

Communication in a Cognitively Overloaded Environment, A Case Study of Newsletters in a Global Company

Master Thesis, 15 Credits, INFM02 in Informatics

Presented: June, 2010

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Abstract

To use newsletters as a corporate communication mean is easy: once penned they are quickly distributed to an arbitrarily large group of recipients with the main purpose to inform. On the basis of a case study with a global IT company the question is answered whether newsletters could be used as a communication channel and convey management's message organisational issues, to the employees in an information overloaded environment. Combining the findings of the field of informatics with cognition science, new insights were gained including a new 3-Stage-Model that describes the connection between cognitive- and information overload and how they can lead to blocking certain communication channels. For example, final conclusions of this investigation were that newsletters were not able to penetrate the data smog surrounding today's employees and that other communication channels are thus suited better for information distribution purposes. This investigation can be seen as a contribution to information management within the field of informatics as we investigated a new use of newsletters as communication mean and introduce a new model 3-Stage-Model for information- and cognitive overload.

Keywords

Communication Channels, Newsletters, Information Overload, Cognitive Load Theory, Workplace Stress, Trust

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Glossary

IntraWeb Intranet of the investigated IT company in the case study.

Development Abbreviation for Development-Section, see below.

Development -

Communications Sub-section of Development that is responsible for distributing

information throughout this specific department of the

investigated IT company.

Development -

Newsletter A document distributed to employees within Development with

the goal to inform employees about new processes.

Development -

Section Development department within the investigated IT company. This

department was used for the case study. Its employees received the

survey and were interviewed.

1 Introduction

This chapter provides an introduction to the conducted research comprising a brief background of the field of investigation. On one hand that includes an overview of the theoretical foundation and its relation to the research question. On the other hand the actual research question is stated along with the purpose of the outlined investigation. Lastly, a brief overview of our methodology is given as well as a short explanation of related works and how reliability was achieved in this investigation.

1.1 Drowning in Information Starving for Knowledge

In 1996, a study was conducted by Reuters with over 1300 managers from organisations of various sizes and from different countries including UK, Singapore, Australia and Hong Kong. Koski (2001) concludes that one of the findings of this study was that almost half of the asked managers felt incapable of processing all information that they received on a daily basis. This constant information overload ultimately impaired their ability to take decisions (Koski 2001, p. 485). One explanation given for this situation is the technological advance that has made it easy to distribute and produce information which resulted often in an explosion of "irrelevant, unclear and inaccurate data fragments, making it ever more difficult to see the forest through the trees" (Heylinghen 1999).

In this environment many digital communication channels fail to convey their message (compare results of cognitive overload by Sweller 2009 and information overload by Allen and Wilson 2003) and face-to-face meetings or a talk at the coffee machine were and still are considered to be important information transit points within a company. However, face-to-face meetings are not always feasible in a global company. Thus, many companies today choose to use different digital communication channels like newsletters and emails to inform their staff. However depending on how those communication channels are designed they simply add to an already informationally overloaded environment (compare e.g. "data smog" by Shenk 1997, chapter 2). One of those improvements could be to utilise, for instance, newsletters in a more focused and direct way so they reach a person even in an information heavy and cognitively overloaded environment (see also chapter 6.7). Improving newsletters is a good start, further you need to look at all the factors that plays a role regarding communication. One of those factors could in this case be the location, whether the employees located in Sweden or in USA gets the same information or not. In the following paragraphs it is detailed how newsletters could be used as communication medium in a information overloaded environment and the actual research question is stated. In the following

paragraphs it is detailed how newsletters could be used as a communication medium in a information overloaded environment and the actual research question is stated followed by a short overview of the methodology of this thesis.

1.2 Defining Newsletters

According to the Oxford Dictionary a newsletter is a "short official statement or summary of news" that is "issued periodically to those in a particular group" (Oxford Online Dictionary, 2010). This means newsletters are a communication medium with the main purpose to inform a certain group of people. A newsletter could contain for instance a specific description of a new software that is to be used company wide in the future, as the investigated IT-company uses them for. Newsletters further could be supplemented by graphs, pictures or a link to a video that provides the receiver with details about the new software. In this way newsletters as an information- and communication channel could be used to support organisation-wide information distribution processes¹. This is the reason why this issue is relevant for computerised information systems. Computerised information systems is after all also concerned with the optimisation of the use of available communication channels and how people and organisations can be supported by an optimized use of the available information. In the case study for this thesis, a newsletter that contains around four to five pages is sent out by the IT-company each month with the purpose to inform employees (compare interviews in the Appendices (chapter 8)). This newsletters contains updates about the different sections within the IT-company and their plans for the future. Whether the employees are able to take in the message from a newsletter, in an information heavy and cognitive loaded environment is one of the questions to be answered by this investigation.

1.3 Research Question and Research Field

For the organisation the described information overloaded environment poses a challenge, because how does one keep employees updated without overloading them at the same time with yet another communication channel that might hamper their obtaining of information? More specifically, we want to investigate in this thesis whether newsletters can convey their message in an information overloaded environment (for the relation between information and cognitive overload refer to the Theoretical Foundation in chapter 2 as well as the 3-Stage-Model in chapter 3). As information systems is not only concerned, like informatics, with the actual information technology, but also with its use and the person interacting with it those questions have relevance for information systems.

¹ Within the literature research for this thesis there was no source to be found that discussed whether newsletters could be used for this purpose. However the investigated IT company used them for this purpose.

*RQ*₁: Do newsletters inform in an information- and cognitive overloaded environment?

Furthermore, we will investigate whether the location of an employee plays a role according to the information distribution within a company. This is of interest because, if newsletters as part of the informing processes of a company are supposed to inform a certain group of people (according to the definition above), then they have to do so independent from the location of the recipient. The following second research question will be answered with a case study within a global IT company.

*RQ*₂: Does the location of a person play a role in regard to the information distribution processes?

The reason why this investigation focuses on newsletters in particular and not for example on videos as communication medium has several reasons. Newsletters are a quick and easy communication medium like email and are therefore widely used. However, in the literature research we did not find any scientific studies on newsletters as a means of information distribution. Therefore we will make a small but nonetheless important contribution with this investigation to the field of information management within information systems. Another reason why it was decided to investigate newsletters was that we personally received a lot of newsletters and therefore question their efficiency when it comes to informing a person, especially in an information heavy environment. It was of personal interest to investigate newsletters as one out of many computerised communication channels within information systems and whether they are deleted before being read, among other thoughts.

Lastly, we can say in regard to the research field that one of the main theories of our theoretical foundation is the cognitive load theory that has its roots in cognition science. This has also been of interest in relation to information management and has been used as explanation in relation to information overload in the past by a few authors (for example, Allen and Wilson 2003). The findings of this study are therefore also of relevance for informatics because it takes theories from the field of information management as well as cognitive science and combines phenomena from both research fields to be applied to a case study, which we have not found to be discussed much either. This case study is conducted with a global IT company and is of an explanatory as well as exploratory nature and is detailed in chapter 4.

