the six factors was based solely on the needs of this particular project and the framework is not a completely exhaustive model to assess social media monitoring systems. For example, the associated costs and required resources are not considered at this stage.

Table 12 shows the assessment of the monitoring systems based on the developed framework. The software systems were assessed by evaluating each of the factors separately and by giving them grades from 0 to 5. Finally, each factor was weighted and a total weighted average grade was calculated for the software systems. Based on this method, Radian6 and Meltwater Buzz were identified as the most suitable systems for this particular project.

Table 12. *Assessment of the social media monitoring systems.*

Name of the tool	Built-in indicators	Data export features	Scope of the system	Performance of the system	Length of the data archive	E-mail alerts	Total weighted score
Weight	20 %	20 %	20 %	20 %	15 %	5 %	
Radian6	5	5	5	5	3	5	**4,7**
Meltwater Buzz	5	5	5	4	3	5	**4,5**
Chat Reports	5	5	3	3	4	5	**4,1**
Digimind	2	0	1	2	5	5	**2,0**

Grades
5 = Very good
3 = Medium
1 = Poor
0 = Non-existent

In the end, Meltwater Buzz was used as the primary source of data. The data gathering was a very straightforward activity when everything else was already planned. The two main steps of the data gathering process were the following:

1. Boolean search queries were created for each of the 21 KITs presented in Chapter 10.1. However, a number of iteration rounds were required to find search queries that produced accurate enough results. Some of the topics were more challenging cases than others. For example, product and brand topics did not require many iterations while the therapy area topics were more difficult.
2. Finally, data was collected from a time period that lasted from May 2011 to August 2011.

10.3 Refining social media data and information into actionable intelligence

In Chapter 8.3 we argued that the basic indicators provide a good starting point for the analysis. This proved to be partly true. However, it was founded that the suitable analysis methods depend highly on the context. In practice, different KIT areas require different kind of approaches. Therefore each of the KIT areas is considered here separately.

Due to the sensitive nature of the information, the exact topics referring to the different products and companies are kept confidential. However, one of the therapy areas is revealed as an example, because it was not considered to reveal any sensitive information about the case company.

Next, we will focus on describing the processes how the data was analyzed in the different cases. Only one topic per KIT area is used as an example, because the process did not differ significantly within the KIT area.

Own brands and products

The example product in this KIT area is referred as “Product Alpha” and it is one of the most important products of the case company’s division. The analysis is described step by step following the order of the identified questions presented before.

Does Product Alpha have a presence in social media?

This question can be answered by investigating the discussion volume over time. Figure 24 shows the volume of the discussion of Product Alpha during an 11-week time period from April 25, 2011 to July 10, 2011.

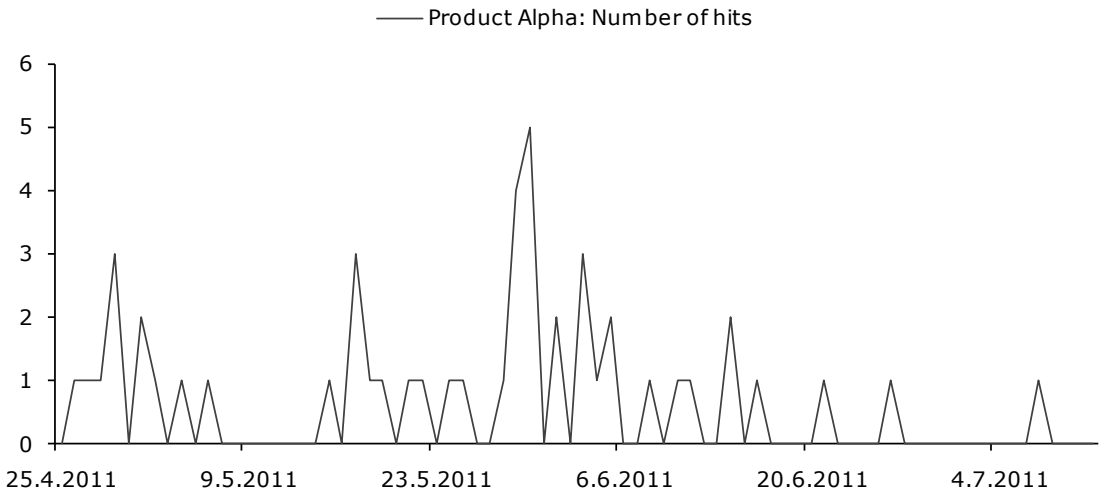


Figure 24. *Product Alpha’s volume of discussion over time.*

This analysis itself does not yet prove that Product Alpha has a presence in social media, because the discussions behind the data have to be verified. Sometimes the nature of the search query is so general that it produces a substantial amount of false hits. In this case it was verified that the data was actually referring to Product Alpha and therefore we can conclude that the product has a steady presence in social media although the volume of the discussion is at the moment relatively low.

The discussion volume analysis does not give any insights about the actual content, which can be considered a weakness. Above all, the analysis provides an easy starting point for further investigation. Furthermore, the development of the volume and peaks

in the data can provide information about trends and possible events as will be illustrated later in the case of the competitors.

If there is a presence, where is it and what is the nature of it?

First, the media types of the hits (Figure 25) and geographic locations of the hits (Figure 26) were examined. This data was provided directly by the social media monitoring system. Discussion forums (78 % of the hits) and blogs (20 % of the hits) were the most significant media types. Also social networking sites were present with a 2 % share of the hits. United States was the most significant geographic area representing 74 % of the hits. Netherlands (13 %), Sweden (7 %) and Finland (6 %) were also present with a smaller share of the hits. As can be expected, this corresponds in certain extent the areas where the product is actually marketed.

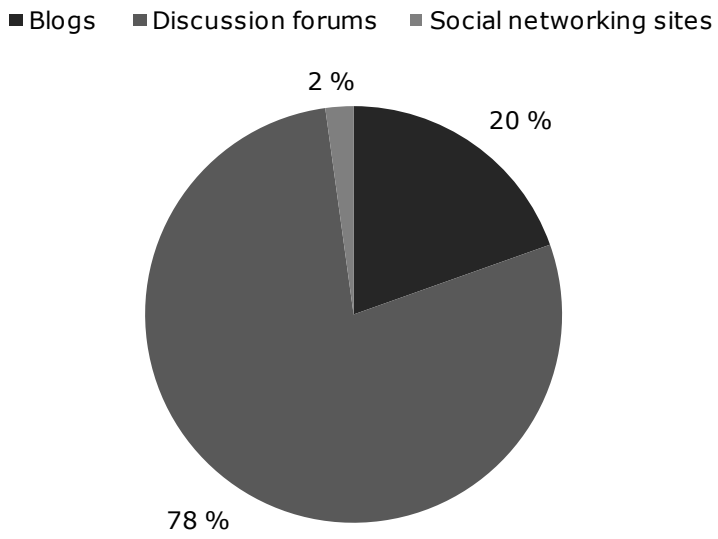


Figure 25. *Breakdown of the Product Alpha's hits by media type.*

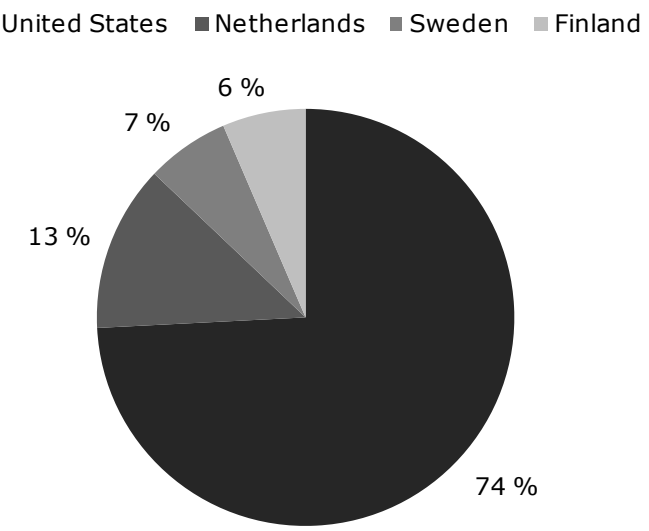


Figure 26. *Breakdown of the Product Alpha's hits by country.*

The nature of the discussion was analyzed by taking a sample of the discussion data and classifying it manually. The individual data points were divided into five categories based on the type of the discussion:

- usage in general (neutral);
- recommending Product Alpha;
- asking for advice/experiences about Product Alpha;
- recommending a competing product instead of Product Alpha; and
- other.

Figure 27 shows the breakdown of Product Alpha's hits by the type of the discussion.