1.4 Related Work

Some parts of our master thesis have been investigated by others before. For example, the previously mentioned Reuters study investigated the effects that information overload has on employees (compare Koski 2001). More specifically, the main findings of this report can be summarised in the following points:

- 49% of the managers feel that they are fairly often or regularly incapable of processing the information flow they receive.
- Two in three consider that information is not sufficiently utilised.
- 38% waste a significant amount of time in trying to find the right information.
- 43% think that the overload weakens their decision-making ability and delays important decisions.
- 47% see that the gathering of information makes it difficult for them to concentrate on their main tasks (Koski, 2001 p. 485; Allen and Wilson 2003).

We can see that half of all investigated managers of this study feel that the information flows within their company do not deliver them the quality of information that they need². Later on this study was then supported by another study conducted by Allen and Wilson (2003), who found out that information overload also has an effect on decision making abilities of managers. Shenk (1999) as well as Allen and Wilson (2003) also discussed the connection between data smog and information overload (detailed both in chapter 2).

1.5 Approach

First different literature sources were read from the field of informatics and cognitive science and then combined into a new model to explain the environment in which employees work in an informational- and cognitive overload. Following this, a case study was conducted with an adequate IT company (see Sampling, page 21) to answer our research question. As the research question is concerned with exploring a new use for an available communication channel, this study is also partially exploratory. Details are described in chapter 4.

The actual case study has been conducted in two steps. In the first step, all 157 respondents received a newsletter via email and were asked to evaluate it by means of an online survey. The goal of the survey was to get a general picture of how newsletters were perceived by employees, whether they were read and which communication channels in general are used within the company to get updated. This served the purpose to see whether newsletters are established as a communication medium within the company and meet their original goal to inform a certain group of people. If newsletters fail on their goal to inform, they are not suited as a communication medium. In the survey certain differences and contradictions appeared in relation to this, so a representative group of 10 employees from all different sites and from all different managerial levels were selected and interviewed. The outcome of the survey and the conducted interviews are outlined in chapter 5 and discussed in chapter 6.

The reason why the case study was conducted with this specific global IT company is that they use newsletters to distribute information and inform employees about new processes within the

² This phenomenon also occurred in our case study, compare chapter 4.1

company. Due to this, newsletters are considered to be established communication means within the company. In this company a variety of newsletters is sent out by the company on a monthly basis that include information about current happenings and new processes within the company. For the case study the focus was on newsletters that are sent out to a sub-group within the company that is henceforward called Development and receives Development updates via newsletters that are distributed by Development Communications (see also Glossary, page 4). Development newsletters at the moment have the aim to keep employees updated. It is beyond the scope of this thesis to investigate whether newsletters can be used for teaching purposes and leaves the topic of organisational learning to be investigated in this context to further studies (see chapter 7.3).

1.6 Limitations

According to Smith (et al 1995) and Mayer (et al 1995) trust can facilitate communication and cooperation. For this thesis this means that it is possible that trust plays a role in regard to how much information is conveyed with a newsletter and therefore trust can contribute to the informational process of the company. It is within the scope of this thesis to answer to what extent this statements holds to be true. However as this thesis is within the field of informatics it is beyond the focus of this thesis to investigate the sociological and psychological effects that trust of the reader has in the author of a newsletter, has on the newsletters itself.

We also acknowledge that it has been suggested that the overall organisational climate has an influence on the creation of informational overload (Allen and Wilson 2003). Depending on this climate and the hereby created corporate culture, which is formed by the inter-personnel information behaviour, the possibility of overload can be increased. We consider the investigation into the organisational climate to be an issue that is located within sociology, or political science, than informatics and will therefore not conduct any deeper research into this sub-field.

Lastly, it has to be mentioned that it was impossible for us to further look into behaviour changes over time among the employees in relation to newsletters as a communication mean. This would first require actions on the side of the investigated IT company of the case study followed by another survey, to see whether the perception of newsletters has changed and therefore has lead to a behaviour change of the employees. Given the time frame, such a follow up was not feasible. This concludes the theoretical extents and limits for this thesis we will now go on to detail the methodology of our investigation.

2 Theoretical Foundation

This chapter describes the theoretical foundation for this investigation. The cognitive load theory and the theory of information overload are the main topics and therefore included in this chapter. The following chapter is organised in a way that all relevant theories and their relation to this investigation are described separately. In chapter 3 they are combined in one model.

Before we describe the different theories that make up the theoretical foundation for this thesis, we want to clarify the location of newsletters in relation to information management in general. For this one first has to take a closer look at the attempts at priming down the meaning of information management because it is rather equivocal (Macevičiūtė and Wilson 2005; Detlor 2010) and can be divided into three different perspectives:

- The process view: information is process driven and information management is the process that organises, distributes and uses information (Detlor 2010, p. 104).
- The organisational perspective: information is a resource and information management is concerned with "the management and control over the full life cycle of information processes ranging from creation to use for the betterment of the organization itself" (Detlor 2010 p. 104).
- The library perspective: information management is concerned with the management of information collections (Branin 1999), which includes the among others acquisition, organisation and storage of information (Wilson 2005).

We can locate newsletters within the first and second perspectives of information management. The process oriented perspective is the most suitable because newsletters are part of the corporate information processes. The information in the case of our case study is process driven and therefore falls within this perspective. However, as information or know-how of employees can also be seen as a valuable asset, especially within an innovative and information driven company, we can also say that the second view applies as well. It is beyond the scope of this thesis to take the third perspective into account, because it is not the major concern of this investigation to conduct research into how newsletters are saved and made available after their distribution via email. For the sake of a comprehensive picture of the research field, though, this third perspective had to be mentioned.

2.1 Cognitive Load Theory

The cognitive load theory was developed in the 1980s and early 1990s, and assumes that the human working memory is not able to process too many elements at the same time (compare Sweller 1988; Bawden and Robinson 2010). A cognitive system has a limited working memory

that can hold between 5 to 9 elements at the same time but only process 2 to 4 elements simultaneously (Sweller 1988; Sweller, Van Merrieboer 2009). Once this limit is exceeded the receiving information process is hampered and can impair learning (Khalil et al. 2005). Whether any inputs lead to a cognitive overload depends on the specific individual though and can therefore only be measured on a personal level (De Jong 2010 p. 118; Sweller 1988 & 1990). For example a person in the higher management who receives over 500 emails on a daily basis will have a higher total working memory capacity regarding sorting, prioritising and answering emails than an average university student. All those limitations only apply to new information that does not access the long-term memory because long-term memory changes the working memory (Sweller and van Merrierboer, 2009).

The cognitive load theory differentiates three different types of cognitive loads: intrinsic (characteristics that are related to the actual task to be completed), extraneous (impositions created by any instructions given in relation to the task) and germane cognitive load (load that is created by the learning process from the task at hand). The state where the sum on extraneous and intrinsic load exceed the working memory level is called cognitive overload. Kirsch (2000) further details this definition by identifying the situation of cognitive overload, "when information overload is added to multitasking and interruptions". Whether a certain employee is personally cognitively overloaded, as said before, depends solely on the person and their experiences as well as working memory resources that are related to the situation and task at hand (see for example Bawden and Robinson 2010; Khalil et al. 2005).