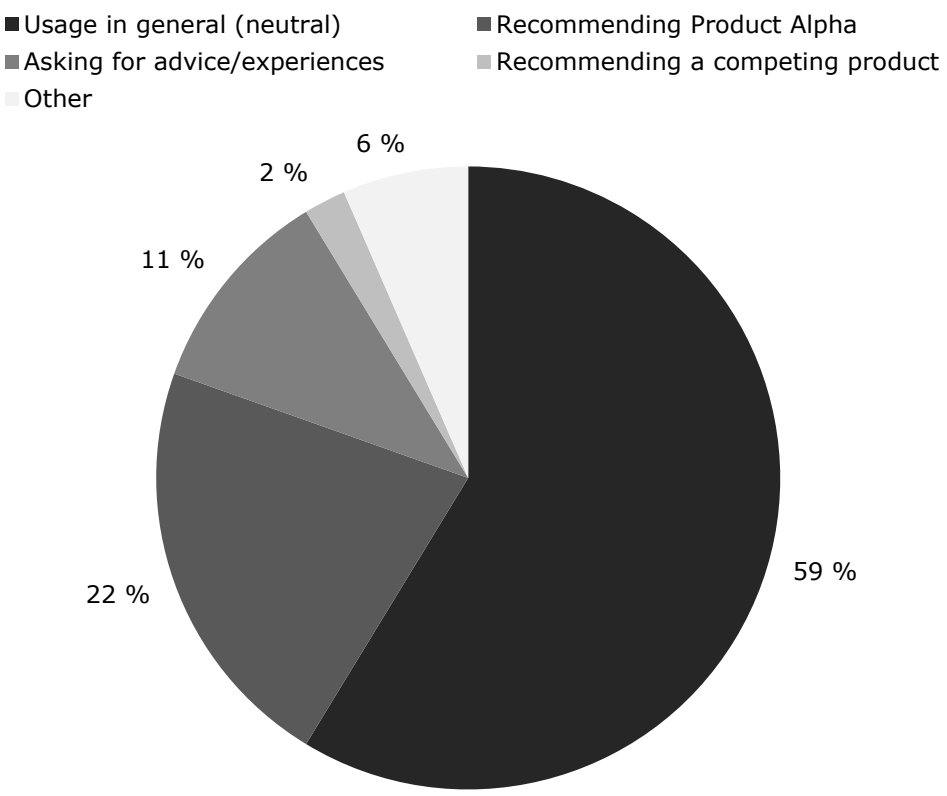


Figure 27. *Breakdown of the Product Alpha's hits by the type of the discussion.*

59 % of the discussion was related to general usage situations that had a neutral tone. As much as 22 % of the discussion was about recommending Product Alpha, which is a very positive signal. In only 2 % of the cases some other product was recommended instead of Product Alpha. 11 % of the discussion consisted of users asking for advice or experiences about Product Alpha.

How Product Alpha is viewed in general?

The conclusion can be made directly from the previous analysis where the type of the discussion was analyzed. We can say that the attitude towards the product is very positive and it is seen as a better alternative to the competing products. In 22 % of the cases Product Alpha was recommended over a competing product and in only 2 % of the cases a competing product was recommended over Product Alpha.

Any negative or alarming information was not found. In contrast, the information was encouraging and showed that the product was being received well in the market. The example comments presented in Table 13 illustrate the situation well.

Table 13. *Examples of social media users' comments related to Product Alpha.*

Social media user's comment	Media type	Discussion type	Country
"Product Alpha is very efficient. I can recommend it if there is any risk of [description of symptoms disguised]."	Discussion forums	Recommending Product Alpha	Finland
"As a [description of a profession disguised], I refuse to work on a [description of an animal disguised] that has been chemically restrained with [a competing product disguised]. My chemical restraint of choice is Product Alpha."	Discussion forums	Recommending Product Alpha	The United States
"The last [description of an animal disguised] I picked up for myself was a disaster to load - and I mean a total freakshow - to the point that Product Alpha, Ford F450 and three Mexican helpers were needed."	Discussion forums	Usage in general (neutral)	The United States
"Yesterday I tried Product Alpha. I was super-skeptical, but since both the [description of a profession disguised] and [description of a profession disguised] insisted that I would give it a try, I finally tried it. It was effective in thirty seconds and it worked amazingly well."	Blogs	Usage in general (neutral)	Sweden
"Absolutely use [a competing product disguised] to help her and you and the [description of a profession disguised] get through it. She will learn even on a drug. I would stick with [a competing product disguised] as it is too easy for Product Alpha to make them unsteady.	Discussion forums	Recommending a competing product	The United States
"My [description of an animal disguised] is really a disaster. She simply has no sense.Now the [description of a profession disguised] advised me to try Product Alpha, but because it costs [the price of Product Alpha disguised] euros, I want to ask if anyone has experiences about it?"	Discussion forums	Asking for advice/experiences	Netherlands

Are the customers having any issues or questions related to Product Alpha?

The sample did not contain any severe issues or questions related to the product.

What kind user experiences and use cases Product Alpha has?

The use cases were mostly routine situations and the sample did not contain any surprising findings.

Are there any competing products mentioned and how Product Alpha is viewed in relation to the possible competitors?

Competing products were mentioned, but most of the time Product Alpha was recommended over the competing products as discussed before. Product Alpha was recommended in 22 % of the cases while in only 2 % of the cases some other product was recommended instead of Product Alpha.

Conclusions

Based on the analysis, we can summarize the main findings as following:

- Product Alpha has a regular presence in social media at the moment. However, the volume of the discussion is still relatively low.
- The attitude towards Product Alpha was very positive and most of the time it is seen as a better alternative to the competing products.
- Anything negative or potentially harmful information was not discovered about Product Alpha.
- Given this, any immediate actions are not needed. However, social media clearly provides an additional source of useful CI data about Product Alpha. Therefore it is recommended that the topic is monitored regularly also in the future.

Competitors

The example competitor that is used in the analysis is referred as “Competitor Delta”.

What kind of presence Competitor Delta has in social media?

Again, the volume of the discussion provided a starting point for the analysis. Figure 28 shows Competitor Delta’s discussion volume over time. Also in this case the quality of the content was verified, so we can conclude that Competitor Delta has an active presence in social media. On average, the monitoring system discovered 7,4 hits per day and on peak days even more than than 50 hits.

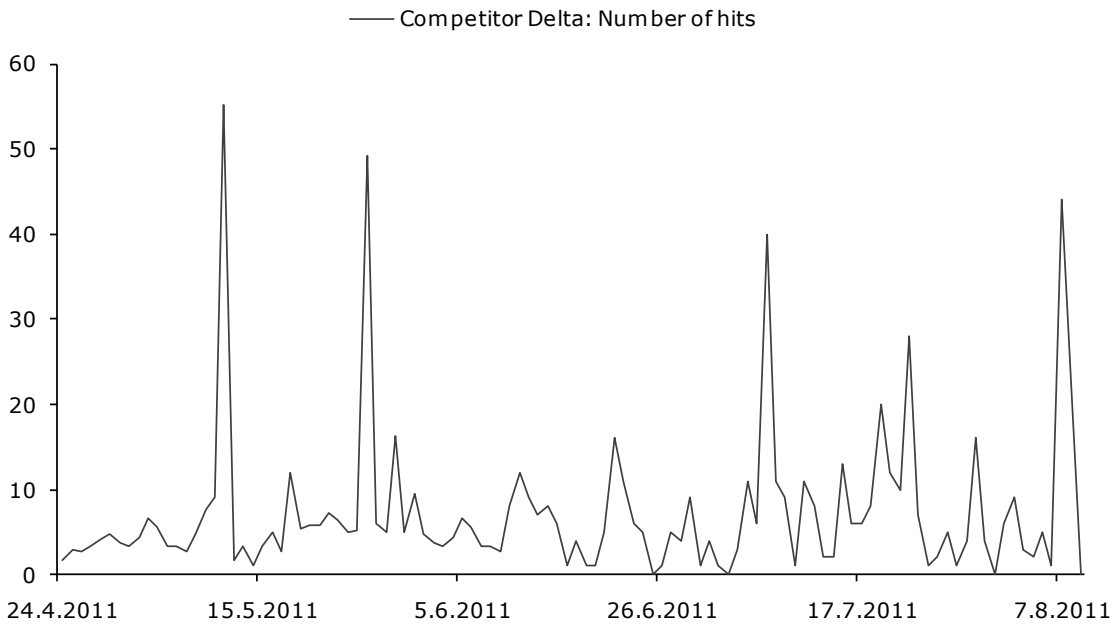


Figure 28. *Competitor Delta's discussion volume over time.*

91 % of the hits came from the United States (Figure 29). This is not a surprising finding given that Competitor Delta is a US-based company and US is one of its biggest markets. However, several other countries were also present.

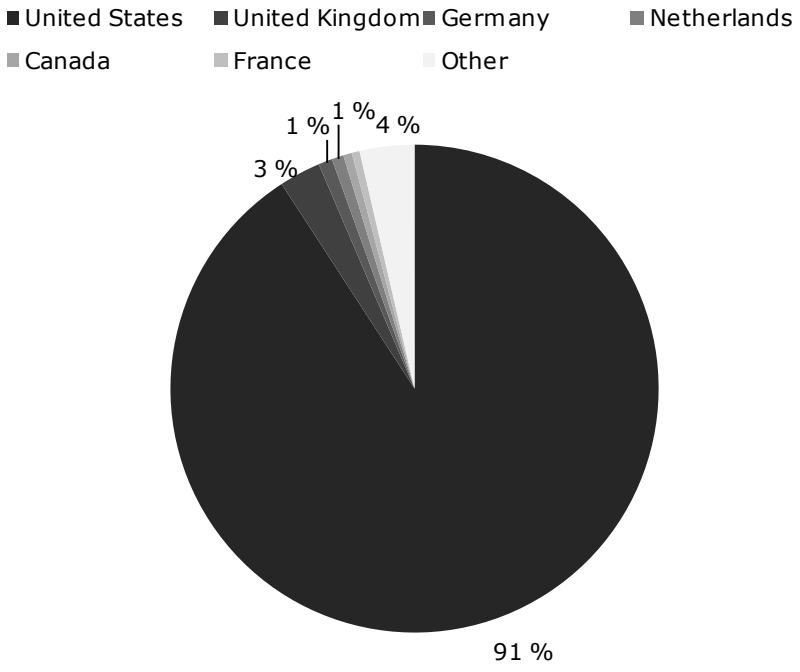


Figure 29. *Breakdown of Competitor Delta's hits by country.*

Blogs was the most significant media type representing 72 % of the discussion volume (Figure 30). Also micro-blogs (18 %) and social networking sites (8 %) had a strong presence. Discussion forums were a surprisingly small media type representing only 1 % of the volume.

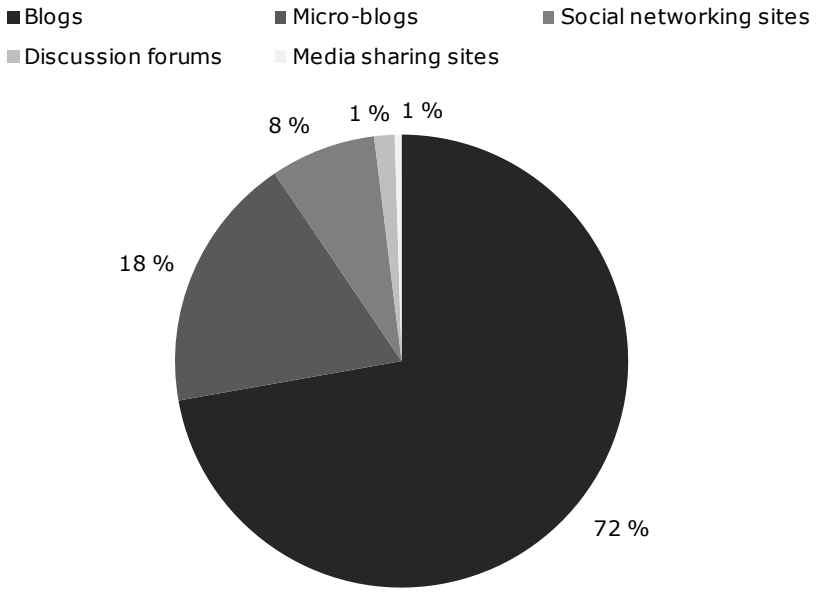


Figure 30. *Breakdown of Competitor Delta's hits by country.*

The content was also investigated in more depth in order to determine the type of the information that was transmitted about Competitor Delta. Most of the content was related to recent news about the company. In other words, when a remarkable story related to the company was published, social media users became active about it. People started to mention it in blog posts and to share it on micro-blogs and social networking sites.

Is it possible to follow Competitor Delta's actions using social media data and get early-warning signals?

Considering the fact that remarkable stories began to quickly spread on social media, we can expect that social media data can be used to identify interesting events about the competitor. This was also found to be true.

The detection of events is based simply on the volume of the discussion data. A possible event of interest can be found by identifying discontinuity points in the data. A

sudden peak is the easiest discontinuity point as it can be identified visually from the volume of the discussion graph.

In addition, some of the monitoring systems have built-in alert systems that can be set up to send automatic e-mail alerts when the volume of the discussion exceeds a certain limit. This means that the alerts can be received in real-time when a possible event of interest has occurred.

In the case of Competitor Delta, the limit of an event of interest was defined to be 25 hits per day. When the volume of discussion exceeded this limit, an automatic e-mail alert was send and the CI professional was able to investigate the actual reason that caused the peak in the data. During a time period from April 24, 2011 to August 9, 2011 a total of five possible events were identified (Figure 31).

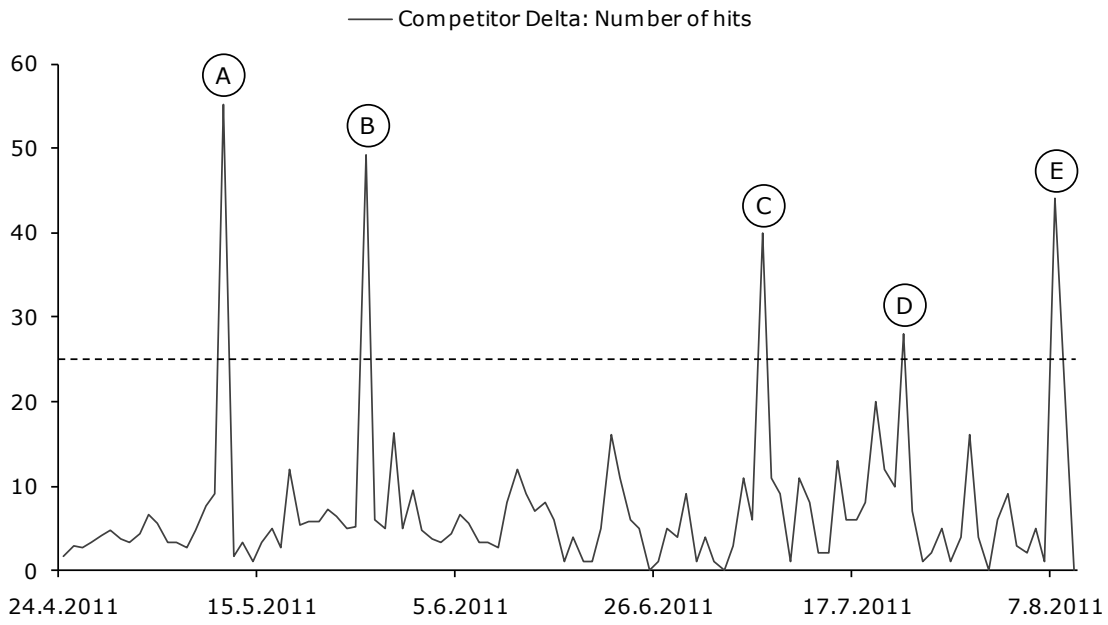


Figure 31. *Competitor Delta's possible events of interest based on the volume of the discussion analysis.*

In every case we were also able to determine the cause for the discontinuity point. The real-life events behind the peaks in the data are presented in Table 14.

Table 14. *Identified causes for the events in the social media data of Competitor Delta.*

Event	Identified cause	Strategic importance
A	Competitor Delta and Partner Beta are planning for a partnership to conduct a study on the impact of a [disguised] therapy on [disguised] patients.	Somewhat important
B	Former Vice President of Competitor Delta joins Company Epsilon.	Not important
C	Competitor Delta is exploring strategic alternatives for one of its business divisions. The options may include a spin-off, sale or other transaction.	Very important
D	Competitor Delta made a moderate donation to a charity.	Not important
E	Competitor Gamma is considering to bid for the Competitor Delta's business unit that is assumed to be for sale.	Very important

Three of the five events can be considered as strategically important intelligence. Thus, this example provides excellent empirical evidence how social media reflects the real world and how significant real-life events can be identified from social media by using a straightforward and cost-effective analysis method.

Industry-specific topics

In the project a total of four medical therapy areas were determined as industry-specific topics. Here, the therapy area of canine and feline oncology is revealed as an example topic. This topic is discussed in a non-disguised manner, because it does not provide any sensitive information from the case company's perspective. However, the findings have still the same potential to contribute to CI.

The analysis of industry-specific topics differs significantly from the analysis of any other topics at least in this case. The biggest issue is that the basic indicators do not provide any useful information. Furthermore, the general nature of the boolean search queries tend to produce a substantial amount of false results. Therefore, the analysis is conducted manually in an ad-hoc manner.

The boolean search query created for the topic required several iterations. In the end, the following search query was used as it was found to produce good enough results in terms of relevant hits:

```
("diagnosed with cancer" OR "has a tumor" OR "had
cancer" OR "has cancer") AND ("care" OR medic* OR
therap* OR treatmen*) AND ("dog" OR "cat")
```

During a time period from June 16, 2011 to August 15, 2011, this search query produced a total of 168 hits. The results were analyzed manually by filtering, classifying and categorizing the data points. In the end, only 38 data points of the original 168 contained enough information for further analysis. Figure 32 shows the breakdown of the data by country, media type and animal.