Furthermore, the cognitive load theory assumes that extraneous and intrinsic loads are additive as it is illustrated below (Sweller 2009).

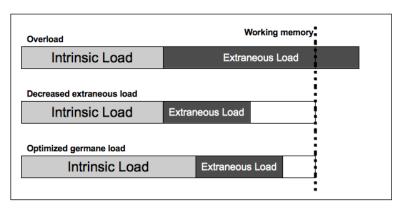


Illustration 1: Cognitive Loads (Sweller 2009 and van Merrierboer, p. 88)

Therefore, if the intrinsic load is low a high extraneous load is not necessarily harmful for the actual completion of the task because the sum of cognitive loads is below the working memory lim-

its. As an example to illustrate how cognitive overload and newsletters are related we can take the assignment to read a newsletter with a difficult layout. The task itself of reading the newsletter is not hard, however the difficult layout makes it hard and time-consuming to read. Assuming that those two are the only two available cognitive loads at the time, the newsletter will still be read because the overall cognitive load will not exceed the working memory. However, if the newsletter is written in a language that the employee is unfamiliar with the overall working memory will be exceeded and learning impaired. Furthermore, the cognitive load theory is insofar for this thesis that it states that learning of a person is impaired if the overall working memory is exceeded. If a person is not learning from a medium s/he cannot be informed by it. The cognitive overload originates, as in the example above, from by an increased extraneous load (compare also Sweller 1988). For the following study, the extraneous load is assumed to be increased to information overload and data smog, which are both outlined in the following chapter (based on a combination of findings outlined in this section as well as by Allen and Wilson 2003; Bawden and Robinson 2010 (see next subsections)).

2.2 Information Overload and Data Smog

Related to the cognitive load theory, and sometimes easily confused with it, is the information overload phenomenon. There is not one clear definition of the term, but we know that the expression has been coined by the futurist writer Alvin Toffler and generally speaking refers to information overload as "an excess amount of information being provided, making the processing and absorbing of tasks very difficult for the individual" (Colin 2009, p. 22). This is so because they need to constantly filter the valid from invalid information that approaches them in high quantities each day (Bawden and Robinson 2010). This filtering process ultimately leads to a loss of an "individual's efficiency in using information in their work" (Bawden and Robinson 2010, p. 184; compare general negative effects of information overload by Heylinghen 1999). This theory is of relevance because newsletters can add further to a climate of informational overload if not used properly as a communication mean.

Information overload occurs like the cognitive overload on a personal level. Information overload is further defined as the "perception on the part of the individual ... that the flows of information associated with work tasks is greater than can be managed effectively" (Allen and Wilson 2003, p. 34), which in turn creates a certain degree of stress, which is then referred to as feeling informationally overloaded. In contrast to cognitive overload though, information overload also exists on the organisational level, where it refers to the extent to which the above mentioned individual information overload is spread throughout the entire company and therefore hampers the overall effectiveness of operations on a strategic level (Allen and Wilson 2003). On an organisational

level, information overload can be addressed by a coherent information policy (Allen and Wilson 2003) as it is later discussed in chapter 6.7.

We know from the earlier described background (page 5) that there exists a certain data smog, which stands for the overabundance of low quality information (Shenk 1997)³. Therefore, if newsletters do not contain any focused or directly related information for an employee within her or his department, it will rather add to this data smog and contribute to a high level of information overload.

2.3 Workplace Stress

Related to the theory of information overload is the theory of workplace stress. This form of stress is a type of emotional response that can be caused by the uneven distribution of working demands and worker needs (NIOSH, 1999). In relation to this study this means the following: Assuming that workers today are constantly overloaded with different communication channels their learning abilities are impaired as well as their attention span is shortened. As their learning abilities are impaired, their information intake from the available channels is reduced (see blocking of information channels below). In other words, as Bawden and Robinson describe it: "The feeling of (information) overload is usually associated with a loss of control over the situation, and sometimes with feelings of being overwhelmed ... which results in stress" (2010, p. 183; compare also Heylinghen 1999).

The reason why workplace stress is included in the theoretical foundation is that it can have the effect that certain communication channels are blocked (Allen and Wilson 2003, p. 41; Carroll and Carrithers 1984; Sweller, Van Merriënboer 2009). This blocking of communication channels can lead to for example deleting newsletters without having read them. This connection between the overabundance of information that leads to workplace stress has been of concern for information science and especially the field of information management for a while (compare Bawden and Robinson 2010; Allen and Wilson 2003). However, the connection between workplace stress and the cognitive load related to it has not been made as clearly as it will be in chapter 3 in the 3-Stage-Model.

2.4 Differentiation of Information and Cognitive Overload

As information and cognitive overload are very closely related, the main differences and relations between the two, which apply within this thesis, are illustrated in the following table.

³ This phenomenon has not been discussed much by others than Shenk based on our research.

Table 1: Differentness between Information- and Cognitive Overload

	Information Overload	Cognitive Overload	
Situation	Information overload refers to the situation where the constant sorting of the relevant from irrelevant information becomes a hindrance (i.e. Allen and Wilson 2003; Colin 2009)	Cognitive overload refers to the moment when information overload is added to multitasking and the overall working memory is exceeded (Sweller 1998 and 1990; Sweller and Van Merrierboer 2009)	
Level	Personal and organisational (e.g. Allen and Wilson 2003)	Personal (e.g. Sweller and van Merrierboer 2009)	
	Use of available information is hampered (Allen and Wilson 2003; ct. Shenk 1997)	Learning is impaired (Sweller 1988; Khalil et al. 2005)	
Effects	Both lead to a certain level of (workplace) stress (e.g. Bawden and Robinson 2010; Heylighen 1999; Khalil et al. 2005; NIOSH 1999)		

This table illustrates the main differences and relations between information and cognitive overload are based on and created from the previous subchapters in this chapter. It is clear now for example that cognitive overload in the context of this thesis, is referred to as the situation where information overload is added to multitasking. We acknowledge that cognitive overload also appears independent from information overload, but then the issue would be of concern of cognitive science solely. In the following thesis cognitive and information overload will be referred to as disseminated above.

2.5 The Influence of Trust

Trust is important - whether in real life within a relationship or in a scientific context when it comes to e.g. anonymity of interviewees. Trust also has an influence on the corporate climate (Allen and Wilson 2003, p. 36) and therefore can increase the efficiency of a company. Further, several authors claim that trust can help to facilitate cooperation (Mayer et al. 1995; Smith et al., 1995) and can also improve a company's ability to adapt to change (Korsgaard et al. 1995; McAllister, 1995).

However too much trust or too little trust can be harmful and therefore the right amount of trust (or optimal trust level) has to be found by managers in order to benefit from the informational capacities of their workers (Wicks 1999). Trust can affect the organisation as a whole, or as Les Worrall, professor of strategic analysis at Coventry University puts it: "In our study of 1,600 managers in UK businesses, there was a strong relationship between reciprocal trust and how well organisations were performing" (Craig and Worrall 2009, p. 1). For this thesis we want to include trust in our theoretical framework, because it is possible that it has an effect on newsletter and whether they add to the data smog or take away from it (compare discussion, chapter 6.3).

2.6 The Modality Principle

This principle according to Sweller and van Merrienboer says that if one replaces text or other purely visual explanations with a multimodal source like videos or narrative interaction the extraneous load is reduced and therefore the learning effect higher (2009). As the learning effect is higher, more information is perceived by a person. Mayer (2001) defines the modality principle more narrowly as:

"when pictures and words are both presented visually, ... the visual/pictorial channel can become overloaded but the auditory/verbal channel is unused ... students learn better from animation and narration than from animation and on-screen text" (p. 134).

However, it has to be ensured in this situation if animations are supported by verbal material that the receiver does not have to split their attention between the two sources of information because this can result in a heavy cognitive load (also known as split-attention-effect (Mousavi et al 1995)). Rather the two sources directed at a person have to interact closely and present their information in as one unitary entity (Carroll and Carrithers 1984). If they do, the receiving person will not only take in more information received from the source, but also the cognitive load related to the task at hand will be lowered. This principle is therefore part of the outlined solutions later on to the identified communication issues, in regard to newsletters and how they can make use of this principle to address a person in a cognitive overloaded environment in a more direct and focused way (see discussion chapter 6.7). It has to be mentioned that the advantage of multimodal communication only prevails with novel users. This phenomenon is also known as expertise-reversal-effect and means that once users have become experts in a certain field their learning can be impaired if they are provided with guided information.

3 The 3-Stage-Model

The following chapter introduces a new model called the 3-Stage-Model that combines the previously outlined theories from the field of cognition science and information science.

During the literature survey for this investigation we have found several scientific articles and books that described both, the cognitive load- and information load theory separately (Allen and Wilson 2003; Heylighen 1999; Sweller 1998; Sweller and Van Merrierboer 2009). Also, we found literature sources that pointed out how learning and therefore the information intake can be improved if the presented material is structured and integrated in one unitary entity (compare the Modality Principle in chapter 2 as well as Carroll and Carrithers 1984; Sweller et al. 1990). Further the theory of data smog and information overload have been discussed (Shenk 1999). The 3-Stage-Model takes all previously mentioned theories and their role in regard to the informationand cognitive load, that they might add to a person and unifies them in one model to aid later to answer the main research question. How the model was put together is explained further below when each of the stages is outlined. The pictured model has three stages of which each shows a different level of personal information- and cognitive load. White arrows depict irrelevant information and grey arrows relevant information.

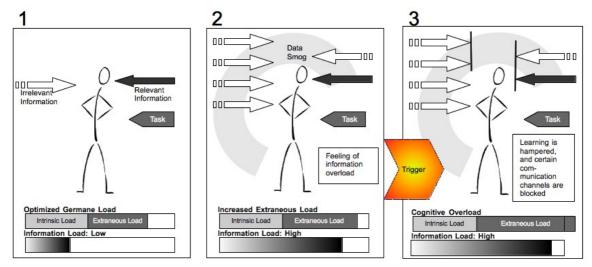


Illustration 2: The 3-Stage-Model of information- and cognitive overload

The overall cognitive load is additive (Sweller 2009) and is therefore shown as a sum of intrinsic and extraneous load in the lower half of each stage. In the first two stages this load is below the overall working memory and in the third stage it exceeds it, which will be later explained in de-

tail when each stage is discussed. At this point we have to mention that whether the overall working memory is exceeded depends on how much new information is directed at an individual at a given point within the model because new information does not access the long-term memory⁴ (Sweller 2009). Thus, the information that is transferred from a communication channel to a person within the 3-Stage-Model contains only new information that is processed by the working memory. Otherwise the cognitive load theory would not be possible to apply within the shown model.

The general idea behind this model is based roughly on the following chain of thought, which will be detailed later on in this chapter. From the previously outlined theories we can derive that a high information load causes certain data smog (Heylinghen 1999). This data smog and its related constant sorting process that handles incoming information is perceived as informational overload on an individual level (compare De Jong 2010, Shenk 1997). This constant sorting process can put an additional extraneous load related to a task and increase it to such a high level that it can lead to cognitive overload (Sweller and van Merrierboer 2009). Also, from previous paragraphs, we know that a cognitive overload impairs the information intake (Khalil et al. 2005). Both, information and cognitive overload can cause workplace stress (Bawden and Robinson 2010). Workplace stress in turn leads among others things to blocking certain communication channels (Allen and Wilson 2003; Sweller and van Merrierboer 2009). Therefore, any communication channel, including newsletters, that is addressed to a person in the third stage, has to be designed in a way that it penetrates the data smog. Depending on how well the information, of for example a newsletter, is presented and how focused a newsletter is directed at its target group it can either add to the existing data smog or take away from it.

Lastly, before we go on to illustrate the different stages of this model with examples, we have to mention that this model is only applicable for situations where the task by itself does not exceed the maximum working memory capacity⁵. If the task in question exceeds the maximum available working memory a person will be cognitively overloaded (Sweller 1988 & 1990), disregarding the informational load related to the situation. We acknowledge that this situation can occur, however we want to focus only on the situation where information and cognitive load are interrelated. The situation where a single task exceeds the working memory and leads to cognitive overload disregarding the informational load, or situations where the information overload leads (separate from the cognitive load of a situation) to workplace stress have been discussed before (compare for example Heylinghen 1999; Sweller 1988; Bawden and Robinson 2010).

⁴ The long-term memory changes the working memory and therefore enables a person to handle more information before it comes to a cognitive overload.

⁵ When the maximum working capacity is exceeded depends on the individual (c.t. Sweller and can Merrierboer 2009)

3.1 The 3 Stages and Their Triggers

The first stage shows the optimal situation in which a person can be within regard to her or his information intake. This means that the overall information load is low with a very limited number of information channels available and the person is informed. In this situation it is easy to distinguish the important information from the irrelevant. Also, the overall cognitive load is low in this stage which means that the amount of information that has to be processed simultaneously by the working memory lies between 2 and 4 (compare i.e. Sweller 1988). An example for this stage would be a person who is reading the newspaper in the morning while listening to the radio - the cognitive load in relation to the task at hand is low, relevant information (news) can be separated from irrelevant information (advertisements). Therefore, the information load is small and the reader is actively processing the received information and is updated by it.