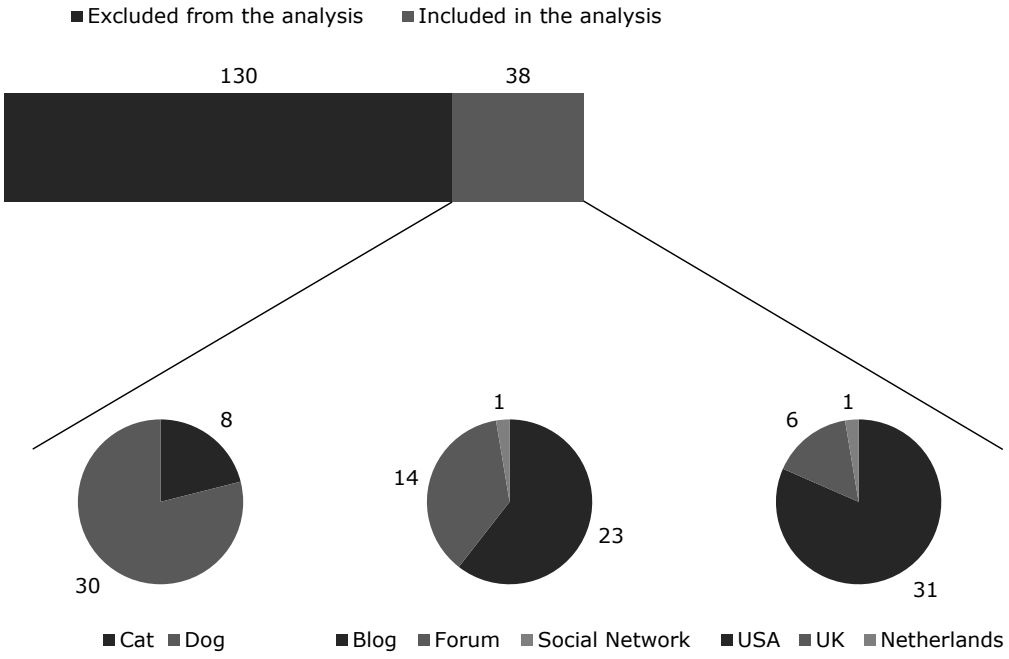
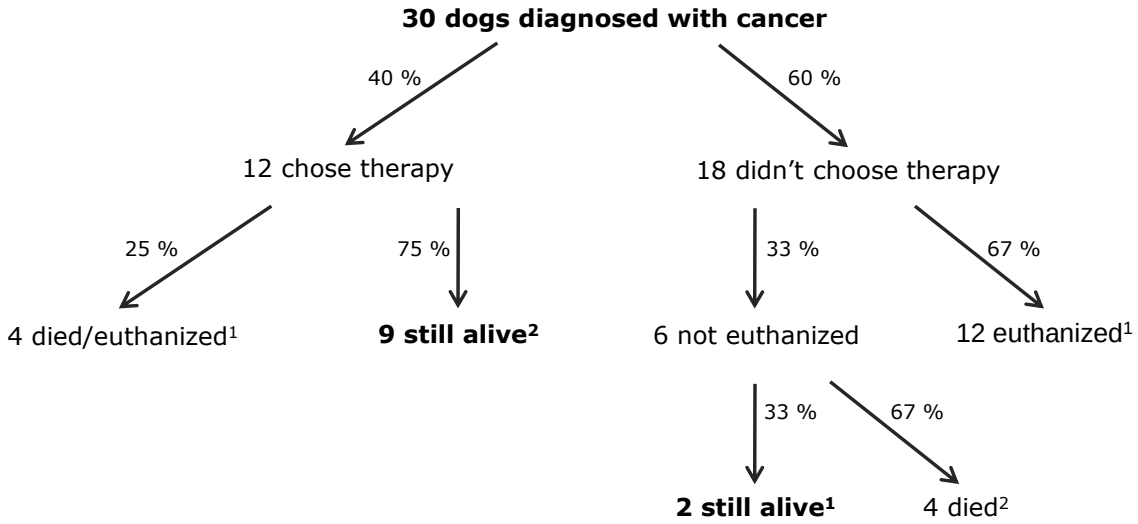


Figure 32. *Breakdown of the canine and feline oncology data by animal, media type and country.*

Next, only the relevant questions related to this therapy area are chosen from the therapy area questions presented in Chapter 10.1. In addition, canine and feline data was processed separately and here we will present only the analysis of the canine oncology data (dogs), because the methods were basically identical.

What kind of solutions and treatments are used in the therapy area of canine oncology and what are the most popular ones? How well the different solutions and treatments work and what kind of attitude people have towards them?

Figure 33 shows a decision tree analysis that was conducted to answer these questions. Based on the data, 40 % of the dog owners decided to take the dog to therapy and 60 % did not. From the dogs that received therapy, 25 % died within two months since the diagnosis and 75 % remained alive at least two months. From the dogs that did not receive therapy, 67 % were euthanized within two months and 33 % were not. From the dogs that were not euthanized 67 % died within two months and 33 % remained alive.



1) Within two months since the diagnosis.
2) After at least two months since the diagnosis.

Figure 33. *Decision tree analysis of dog owners whose dogs had been diagnosed with cancer.*

From the 12 dogs that received therapy, eight received only chemotherapy and two went to surgery. In addition, two dogs received both chemotherapy and went to surgery.

There were two main reasons why people decided to take the dog to therapy:

- dog is considered a family member; and
- even a couple of extra months are worth it.

There were also several reasons why some people did not choose therapy:

- therapy was considered to be too expensive;
- the situation was considered to be hopeless or at least too uncertain;
- dog owners wanted their dog to have a natural death;
- dog owners did not want the dog to suffer; and
- the dog was already very old.

Company

Also a topic referring to the case company's division was created and automatic e-mail alerts were created to provide early-warning signals. However, during a three months period from May 15, 2011 to August 15, 2011 any remarkable results were not found.

10.4 Disseminating and evaluating social media intelligence as a part of the CI system

In the pilot project the produced intelligence was disseminated and evaluated through meetings and presentations with the potential users. Furthermore, the usefulness of social media CI was evaluated in a wider context through presentations and discussions of the findings with employees from the corporation's other divisions.

The following potential users of the intelligence participated in the study:

- management (IV_CO6; IV_CO7; IV_CO8; IV_CO11; IV_CO12);
- sales and marketing (IV_CO7; IV_CO11);
- business intelligence (IV_CO9);
- research and development (IV_CO10; IV_CO13);
- corporate communication (IV_CO2; IV_CO8); and
- IT department (IV_CO9).

It should be noted that from the potential users identified in Chapter 8.1, customer service and human resources did not participate in the study and therefore social media CI's potential for them is not evaluated in this thesis. In addition, IT department will not be discussed separately, because they are considered mainly as support functions.

Sales and marketing

Sales and marketing was able to exploit social media intelligence in terms of market research. Especially the intelligence produced in the KIT area of own brands and

products was seen as valuable information about customers. One interviewee says illustratively:

> *"This information enables us to get a better understanding of the end users and gives us valuable insights about them. In this industry this has traditionally been very difficult."* (IV_CO10)

Above all, sales and marketing see that social media intelligence represents the voice of the customer. More specifically, they are able to study how the marketing message is delivered to the end user, are the consumers using the product correctly and are there any issues with the product. In this context, social media CI contributes especially to tactical decisions related to marketing activities and the tangible benefits that can be achieved include at least revenue enhancements, cost savings and cost avoidance.

Although the study focused on one division of the corporation, the results were evaluated in a wider context through presentations and discussions of the findings with employees from other divisions. Although the findings were division-specific, they were well received by other divisions. Furthermore, the other divisions considered that the pilot project proved that also they could benefit significantly from similar social media CI activities. One product manager from another division states illustratively:

> *"This is very useful information and I can immediately say that I would like to get similar analysis of our products."* (IV_CO11)

Furthermore, employees from other divisions saw new applications for the analysis products that were initially not recognized by the case division. For instance, one manager saw the possibility of using the findings as a sales argument:

> *"I think we could even use this kind of analysis as a sales argument for instance when our sales force is visiting pharmacies."* (IV_CO11)

One clear advantage of social media CI is its cost-efficiency. Although costs are present in forms of labor and software costs, the actual social media data is available for free. Two interviewees comment one of the produced social media analysis accordingly:

> *"We have bought market research reports costing 5 000 euros or more and the main findings are here basically the same. This is clearly a method that can be used in some cases to conduct market research more efficiently."* (IV_CO9)

> *"This is obviously a very agile way to conduct market research."* (IV_CO12)

The in-house produced analysis referred above requires approximately one full workday of a CI professional and thus the cost of the analysis can be calculated in hundreds of euros instead of thousands. This is a small but illustrative example of the cost-efficiency that social media CI enables.

Reflecting the findings to the profit of a social media CI investment framework presented in Chapter 8.4, we can conclude that from the perspective of sales and marketing, the CI outputs are realized at least in forms of revenue enhancement, cost savings and cost avoidance.

Research and development

Above all, with the help of social media CI, R&D was able to investigate the potential unmet needs of the consumers. In the end, these unmet needs have the potential to turn into new product introductions and substantial new revenue sources. The R&D-related findings were also received well by the case company:

> *"In the best case scenario we are actually able to identify unmet needs from social media."* (IV_CO13)

> *"We can definitely get new ideas to R&D when we investigate the presence of some interesting therapy areas in social media."* (IV_CO9)

R&D employees saw also the potential to go to even deeper in the analysis of the potential unmet needs:

> *"We could even investigate that which drug formulations are preferred by the end-users meaning that we would study in what kind of form people want their drugs."* (IV_CO10)

However, social media CI was not seen to replace the other sources of intelligence. At its best it complements well the other intelligence as one of the R&D employees describes:

> *"Every information source is important. This is clearly a new source that complements well the other sources of information that we use."* (IV_CO10)

In the pharmaceutical industry the product development cycles are long and it can easily take a decade for a new drug to be approved to the market. Therefore in this thesis any strong conclusions cannot be made about the contribution of social media CI to the research and development. However, the possibility to investigate unmet needs and the ability to get closer to the potential end-users were seen as a valuable opportunity that should be taken advantage of.

Corporate communication

In this study we did not encounter any real-life situations where the corporate communication department of the case company would have been able to benefit from social media CI. However, the main reason for this is that during the monitoring period we did not find any remarkable results in the KIT area of the company.

However, it was identified that in certain situations corporate communication is potentially able to benefit from social media CI. Above all, social media CI can help corporate communication to understand better the public image of the company. In addition, an alert system can help the company to react fast to potentially harmful discussions in the public. (IV_CO8)

Both of the examples presented above fall in the category of reputation management. The objective of reputation management is to protect the public image of the company. Thus, in this context the output of social media intelligence can be argued to come in form of cost avoidance: The company is able to avoid better the costs that can result from poor reputation (in this context also revenue losses can be considered as costs).

Business intelligence / top management

BI is a support function that, among other responsibilities, should operate the whole CI process of the company. If the social media CI process is organized in a continuous way, BI is the function that should produce the intelligence that all other functions use in decision-making. Thus, the intelligence needs of all other functions are also the intelligence needs of the BI function.

As sales and marketing, research and development and corporate communication were already covered, we will focus here on the top management.

The analysis of competitors is seen as the most promising area that has the potential to produce intelligence that the top management can exploit. This intelligence comes mostly in forms of early warning alerts. As we illustrated in Chapter 10.3, social media

data can be used to spot events related to competitors. Significant news such as mergers and acquisitions naturally break the news barrier and the same information can be acquired from other sources. However, social media is seen to provide also weak signals that cannot necessarily be detected easily from other sources. Thus, in certain situations social media has the potential to provide intelligence that also benefits the top management.

Reliability and validity of social media CI

Not surprisingly, the reliability and validity of social media CI raised a lot of discussion during the pilot project. One can easily question the reliability of the data that is acquired from social media. In fact, it is true that according to our current knowledge, the findings cannot be generalized to the population level, because we do not know how social media data represents the whole population. However, we can consider social media CI as a field research where we collect data in natural settings. In this case the natural setting is social media and the collected data represents the users of social media.

Although the reliability and validity of social media CI remains an area that should be investigated more, the findings of the pilot project received strong support from the case company (IV_CO6; IV_CO7; IV_CO9; IV_CO10). For instance, considering the analysis of the therapy area of canine and feline oncology that was covered earlier in this chapter, one of the case company employees with a long background in the industry gives the following comment:

> *"These results match very well to our current understanding of the situation in this therapy area. Social media provides clearly a good and cost-effective way to conduct also this kind of market research."* (IV_CO6)

Furthermore, in section 6.5 we examined the previous studies related to social media CI and concluded that at least in some areas the discussion in social media has reached a point where it is reflecting what is happening in the real world. Thus, given the previous empirical findings and the findings of this case study, we can argue that although the reliability and validity of social media CI remains still a somewhat unanswered question, it provides data that in some extent reflects the market. Therefore social media provides interesting opportunities from a company's CI perspective.

Person-focused dissemination

As we discussed in section 5.1, for instance, Marin & Poulter (2004) claim that intelligence is effective only if the dissemination is person-focused. This means that decision-makers get reports that are tailor-made by taking into consideration their intelligence needs. Although this may sound a self-evident issue, it seems that this is a major problem in many companies. Although in this case study we did not cover this issue particularly well, the findings seem to support the argument of Marin & Poulter (2004).

The need for person-focused reports is seen clearly when we consider the use cases of different KIT areas. For instance, the KIT area of own brands and products is important for sales and marketing. Furthermore, the intelligence about industry-specific topics is contributing mostly to R&D and the intelligence about the competitors is contributing mostly to the top management. This indicates that when the CI system is designed, it is important to define the intelligence needs of the different decision-makers and disseminate the intelligence accordingly.

Conclusions

The produced social media intelligence was seen as valuable information that can help several functions in strategic and tactical decision-making. Table 15 summarizes how the social media intelligence produced in the different KIT areas is considered to have the potential to contribute to decision-making in this particular pilot project.

Table 15. *Social media CI's potential to contribute to decision-making in this pilot project.*

KIT area	Social media CI's potential contribution to decision-making	Types of use cases
Own brands and products	- Tactical decisions related to marketing activities (e.g. refinement of brand or marketing message)	- Market research
Competitors	- High-level strategic and tactical decisions	- Monitoring of competitors' activities - Early-warning alerts
Industry-specific topics	- Strategic decisions about the allocation of R&D resources to specific therapy areas	- New product ideas through the identification of consumers' unmet needs
Company	- Tactical decisions related to reputation management	- Understanding the public image of the company - Early-warning alerts

The return on social media CI investment remains still a question that we cannot completely answer in this thesis. As we discussed in Chapter 4.3, the measurement of the value of CI is very difficult in general. Reflecting the results of this project to the profit of a social media CI investment framework presented in Chapter 8.4, we can nonetheless make some conceptual conclusions.

In the pilot project, the identified potential outputs of social media CI included revenue enhancements, cost savings and cost avoidance. CI inputs, on the other hand, included labor costs and software costs. At this point, especially the monetary value of CI outputs is very difficult to estimate. We can argue that the monetary value of CI outputs can be anything from significant losses to substantial profits. In the worst-case scenario wrong decisions are made based on weak social media intelligence and the CI outputs can actually be negative because of revenue losses or additional costs. However, in the best-case scenario, social media CI can, for instance, contribute to the development of a new blockbuster drug which can materialize in significant profits measured in millions of euros. Figure 34 shows the conceptual model of the potential profit or loss of a social media CI investment in the case company.

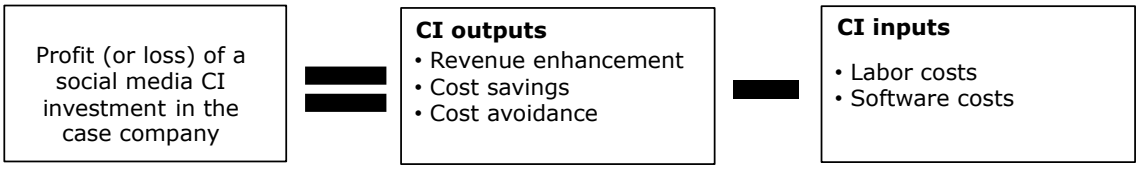


Figure 34. *Conceptual model of the potential profit or loss of a social media CI investment in the case company.*

Part IV: Conclusions

11. Summary and discussion

In this chapter the main findings of the thesis are discussed and the role of social media CI is reflected in a wider context. In addition, we discuss the managerial implications of the findings and consider the future research needs of social media CI.

11.1 Main findings

In this thesis we approached social media from a corporation's CI point of view and used a constructive research approach to develop a framework that provides a systematic approach to the use of social media as a source of CI in the pharmaceutical case company.

In the literature review we showed how timely CI plays an important role in the survival of organizations. Especially in today's business environment where the competition takes place at a global level, the role of an efficient CI system can be argued to be more important than ever before. In this respect, every source of information is important and thus social media can be considered as one source of information among others.

Based on the literature study of CI and social media, we developed the social media CI framework. Furthermore, the framework was refined in the empirical part based on external expert interviews that deepened the understanding of the different phases of the social media CI cycle and provided additional benchmark data about the use of social media as a source of CI. Finally, the social media CI framework was implemented and tested in the case company.

Figure 35 shows the social media CI cycle in the case company and the key findings related to the different phases. In the first phase we found that several functions are able to exploit social media CI including sales and marketing, R&D, corporate communication and top management. Furthermore, we found that social media can provide data from the following KIT areas: own brands and products, competitors, industry specific topics and the company itself. In the case study the organization of social media CI was decentralized and project-based. However, the positive findings indicate that a continuous social media CI process should be implemented.

In the second phase we found that blogs, discussion forums, social networking sites and micro-blogs were the most important sources of social media data. In addition, we found that an effective implementation of the social media CI activities require specific social media monitoring products that are commercially available. These social media

monitoring systems are based on some kind of an implementation of intelligent agents or web spiders describe, for instance, by Chen et al. (2002).

In the third phase we found that the analysis methods depend strongly on the type of the topic. For example, for some topics the built-in indicators are very useful while for some topics the analysis is conducted in more of an ad-hoc basis. Above all, in this phase, capable analysts and human judgment are still needed in order to produce actionable intelligence. Although some parts of the process can be automated with software systems, people are still needed to put the analysis products in meaningful contexts.

In the last phase we found that the dissemination of social media intelligence has to be person-focused in order to be effective. In other words, the intelligence reports have to fulfill the intelligence-needs of the decision-makers. Furthermore, the produced intelligence can be evaluated with a ROI-based framework that estimates the CI inputs, such as labor and software costs, and CI outputs, such as increased revenues or decreased costs.