In the second stage the available communication channels accumulated to a data smog, in which it is hard for a person to select the relevant from the irrelevant information. This constant sorting and prioritizing process is perceived by the person as a high information load (Shenk 1997). The cognitive load in this situation is also increased due to a higher extraneous load that is created by the sorting and prioritising process related to the data smog. To continue the same example from the first stage, this would mean that the data smog of available communication channels is further thickened by two other people talking at the same table next to the person who reads a newspaper. In this situation the person will feel a certain information overload and it can be hard to prioritise the different inputs that come from the various communication channels. Assuming that the person we speak of has an excellent working memory and can process 4 new information inputs at the same time, this person is still taking in information from the different news channels in this environment and can depict the relevant from the irrelevant information. (compare Bawden and Robinson 2010; Carrol and Carrithers 1984; Khalil et al. 2005; Sweller 1988 and 1990)

The third stage describes the situation in which the information overload has lead to a certain stress and some information channels are blocked. Furthermore, the constant dealing with the data smog puts such a high extraneous load on any task related to the situation that learning is hampered (compare e.g. Khalil et al. 2005). This third stage can be triggered by two different variables: the personal perception of information overload and/or the individual working memory capacity (compare different suggested causes of information overload by Bawden and Robinson 2010 and the definition of information overload by Kirsch 2000 as mentioned above). For instance, lets assume the same situation as in the second stage but with another person who is not used to such a high information load as described in the previous stage. This person is already informationally overloaded by the constant prioritising of the 4 different available communication channels and can no longer focus on the news and therefore will start to block certain channels

(e.g. Khalil et a. 2005). This means that the person will for instance not take in any audio information from the radio anymore to be able to learn from the newspaper. At this point the informing process is partially impaired because the extraneous load that the prioritising of the communication channels brings with it is so high that the overall cognitive load related to the task at hand (reading the newspaper) exceeds the working memory. The second trigger for the third stage is the individual working memory capacity. Depending on how much of the available information from the communication channels is new to a person, the amount of available information channels could easily be doubled without triggering the person to transfer to the third stage.

The main advantage of this model is that it takes different phenomena and theories from the fields of information science, as well as cognitive science and illustrates their relations graphically as it has not been done before. Cognitive load connected to a certain task has been discussed from a psychological perspective (compare e.g. Sweller 1988; Sweller and Van Merrieboer 2009; Khalil et al. 2005) and workplace stress has been discussed in relation to informational overload within the field of informatics (compare Colin 2009; Allen and Wilson 2003). However theories from both fields have (according to our research) not been clearly unified in one model before.

3.2 Position of the Case Study within the 3-Stage-Model

Based on the previously outlined background (page 5), the majority of the employees of the investigated IT company is considered to be also working in an information intensive environment where the available information can easily lead to information overload and data smog is high. This situation corresponds to an individual in the third stage of the 3-Stage-Model (as pictured in the following graphic). In this case there are several practical solutions that are based on different theories that have been described before. One could, for instance, apply the modality principle or introduce an information policy. Also, the newsletter design could be improved according to human centred design guidelines and cognition theories (see chapter 6.7). Those solutions can lead a person back to the second or in an optimal case to the first stage of the model. However, whether it does so in practice is beyond this investigation. In order to make a scientifically based statement about the later proposed solutions, would require that the company in the case study first of all applies one of the proposed solutions and then conducts another study about half a year or a year later to see whether anything has changed (for details see further studies in chapter 7).

To clarify, the following graphic illustrates the location of the case study and our research in relation to the 3-Stage-Model.

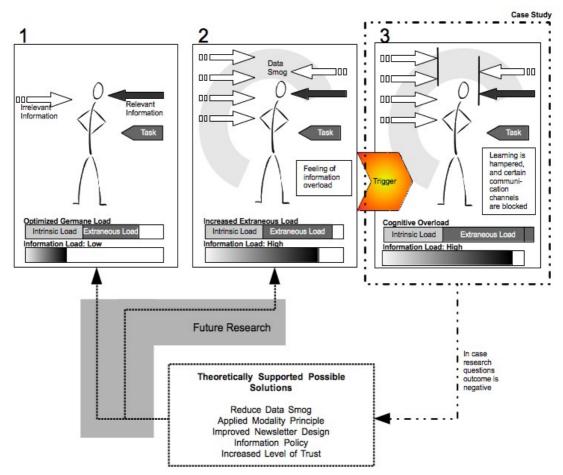


Illustration 3: Research for this thesis in relation to the 3-Stage-Model

4 The Case Study Methodology

In the following chapter the data collection and analysis methods of the case study are described. Further the two parts of the case study, a quantitative survey and qualitative interviews are detailed. The chapter closes with a description of the data analysis.

In order to address the research questions (page 6) it was decided to conduct a case study that contains a qualitative as well as a quantitative part as it seems to be suited best for this purpose (in accordance with Yin 2008). For this we want to assume a pluralistic rather than an inclusive view on case studies when it comes to the decision of which case study is best suited for the intended research (compare Yin 2008). For this, the planned research is a mix of an explanatory and an exploratory case study: Exploratory because it is the goal to explore to which extent newsletters could be used to inform employees. Explanatory because with help of the survey, and the interviews this research provides at least a limited explanation for why or why not the mentioned communication channel is suited for communication purposes in a cognitive overloaded environment.

4.1 Sampling

The company that was decided to investigate is a global player and uses many different communication channels such as emails, text messages, newsletters, intranet and videos that are used to communicate with their personnel. With all these communication channels, that their employees have to deal with on a daily basis, they were a good choice because their employees work in a very information intensive environment where information overload is very likely to occur and their information processing is more likely to be impaired by a cognitive overload (Sweller 1988; Allen and Wilson 2003). Further, as the company is spread globally, communication is of utmost importance for the company's survival and it is therefore important that newsletters which are sent out to a certain group are actually read. In addition, this company has the image of being innovative and therefore has the goal to be a information efficient organisation. Thus, the company that was chosen for the case study is well suited to answer our research questions in an appropriate research environment: it is large enough to have a variety of communication channels⁶, uses newsletters as communication mean and depends on communication to survive as a global player.

⁶ Thus information overload is likely to occur according to an increased chance of data smog (Shenk 1997; Allen and Wilson 2003)

Concerning the actual sample we can say that with the available human-power in mind random sampling would not have delivered valid results (in line with guidelines for a appropriate investigation by Yin 2009). Instead it was decided to focus on a certain group of employees that was involved in a global project and had personnel in Sweden, USA, China and Japan. Further this group received monthly newsletters to keep updated on recent events and developments. Using this form of cluster sampling we divided the relevant population into categories (different countries of employment) and then investigated the sample units within the selected clusters (Easterby-Smith et al. 2002, pp. 216; Yin 2009). This allowed not only for a high precision but also a appropriate representativeness of the chosen sample. In respect to the size of the investigated group (2000 employees spread over four countries) the sample of 157 who answered the survey can be considered of sufficient size. For the interviews, the interview partners were chose so that they were not only of different nationalities working in different departments but also came from different hierarchy levels within the company. Further there was a mix of ex-patriots and local employees. The chosen samples for the interviews as well as the survey resembled the characteristics (i.e. distribution of interviewees according to location and different levels of hierarchy) of the real sample as accurately as possible (compare Easterby-Smith et al. 2002, p. 218) and are the reason why they were chosen. This allows for the conclusion that the chosen sample ensures a high sampling quality, meaning it is of sufficient size in relation to the original group and its characteristics resemble the investigated group as close as possible (Anderson et al. 2007).