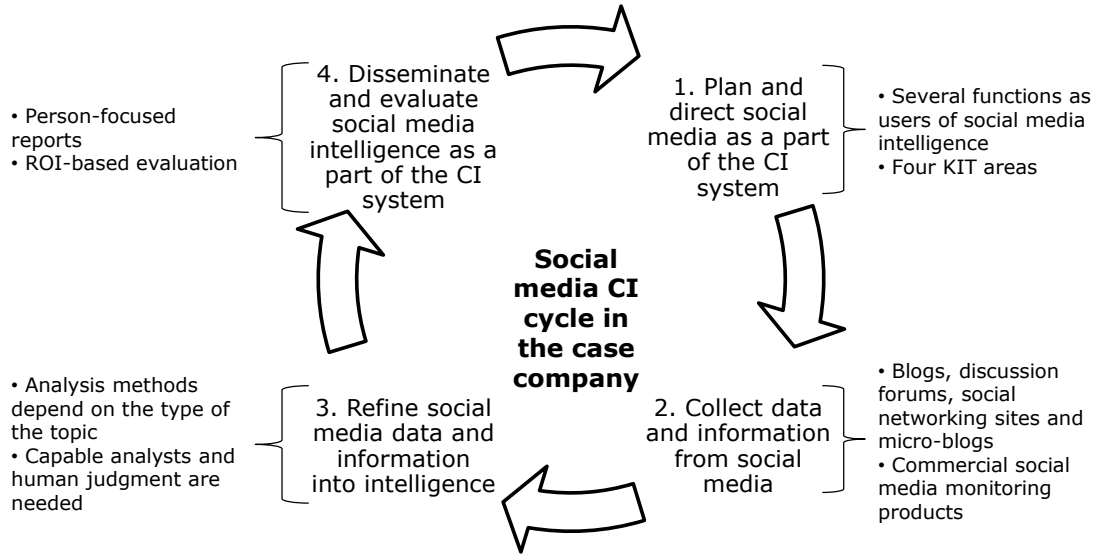


Figure 35. *Social media CI cycle in the case company and the related key findings.*

Most importantly, the case study shows that several functions of the case company are able to exploit social media CI in strategic and tactical decision-making. Considering sales and marketing, social media provides an opportunity to conduct cost-effective

market research which is seen to contribute to tactical decisions related to sales and marketing activities. Industry-specific topics can be used to identify consumers' unmet needs. This is intelligence that can be used in strategic decisions related the allocation of R&D resources. The monitoring of competitors' activities by identifying events of interest in the social media data has the potential to contribute to the top management's high-level strategic and tactical decisions by keeping them up-to-date about the important events in the market environment. The analysis of the company related topics helps corporate communication to understand the public image of the company and provides also early-warning alerts about potentially harmful developments. This information contributes to tactical decision-making related to reputation management.

The findings of the case study prove that the social media CI framework can be implemented in a real-life setting. Furthermore, we showed that social media can be effectively used as a source of CI. In addition, we have shown that social media CI can be considered as a sub-process of CI contributing to the whole corporate intelligence system.

The constructive research approach requires the construct can be tied with the theoretical body of knowledge and it has to be demonstrated that the solution works in a real-life environment. The main construct of the study is the social media CI framework presented in chapter 7, refined in chapter 8 and tested in a case study in chapter 10. The framework is derived from the existing research on CI and social media, and the case study shows that the framework can be successfully applied in a real-life setting. Thus, the objectives of this constructive study are achieved.

11.2 Academic contribution

CI has been researched extensively especially in 1990s and 2000s. Today, CI is seen as an essential element helping executives to make better and more informed strategic and tactical decisions (Juhari & Stephens, 2006). Furthermore, companies expect CI to provide actionable intelligence that, in the end, materialize in increased revenue, new products or services, cost and time savings and higher profitability (The Competitive Intelligence Foundation, 2006). Some academics even consider CI activities itself to be a source of competitive advantage (Hughes, 2005).

Social media, on the other hand, is a relatively new phenomenon. Although the research interest towards the field of social media has increased recently, it is still an area that has a lack of academic research. As we showed in section 6.1, even the

concept of social media has not yet a consistent and formal definition agreed by the scholars.

Especially when we consider the overlapping area of CI and social media and discuss about social media CI, there can be seen a significant lack of academic research. There have been studies on the use of online sources as a source of CI and today online sources are considered to be an important part of a meaningful CI function (see e.g. Wee, 2001; Chen et al., 2002). A study by Fournier & Avery (2011) shows that today many companies are taking social media monitoring very seriously, but the study does not examine the area in-depth. Several studies have also examined how social media data can be used to make quantitative predictions (see e.g. Asur & Huberman, 2010; Whitman & Lawrence, 2002; Gruhl et al., 2005; Antweiler & Frank, 2004). Furthermore, social media CI has been studied at least from the technological perspective meaning that software tools and algorithms have been developed to monitor social media effectively (see e.g. Teo & Choo, 2001; Chen et al., 2002; Laine & Frühwirth, 2010). However, to our knowledge, the approach of this study is unique as we provide an in-depth view of the use of social media as a source of CI and show how the case company is able to exploit social media intelligence in several KIT areas. Therefore this interdisciplinary study contributes academically both to strategic management research and research on social media as well as makes the way for a new research area of social media CI.

11.3 Managerial implications and recommendations to the case company

As we stated in section 1.3, from the case company's point of view, the study aimed to investigate and evaluate how social media can contribute to the CI activities of the corporation. Given the findings of this thesis, we can state the following recommendations:

1. **The case company should organize a continuous social media CI process that serves the intelligence needs of the decision-makers.**

   The findings of the case study show that social media can be used to provide intelligence at least in four KIT areas: own brands and products, competitors, industry-specific topics and the company itself. The produced intelligence was evaluated critically in several functions of the corporation and the intelligence was considered to be actionable intelligence that can be used in decision-making.

Social media CI was also seen to provide cost-effectively information that enables the company to get a better understanding and valuable insights about consumers. This has traditionally been very difficult in the pharmaceutical industry and has usually required vigorous market studies that are expensive and take a long time to conduct.

Although the case study was conducted only in one division of the corporation, the findings were evaluated and discussed also in other parts of the corporation. As the information needs are similar also in other divisions, we can generalize the findings to cover the whole corporation and recommend a corporate-wide social media CI process.

Although we propose here a continuous social media CI process, the project-based approach should not be forgotten. As we discussed in section 5.7, in some contexts the project-based type of CI may be more useful for decision-makers. For example, when a company is evaluating potential product launches or market entries, the continuous CI process might lack a proper focus and a project-based CI has the potential to produce more relevant and timely intelligence.

2. At least part of the social media analysis should be conducted internally.

In section 8.3 we discussed about the question of whether a company should organize social media CI activities internally or outsource it. In the end, there are many factors indicating that a company is able to achieve more by organizing the analysis activities internally. Based on the external expert interviews and the literature findings, we claimed that when a company is conducting the analysis internally, it is able to utilize more the contextual knowledge related to the company and the industry, which in the end enables intelligence that better meets the needs of the decision-makers. Also the case study supports the view that an effective analysis requires contextual knowledge that is best found inside the company. Therefore we can recommend that at least part of the social media analysis should be conducted internally.

3. The social media CI process should be organized as a sub-process of the corporation's CI system.

The findings indicate that social media can be considered as a complementary source of information among the conventional intelligence sources. Separately functioning CI activities lead to many challenges such as overlapping activities,

narrow perspective, lack of resources and lack of best practices as discussed in section 5.7. Therefore social media CI should not be organized as a stand-alone process, but as a part of the whole CI system.

In large corporations the CI system is often organized by a specific BI or CI function that has thus also the responsibility to plan, organize and implement a social media CI process together with the decision-makers. The social media CI framework introduced in chapter 7 and refined in chapter 8 provides a systematic approach to the planning, organization and implementation of a social media CI process as a part of the corporation's CI system.

4. **The intelligence needs of the decision-makers should be identified by using key intelligence topics and the intelligence needs should be re-evaluated on a regular basis.**

The literature findings as well as the findings of the case study indicate that it is essential for CI professionals to understand the intelligence needs of the decision-makers. This is needed in order to be able to allocate resources effectively and to produce actionable intelligence. The KIT framework introduced in section 5.4 and used also in the case study provides a systematic approach to define the most important intelligence areas.

It is also evident that the intelligence needs of the decision-makers change over time. Furthermore, as we discussed in sections 5.1 and 10.4, the intelligence has to be person-focused in order to be value-adding and effective. Therefore the intelligence needs of the decision-makers should be re-evaluated on a regular basis.

The social media CI framework and the findings of this thesis are not limited to the case company. As we discussed in section 2.4, naturalistic generalization allows us to generalize the findings of the study to cover also other contexts if there are similar issues present. We can easily claim that the issues examined in this study are not limited to the case company and therefore the findings can be generalized to cover a larger group of companies in pharmaceutical industry as well as other industries.

We can argue that social media provides a new source of CI for B2B and B2C companies in several industries. Therefore managers should be aware of the possibility to use social media as a source of CI and investigate whether or not their company is able to benefit from it. In today's competitive environment, a company needs timely and

effective intelligence not only to succeed, but to survive. Therefore social media as a source of CI should not be overlooked by anyone.