During the actual sampling process several sampling and non-sampling errors can occur. A sampling error originates from observing only a sample instead of the whole population (Anderson 2007, p. 5). This error was inevitable in this case because non-probabilistic sampling was employed. However, as said before, the chosen sample resembles the investigated group very closely and therefore the sampling error can be considered sufficiently small. In regard to non-sampling errors that refer to incorrect measurement of a phenomenon it can be stated that this error was addressed with the taken measures to ensure reliability (see chapter 4.5). Furthermore, processing errors can be ruled out as we used Googledocs and assume that there were no issue with their servers during the time of answer collection. Lastly, we addressed non-response errors by following a certain guidelines for a appropriate survey (compare chapter 4.2.1).

4.2 Data Collection

There are many different ways to collect data and some are better suited for certain forms of research and some less. As the sample group for this investigation was distributed globally, it was decided to collect data first by means of an online survey that was distributed via email (is at-

⁷ Precision stands for how credible a sample is and as we know "a small sample will always be less precise than a large sample" (Easterby-Smith et al. 2002, p. 215)

tached in Appendices) to a representative group within the company (compare sampling above). This survey provided information about how newsletters are perceived as communication mean as well as which other communication channels are currently used by employees. In order to be able to investigate some fields of interest in detail, for example what role the location of an employee plays in relation to our research question, it was also decided to collect more data using interviews. In comparison to interviews, narrative research or story telling can be heavily biased by the author's personal perspective and are rather unstructured (Creswell 2007) and therefore were not used for this research into newsletters as a communication means. Rather there were semistructured interviews conducted as they allow for a certain structure while giving the interviewer a certain degree of freedom to investigate at points of interest more deeply (Easterby Smith et al. 2002). A detailed description of the survey as well as the interviews can be found below.

4.2.1 The Survey

As survey tool Googledocuments was used as it gives multiple authors the chance to edit the survey at the same time and provides a graphical summary of the answers8. Furthermore, it offers templates, is easy to use and was approved by the company that the case study is conducted within.

The actual survey contained several multiple choice questions with two questions where respondents could enter short free text to detail their answer (compare results chapter 5.1). It was ensured that all multiple choice questions were to the same scale to provide comparability of the results (compare Yin 2009) and to make the survey easier to understand for the employee. The survey contained three parts:

- 1. A short classification of the employee including department and the country from which they are operating from⁹.
- A multiple choice matrix to evaluate the attached newsletter in terms of readability, design, layout, and perceived message.
- An analysis of use of the available communication channels of the employee including a rating of how often the intranet is used or which preferences the person has in regard to the available communication channels within the company.

The first part of this survey served the purpose to draw conclusions according to the location of employees within the company. This had the purpose to investigate whether it made a difference where a person within the company is located in relation to how much and which information gets through to them. The results later on will show that there were differences in the information distribution depending on which site a person was located in (chapter 5). The second part was aimed at finding out how well the current newsletters are perceived by the employees and

For more information see http://www.google.com/google-d-s/intl/en/tour1.html In the original survey data was also collected on the gender and age of the respondents. However, it was chosen to exclude this information from the actual investigation as no significant results could be derived from it.

whether their message gets conveyed in an information heavy environment (for example if they are deleted before being read). In part three the general communication behaviour within the company was analysed with the aim to be able to see whether there were other communication channels that are used and how they are perceived by employees. The intranet was included in the survey because it is as of now the only other main communication channel besides newsletters that the company employs to inform employees. Furthermore, the questions in this part of the survey were aimed at investigating the general communication environment within the company to get a picture of how much information employees have to deal with on a daily basis and what preferences they have within this environment in regard to communication. For the entire results of the survey refer to the results in chapter 5 and the Appendices (page 64).

The survey was originally sent out to 200 employees in all four locations; Lund, Beijing, Tokyo and Redwood, (for the actual response rate refer to chapter 6.4) and left online for four weeks and followed the following guidelines for a good survey (Easterby-Smith et al. 2002):

- · The survey was easy and short.
- The purpose of the survey was stated at the beginning.
- · An assurance of anonymity and confidentiality was given.
- The questions were to the same scale to enhance understandability (Yin 2009).

After a two week waiting period a reminder was sent out to the same sample group to ensure a high response rate of the survey. In the end, 157 people responded to the survey. However, already at this point certain differences surfaced in a first rough analysis of the survey results as some respondents for example answered that they did not delete newsletters and then provided a reason for deleting them. Furthermore, the majority of the respondents of the survey were located in Sweden and only one respondent in USA. Thus, it was decided to use the interviews to get a better insight in those contradictions. The actual contradictions as well as the indications for the response rate are discussed in chapter 6.

4.2.2 The Interviews

Within regard to qualitative research, interviews have been proven to be an adequate way to give people the chance to express their own opinion in a structured way (Easterby-Smith et al. 2002; Kvale and Brinkman 2009). Thus, interviewing was used as the main method to conduct the qualitative part of the case study for this thesis. Semi-structured or guided interviews get solid results when conducting a face-to-face, or telephone interview because they give the interviewer a certain degree of freedom while at the same time maintaining a red line throughout the interview (Kvale and Brinkman 2009). In order to support the interviewer checklist-like print outs of the actual questions were used during this investigation to enable the interviewer to maintain a certain

structure throughout the interviews without being tied up by the questions (as suggested by Easterby-Smith et al. 2002). All interviews were taped to capture the exact phrasing of the answers. Those tapes were later transcribed in verbatim and saved for future reference (compare Appendices, chapter 8). For the discussion of the interviews and criticism of sources in this context, refer to chapter 6.8.

In addition, in accordance with the three principles of data collection and the six sources of evidence (Yin 2009, p. 86ff) the qualitative part of the research was focused on multiple information sources. This means that there were not only semi-structured interviews with personnel from different countries but also with employees from all different parts of the company's hierarchy, to comply with a high sampling quality as mentioned above (chapter 4.1). Due to the fact that the interviewees were located all over the globe, all interviews were conducted using the company's internal telephone conference system. However, two interviews could not be conducted because of an unexpected holiday leave of the employee and issues with the conference tool employed by the IT company. In addition, one interview was conducted with two interviewees at the same time due to a schedule indifference caused by the person that was in charge of organising the interviews. So in the end, there were seven interviews with employees from the accounting department, software- and hardware development as well as higher management. Each of the investigators conducted half of the interviews and recorded them to transcribe them afterwards in verbatim. The interviewees themselves were chosen by the IT company to ensure a representative sample in accordance with our theoretically founded sampling as described above. A short classification of the interviewee at the beginning of each interview ensured that the chosen employees matched the required characteristics of the sample. Each interview took between 15 and 30 minutes, with just one interview taking 40 minutes as it was conducted with two interviewees at the same time. For a detailed motivation of each question of the interview, refer to the Appendices, chapter 8.

Issues that arose during the interviews were mainly of technical nature as the understandability of the interviewees was sometimes impaired by white noise. Also, the language barrier was a factor that influenced the course of the interviews as interviewees in USA tended to understand the questions better and were confident to talk more freely about their communication issues and behaviours. One anticipated issue that never occurred was the issue of power asymmetry between the interviewer and interviewee (Kvale and Brinkman 2009; Israel and Hay 2006). As student researcher are possibly portrayed as "amateurish" investigators which "may be a waste of time" (Easterby-Smith et al. 2002, p. 149) we were prepared by printing out the questions beforehand to be able to come back to them and stir the interview in the intended direction in case the interviewee took over.

4.3 Data Analysis

Firstly, we know that it is important to have a general notion of how the collected data will be analysed before it is collected (see for example Yin 2009). This serves the purpose that the analysis stage does not "consume the major portion of the time available for an interview project" (Creswell 2007 p. 193) and further to prevent that the collected data does not match the intended goal of the study. The main goal of the data analysis was to be able to answer the research questions of this investigation. It was chosen to analyse the results of the survey using descriptive statistics as described in the results chapter below as well as the Appendices (chapter 8). The interviews were then matched with those results as described in the following paragraph.

4.3.1 Interview and Survey Matching

The general intention of the data analysis was to derive meaning from the raw data without falsification (compare Creswell 2007; Yin 2009). This was to be achieved for example by providing direct quotes form the conducted interviews where appropriate (Creswell 2007). First each interview was transcribed by verbatim. In this way bias that could have resulted from omitted tones and voices should have been reduced to a minimum (Kvale and Brinkman 2009). Once the interviews were transcribed and edited to improve their readability, pattern matching methods were used to find underlying relations between the collected data sets (Yin 2009). This included comparing the results of the survey with the answers from the interview. For example, the second part of the survey that analysed the general communication behaviour was cross checked with the behaviour explained by all interviewees (for the results refer to chapter 5). The same was done with the first part of the survey and the interview questions aimed at detailing the behaviour of employees towards newsletters.

Table 2: Examples of Survey and Interview Matching

Question	Survey Result	Interview Quotes	Analysis/Matching
Do you delete newsletters before reading them?	149 of 157 re- spondents "dis- agree" or "strongly disagree" with the statement.	Interview 3: "and newsletters I ignore newsletters completely. I have a rule: I delete it, because if it is important, I will get a second notice about it"; Interview 4: "No, I don't think so (that I delete newsletters). Sometimes I don't have time to read it right away but then I read it later."	Contradiction within the survey as well as between the survey and the interviews. This is discussed in chapter 6.
l read newsletters carefully	87 respondents "agree" or "strongly agree"; However, 108 respondents then also "agree" or "strongly agree" that they only take a quick look.	Interview 1: "I read them because we are at the site in the US and they are at the headquarters. So all the people at this site will read them because people here will not have much exposure to what happens; Interview 5: "Yes, for the newsletter I usually read through them, but very quickly" Interview 6: "The re are at least 4 to 5 pages in a newsletter to the engineers and I do not think there are so many who make it through the whole newsletter";	Differences within the results of the survey and the interviews. Discussion follows in chapter 6.

All this provided a solid picture of the existing communication channels and especially whether newsletters manage to penetrate the data smog or not (for the discussion see chapter 6, for the detailed results refer to i.e. chapter 5.2.7).

4.3.2 Transcription and Editing Process

As mentioned before, all interviews were recorded on tape, which were then first transcribed in verbatim. To do so two different approaches were used: the first one was to listen repeatedly to sound bits of the interview and write down what one heard and the second one was to decrease the overall tempo of the interview by 39-42% and type along as the interview went on ¹⁰. In this phase everything, including all space filling comment like "hm" and "you know" were written down. However, to be able to include good quotes to this thesis those interviews were then edited by taking out excess comments and fixing the grammar at some points where otherwise it would not have been understandable what the interviewee meant. We know that this editing process is crucial as it has to be ensured that the original meaning of the interviews along with the edited quotes to illustrate that it was ensured that the original meaning of the interview was kept throughout the editing process.

Table 3: Illustration of the Editing Process

Interview Nr.	Verbatim	Edited Quote	What was edited?
1	Then as of today, we're nearly 200 people we grew rapidly last year. Then erhm the company was suffering a little financially so we didn't get any headcount for communication per person hereSo right now, you know, we are in a part of the history where, you know, from the family business to more small organisation, you know? So I really see there is a erhha big hole when it comes to communication.	Then as of today, we're nearly 200 people. We grew rapidly last year. Then the company was suffering a little financially so we didn't get any headcount for communication. So, right now, we are in a part of the history where we developed from the family business to a more small organisation. So, I really see there is a big hole when it comes to communication.	"you know", pauses and "erhh" were removed. At one place the grammar was ad- justed to provide a clear reading flow without falsifying the meaning.
3	Oh wewe get those blast emails about how great things are going and itsit feels like its done with Sweden in mind. Without any sensitivity to say Tokyo or Beijing or other off shores it's very very local. And I don't belong to that locale so,so it it's just it feels wrong.	We get those blast emails about how great things are going and it feels like it's done with Sweden in mind. Without any sensitivity to Tokyo or Beijing or the other off shores. It's very local. And I don't belong to that locale, so it feels wrong.	Pauses and words to fill thinking gaps were removed. The slight stutter- ing was edited as well.

The two illustrated examples represent what was generally done to all interviews after they had been transcribed in verbatim. This was done with the goal to enhance the readability and understandability of the recorded interviews.

¹⁰ The used open source software for the transcribing process is called Audacity.

4.4 Ethical Issues during the Case Study

Research ethics are of utmost importance when conducting any kind of research (Kvale and Brinkman 2009; Seale 1999; Yin, 2008). Therefore, during the interviews it was great care given to to avoid leading questions and not to put any pressure on the interviewees. Furthermore, when it comes to informed consent, we know that participants not only have to understand the purpose of the investigation but also have to agree to it as well as their participation in it (Yin 2008; Israel and Hay 2006). All this was ensured for the survey among others with the email that was sent out along with the survey which explained the purpose of our study (refer to Appendices (chapter 8) for the email as well as the survey layout). Interviewees received the same email and were further asked at the beginning of the interview whether they understood the purpose of the study they are about to participate in. Lastly, the assurance of anonymity was given to all interviewees and the data for the survey was collected anonymously.