11.4 Future research

First of all, social media is itself a relatively new phenomenon that is changing rapidly. This is a major challenge from the perspective of academic research. For example, there is a lack of generally accepted definitions which has led to situations where concepts are used rather confusingly.

There is a significant lack of research especially in the area where social media is studied from the perspective of CI. In this thesis we used a constructive research approach to develop a general social media CI framework. However, the framework was implemented and tested only in one case company. Thus, there is a clear research need for similar studies in other companies and industries. Furthermore, in order to make reliable generalizations, studies that cover larger samples are needed.

The value of social media CI remains still a significant question. We presented a conceptual framework for evaluating the value of a social media CI investment, but in practice, it is very difficult to determine the exact value of social media CI. However, this is not only the problem of social media CI - it has been identified as a challenge of the whole CI process.

It is also unclear how one should, in general, deal with social media as a source of market research data. For example, it is not known how well social media reflects the real world and what are the limitations of using social media as a source of CI. Thus, the reliability and validity of using social media data is a research area that should be considered.

Finally, another important research area would be to consider the different analysis methods that are used to analyze the data that can be collected from social media. As this study shows, the commercially available software systems offer a wide range of analysis methods that have been developed in practical surroundings. However, there is a significant lack of scientific and empirical evidence about the suitability of these methods to different situations.

References

Literature

Antweiler, W., & Frank, M. (2004). Is all that talk just noise? The information content of Internet stock message boards. *Journal of Finance, 59*(3), 1259-1295.

Asur, S., & Huberman, B. (2010). Predicting the Future with Social Media. *2010 IEEE/WIC/ACM International Conference on Web Intelligence and Intelligent Agent Technology, 1*, 492-499.

Badr, A., Madden, E., & Wright, S. (2006). The Contribution of CI to the Strategic Decision Making Process: Empirical Study of the European Pharmaceutical Industry. *Journal of Competitive Intelligence and Management, 3*(4), 15-35.

Bergeron, P., & Hiller, C. (2002). Competitive Intelligence. *Annual Review of Information Science and Technology*, 353-390.

Bose, R. (2008). Competitive intelligence process and tools for intelligence analysis. *Industrial Management & Data Systems, 108*(4), 510-528.

Boyd, D., & Ellison, N. (2008). Social Network Sites: Definition, History, and Scholarship. *Journal of Computer-Mediated Communication, 13*, 210-230.

Bruyn, S. (1970). The new empiricists: The participant observer and phenomenologists'. In W. Filstead, *Qualitative Methodology.* Chicago: Markham.

Calof, J., & Wright, S. (2008). Competitive intelligence: A practioner, academic and inter-disciplinary perspective. *European Journal of Marketing, 42*, 717-730.

Cartwright, D., Boughton, P., & Miller, S. (1995). Competitive intelligence systems: Relationships to strategic orientation and perceived usefulness. *Journal of Managerial Issues, 6*, 420-434.

Chen, H., Chau, M., & Zeng, D. (2002). CI Spider: a tool for competitive intelligence on the Web. *Decision Support Systens*, 1-17.

Choo, C. (2002). *Information Management For the Intelligent Organization: The Art of Scanning the Environment.* Medford, New Jersey: Information Today.

Crnkovic, G. (2010). Constructive Research and Info-computational Knowledge Generation. *Studies in Computational Intelligence, 314*, 359-380.

Cronin, B., Overfelt, K., Fouchereaux, K., Manzvanzvike, T., Cha, M., & Sona, E. (1994). The Internet and Competitive Intelligence: A Survey of Current Practice. *International Journal of Information Management, 14*, 204-222.

Davison, L. (2001). Measuring competitive intelligence effectiveness: Insights from the advertising industry. *Competitive Intelligence Review, 12*(4), 25-38.

Drucker, P. (2001, September 15). The next society. *The Economist*.

Eisenhardt, K. (1989). Building Theories from Case Study Research. *The Academy of Management Review, 14*(4), 532-550.

Ernst & Young. (2011). *Global Pharmaceutical Industry Report 2011, Progressions: Building Pharma 3.0.*

Fournier, S., & Avery, J. (2011). The uninvited brand. *Business Horizons, 54*, 193-207.

Gbosbal, S., & Kim, S. (1986). Building Effective Intelligence Systems for Competitive Advantage. *Sloan Management Review, 28*(1), 49-59.

Ghauri, P., & Grønhaug, K. (2005). *Research methods in business studies: a practical guide.* London: Prentice Hall.

Gibbons, P., & Prescott, J. (1996). Parallel competitive intelligence processes in organizations. *International Journal of Technology Management, 11*, 162-178.

Gilad, B. (1989). The Role of Organized Competitive Intelligence in Corporate Strategy. *Columbia Journal of World Business, 24*, 29-35.

Gilad, B. (2003). *Early Warning: Using Competitive Intelligence to Anticipate Market Shifts, Control Risk, and Create Powerful Strategies.* Saranac Lake, NY: AMACOM Books.

Gilad, B., & Gilad, T. (1986). SMR Forum: Business Intelligence - The Quiet Revolution. *Sloan Management Review, 27*(4), 53-61.

Golafshani, N. (2003). Understanding Reliability and Validity in Qualitative Research. *The Qualitative Report, 8*(4), 597-607.

Gordon, I. (1989). *Beat the competition: How to use competitive intelligence to develop winning business strategies.* Oxford: Blackwell.

Gruhl, D., Guha, R., Kumar, R., Novak, J., & Tomkins, A. (2005). The predictive power of online chatter. *SIGKDD Conference on Knowledge Discovery and Data Mining*.

Harris, J. (2007). *Winning with analytics.* Accenture.

Herring, J. (1996). Measuring the Value of Competitive Intelligence: Accessing & Communication CI's Value to Your Organization. *SCIP Monograph Series*.

Herring, J. (1999). Key Intelligence Topics: A Process to. Identify and Define Intelligence Needs. *Competitive Intelligence Review, 10*(2), 4-14.

Hevner, A. (2010). *Design Research in Information Systems: Theory and Practice.* New York: Springer.

Hohhof, B. (1994). Developing information systems for competitive intelligence support. *Library Trends, 43*, 226-238.

Hughes, S. (2005). Competitive Intelligence as Competitive Advantage. *Journal of Competitive Intelligence and Management, 3*(3), 3-18.

Jaworski, B., Macinnis, D., & Kohli, A. (2002). Generating Competitive Intelligence in Organizations. *Journal of Market-Focused Management, 5*, 279-307.

Juhari, A., & Stephens, D. (2006). Tracing the origins of competitive intelligence throughout history. *Journal of Competitive Intelligence and Management*, 61-82.

Kahaner, L. (1996). *Competitive intelligence: From black ops to boardrooms: how businesses gather, analyze, and use information to succeed in the global marketplac.* New York: Simon & Schuster.

Kahaner, L. (1997). *Competitive intelligence: how to gather, analyze, and use information to move your business to the top.* New York: Touchstone city.

Kaplan, A. M., & Haenlein, M. (2010). Users of the world, unite! The challenges and opportunities of Social Media. *Business Horizons, 53*(1), 59-68.

Kasanen, E., Lukha, K., & Siitonen, A. (1991). The constructive approach in management accounting research. *Journal of Management Accounting Research, 5*, 243-264.

Kelly, M. (1993). Assessing the Value of Competitive Intelligence. *Journal of AGSZ, 2*, 104-112.

Kietzmann, J., & Angell, I. (2010). Panopticon revisited. *Communications of the ACM, 53*(6), 135-138.

Kietzmann, J., Hermkens, K., McCarthy, I., & Silvestre, B. (2011). Social media? Get serious! Understanding the functional building blocks of social media. *Business Horizons*(54), 241-251.

Kim, C., & Mauborgne, R. (1997, January-February). Value Innovation: The Strategic Logic of High Growth. *Harvard Business Review*, 103-112.

Kim, W., Jeong, O., & Lee, S. (2010). On social Web sites. *Information Systems, 35*(2), 215-236.

Laine, M., & Frühwirth, C. (2010). Monitoring Social Media: Tools, Characteristics and Implications. *Lecture Notes in Business Information Processing, 51*, 193-198.

Lindholm, A. (2008). A constructive study on creating core business relevant CREM strategy and performance measures. *Facilities, 27*, 343-358.

Lönnqvist, A., & Pirttimäki, V. (2006). The measurement of business intelligence. *Information Systems Management*, 32-40.

Mangold, W. G., & Faulds, D. J. (2009). Social media: The new hybrid element of the promotion mix. *Business Horizons, 52*, 357-365.

Marin, J., & Poulter, A. (2004). Dissemination of competitive intelligence. *Journal of Information Science, 30*(2), 165-180.

McGonagle, J., & Vella, C. (1996). *A new archetype for competitive intelligence.* Westport: Quorum Books.

Mintzberg, H. (1994). *The rise and fall of strategic planning.* Glasgow: Prentice Hall.

Nair, S. (2009). *Marketing Research.* Mumbai: Global Media.

Pitt, L., & Berthon, P. (2011). Just when you thought it was safe to go back into the Web: Marketing meets Web 2.0, social media, and creative consumers. *Business Horizons*(54), 181-183.

Porter, M. (1980). *Competitive Strategy: Techniques of Analyzing Industries and Competitors.* New York: The Free Press.

Prescott, J. (1999). The Evolution of Competitive Intelligence: Designing a Process for Action. *Proposal Management*, 37-52.

Prescott, J. (2001). Introduction: Competitive Intelligence - Lessons from the Trenches. In J. Prescott, S. Miller, & S. o. Professionals, *Proven strategies in competitive intelligence: lessons from the trenches* (pp. 1-22). New York: John Wiley & Sons, Inc.

Prescott, J., & Bhardwaj, G. (1995). Competitive intelligence practices: A survey. *Competitive Intelligence Review, 6*(2), 4-14.

Prescott, J., & Miller, S. (2001). *Proven strategies in competitive intelligence: lessons from the trenches.* New York: John Wiley and Sons.

Prescott, J., & Smith, D. (1987). A Project-Based Approach to Competitive Analysis. *Strategic Management Journal, 8*, 411-425.

Rouach, D., & Santi, P. (2001). Competitive Intelligence Adds Value: Five Intelligence Attitudes. *European Management Journal, 19*(5), 552-559.

Safko, L. (2010). *The Social Media Bible: Tactics, Tools, and Strategies for Business Success.* New Jersey: Wiley.

Salton, G. (1986). Another look at automatic text-retrieval systems. *Communications of the ACM, 7*, 648-656.

Snow, C., & Thomas, J. (1994). Field research methods in strategic management: contributions to theory building and testing. *Journal of management studies, 31*(4), 457-480.

Stake, R. (1978). The Case Study Method in Social Inquiry. *Educational Reseacher, 7*.

Tapscott, D., & Ticoll, D. (2003). *The Naked Corporation: How the Age of Transparency Will Revolutionize Business.* New York: Free Press.

Taylor, R. (1986). *Value-added processes in information systems.* Norwood: Ablex.

Teo, T., & Choo, W. (2001). Assessing the impact of using the Internet for competitive intelligence. *Information & Management, 39*, 67-83.

Tong, R. (2001). Detecting and tracking opinions in on-line discussions. *UCB/SIMS Web Mining Workshop*.

Tumarkin, R., & Whitelaw, R. (2001). News or noise? internet postings and stock prices. *Financial Analysts Journal*, 41-51.

Wee, T. (2001). The use of marketing research and intelligence in strategic planning: key issues and future trends. *Marketing Intelligence & Planning, 19*(4), 245-253.

Weiss, A. (2002). A brief guide to competitive intelligence: how to gather and use information on competitors. *Business Information Review, 19*(2), 39-47.

Whitman, B., & Lawrence, S. (2002). Inferring descriptions and similarity for music from community metadata. *Proceedings of the 2002 International Computer Music Conference*, 591-598.

Yin, R. (1994). *Case Study Research: Design and methods.* Thousand Oaks: Sage publications.

Zhao, D., & Rosson, M. (2009). How and Why People Twitter: The Role that Micro-blogging Plays in Informal Communication at Work. *Proceedings of the ACM 2009 international conference on Supporting group work*, 243-252.

Other documents

DOC1. Annual Report 2010 of the case company.

Interviews

Case company interviews and meetings

IV_CO1. April 6, 2011, at 14:00 – 15:00 GMT +3. Espoo. With Mrs. J. K. (Marketing Director). Discussions about the objectives of the project.

IV_CO2. April 14, 2011, at 10:00 – 11:30 GMT +3. Espoo. With the VP of Communications and a web communications manager. The current state of social media in the corporation.

IV_CO3. April 27, 2011, at 10:00 – 11:00 GMT +3. Espoo. With a Global Brand Manager from another division. Experiences and lessons learned from past social media projects.

IV_CO4. May 2, 2011, at 13:00 – 14:00 GMT +3. Espoo. With Mr. N. L. (Director of Division) and Mrs. J. K. Freezing the project plan.

IV_CO5. May 17, 2011, at 13:00 – 14:00 GMT +3. Espoo. With Mrs. J. K. Work status.

IV_CO6. June 15, 2011, at 13:00 – 13:30 GMT +3. Espoo. Presentation of early results to managers from several country organizations.

IV_CO7. July 20, 2011, at 13:00 – 15:00 GMT +3. Espoo. With Mrs. J. K. Presentation and discussion of results.

IV_CO8. August 10, 2011, at 10:00 – 11:30 GMT +3. Espoo. With several persons from IT department, corporate communications department and other divisions. Presentation and discussion of results.

IV_CO9. August 23, 2011, at 09:30 – 11:00 GMT +3. Espoo. With several persons from Market Access & Business Support unit. Presentation of results and discussion about social media monitoring activities.

IV_CO10. September 6, 2011, at 14:00 – 15:30 GMT +3. Espoo. With several persons from the R&D unit. Presentation of results and discussion about the potential contribution of social media intelligence to R&D.

IV_CO11. September 14, 2011, at 13:00 – 14:30 GMT +3. Espoo. With several persons from the Domestic Sales unit. Presentation of results and discussion about the possibility to exploit social media in different contexts.

IV_CO12. September 21, 2011, at 09:00 – 10:00 GMT +3. Espoo. With top management and middle managers of the case company's two business divisions (other than the division where the case study was conducted). Presentation and discussion of main findings.

IV_CO13. September 27, 2011, at 10:00 – 11:30 GMT +3. Turku. With three employees from the case division's R&D unit. Presentation and discussion of main findings.

External expert interviews

IV_EX1. May 11, 2011, at 14:00 – 15:00 GMT +3. Helsinki. With Mr. M. H. from Meltwater Group. Semi-structured interview.

IV_EX2. May 19, 2011, at 15:00 – 16:30 GMT +3. Helsinki. With Mr. P. K. from SAS Institute Oy. Semi-structured interview.

IV_EX3. May 24, 2011, at 14:00 – 15:00 GMT +3. Helsinki. With Mrs. S. T. from Cision Finland Oy. Semi-structured interview.

IV_EX4. May 24, 2011, at 14:00 – 15:00 GMT +3. Helsinki. With Mr. M. K. from Whitevector Oy. Semi-structured interview.

IV_EX5. May 31, 2011, at 09:00 – 10:00 GMT +3. Helsinki. With Mr. K. L. from M-Brain Oy. Semi-structured interview.

IV_EX6. May 31, 2011, at 10:00 – 11:00 GMT +3. Helsinki. With Mr. M. N. from M-Brain Oy. Semi-structured interview.

IV_EX7. May 31, 2011, at 11:00 – 12:00 GMT +3. Helsinki. With Mr. K. V. from M-Brain Oy. Semi-structured interview.

IV_EX8. May 31, 2011, at 11:00 – 12:00 GMT +3. Helsinki. With Mrs. S. P. from NetBooster Agency Oy. Semi-structured interview.

Appendices

Appendix A

Final interview structure for the semi-structured interviews of the external experts

Length of the interview: 60-90 min

Background

- Can you start by introducing your company?
    - What services or products do you offer?
    - How many employees do you have locally/globally?
    - In what locations are you active?
    - What is your core competence?
- What kind of clients or customers do you serve?
    - E.g. industry, size, geographic location
    - What is your most important customer group?
- Who are your most significant competitors?

Theme 1: Collecting competitive intelligence from social media? (CI cycle phase 2)

- How competitive intelligence (=information about the markets, customers, competitors) can be collected from social media?
- What are the sources in social media that can be used?
- Which are the most important sources?
- Do you have any issues related to the use of these sources?
- Are there differences between geographic areas?
- How do you ensure the quality of the data?
- How big part of the gathering process can be automated?

Theme 2: Analyzing the information (CI cycle phase 3)

- How do you analyze the data that is gathered from social media?
- What kind of metrics can you use?
- What are the most suitable metrics to different situations? Why?
- How well do you think that these indicators reflect the real world?
- Do you see any issues with these indicators?
- How do you spot trends from social media data?
- How do you spot trends if you have no idea about what you are looking for?

Theme 3: Disseminating, exploiting and evaluating the intelligence, and planning the whole social media CI system (CI cycle phases 4 and 1)

- Do you have clients that are monitoring social media and exploiting social media intelligence at the moment?

- How the monitoring activities have been received by the customers?
    - Have they been able to benefit from the activities?
    - Are there differences between industries?
- Who are the users of social media intelligence in the companies?
    - What is their position?
    - What is the link to the existing CI or BI function?
- How the customers disseminate the intelligence?
    - What channels are used?
    - Who is responsible for the disseminating?
    - Who are the decision-makers?
    - Is the social media intelligence combined with other information?
- In what kind of decisions your customers have been able to exploit social media intelligence?
    - Who has been the decision-maker?
    - What was the decision all about?
    - What was the role of social media intelligence in the particular decision?
- How do you think that social media CI should be organized in companies?

Theme 4: Contemporary trends and future

- What kind of trends do you see in the area of social media monitoring / social media CI?
- How has the demand or interest for social media CI developed recently in the customer interface? How do you see it to develop in the future?
- Do you see that the importance of social media CI will increase in the future?

End

- Thank you!