4.5 Reliability and Validity

There are different ways to achieve a high reliability of a scientific investigation. We chose to achieve this through a very structured and clear approach that was constructed around our research question (approach is also supported in theory by Bryman 2006 and Yin 2009). Further, the survey followed the outlined theoretical guidelines so there is no question of the reliability in the empirical material. Later on in this thesis, the issue of source criticism is addressed. Everything considered we can therefore claim to have reached reliable results from this outlined investigation. In regard to validity we can say that we know that there is not a precise number of interviews that has to be conducted in order to have the perfect qualitative research - it all depends on the actual research to be conducted (Kvale and Brinkman 2009; Easterby-Smith et al. 2002). In the context of this research we decided that 10 interviews was the appropriate number of interviews to be conducted given the required level of detail to answer the research question. Due to different issues on the side of the interviewees, as mentioned before, only eight of the possible ten interviewees could be interviewed. This number can still be considered high enough to claim valid results. To gain external validity would have been good but it has to be acknowledged that this was impossible to achieve within the given time frame.

4.6 Generalisation

Given that the case study of this thesis has been conducted with an IT company that acts on a global level, it will not be possible to generalise the findings for companies within other sectors, e.g. the building industry. However, with the theoretical foundation, chapter 2, that will be outlined in the next chapter and with consideration of the sampling methods as well as the later de-

scribed data collection methods it can be at least claimed that the findings of this study apply to any company that is of similar character to the one investigated in our case study. This means any possible results derived from our investigation as outlined later in the discussion, chapter 6, can be applicable for another telecom company that holds the same or similar characteristics (compare Lee and Baskerville 2003).

5 Results of the Case Study

In this chapter the results from the conducted case study are presented in detail. Hereby the structure of the original investigation is followed, meaning that first results from the survey and then from the interviews are detailed. Lastly, situations where the results from the survey differ from the results of the interviews are highlighted.

Before the results are presented, it has to be noted that it was chosen to separate the results and their discussion into two separate chapters. This allows for presenting the large amount of data from the seven interviews (with in total eight interviewees) and a survey with 157 respondents in adequate detail. All results that are presented in this chapter are discussed in chapter 6. In order to guide the reader cross-references are inserted at certain points to focus the readers attention to a specific subsection in the discussion (starting on page 47).

5.1 Results of the Quantitative Survey

In the first part of this chapter, the results from the survey are at points supported using bar graphs and pie charts to detail the recorded results. Bar graphs are mainly used to present the data from the survey, but for the last two questions a pie charts presents the data in a more explicit manner. All the graphs, along with the reasoning behind each interview- and survey question is included in the Appendices (chapter 8). In the graphs and charts there are two sets of numbers, one set represents the results as absolute the other as relative value. Furthermore, it has to be clarified that the respondents could only select one option provided by the survey except for the question about which department a person is working with as it is possible that a person works with software- as well as platform development at the same time. However, as the used survey tool did not allow for follow up blocking of questions, it was possible to negate, for example, that one deletes newsletters and then indicate a reason why they deleted them in the following question. This issue is addressed in the discussion chapter.

Since the distribution of respondents to the survey from the different locations was unbalanced (only one respondent from USA and more than 50 from Sweden) provides support for the second research question that the location is of importance for the information distribution. The discussion of the response rate follows in chapter 6.4. A reasoning for the choice of questions of the survey as well as the interviews is included in the Appendices (chapter 8). The link to the online survey was distributed by the IT company to a previously agreed group that matched the

sample characteristics. The distribution was done through the IT company as we did not have access to the email addresses of the employees at the company. However, an introductory text ensured that it was clear that the survey had been put together by us and not by the company.

109 of the respondents of the survey were located in Sweden, 32 were situated in Beijing, 6 in Tokyo, 1 from Redwood and 9 respondents belonged to other sites. In the survey most of the respondents (58%) belonged to the verification and common engineering function. 17% belonged to software development, 10% from platform development and the same percentage came from different engineering units. Finally 3% were from development planning and execution and the last 4% form other functions.

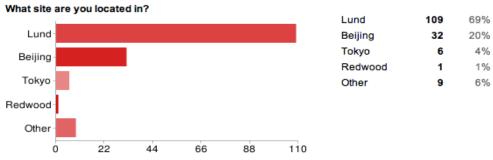


Illustration 4: Distribution of survey respondents according to location

When the survey was put online the first time, it was possible to skip questions. However after the first person responded and only entered a few values, this was changed so all questions were mandatory. For the following chapter this means that in some of the presented graphs the numbers only add up to 156 instead of 157.

5.1.1 Newsletters as a Communication Mean

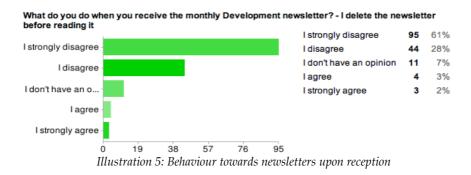
In the following part the main results of the survey are presented in a way that the heading states the question and the paragraph below illustrates the detailed answer. The discussion of any finding derived from the survey results follows in the next chapter.

Q1) What do you do when you receive the monthly Development newsletter?

- I delete the newsletter before reading it

When asked about what they do when they receive the monthly Development-Section Newsletter, here 95 of the respondents selected the option "I strongly disagree" on the assumption of deleting the newsletter before reading it. On the same question and assumption 44 respondents selected the alternative "I disagree", 11 answered "I don't have an opinion", 4 answered "I agree" and 3 of them selected the option "I strongly agree". From this we can state that it is one result of our survey that the respondents do not delete newsletters before reading

them, since the bar graph below clearly shows that the majority strongly disagree and disagrees on the statement. When looking into each country we can see that nobody in Beijing, Tokyo or from the other sites are deleting newsletters. The respondents situated in Lund were the ones that agreed and strongly agreed to the statement.



- I read the newsletter carefully

Regarding the same question but with the assumption that the respondent reads the newsletter, 8 of the respondents selected the alternative "I strongly disagree", another 38 of the respondents choose the answer "I disagree", 24 respondents answered "I don't have an opinion". Most of the respondents of the survey, 69 of them, selected "I agree" and 18 respondents answered "I strongly agree". Out of the respondents that disagreed to the statement 3 were from Tokyo, 6 from Beijing, 1 form another site and the rest from Lund. 2 of the respondents that strongly disagreed were situated in Beijing and the rest in Lund. This result shows that most of the respondents read the newsletters carefully.

- I open it and take a quick look

Further the same question and here on the presumption "I open it and take a quick look" 78 respondents selected the alternative that they agreed and 19 of them were situated in Beijing, 4 from other sites and 2 from Tokyo and the rest situated in Lund. 30 of them answered "I strongly agree" and here the demographics were: 3 from Tokyo, 1 from other sites, 5 from Beijing and the rest located in Lund. 14 choose "I don't have an opinion", 27 respondents disagreed on the assumption, were 5 of them situated in Beijing and the rest from Lund. Only 8 of them strongly disagreed and here there was 1 from other sites and 7 from Lund. In conclusion, this tells us that most of the respondents do open the newsletter and are just taking a quick look at it. This contradicts the result above and is discussed in chapter 6.

Q2) What is your opinion about the newsletter that you just received?

- The layout is appealing

In the second question of the first part about the interviewees opinion about the newsletter that they just received, and on the premise that the layout is appealing 88 respondents agreed. 15 respondents in total disagreed and here 5 of them were form Beijing and the rest located in Lund. Further 9 strongly agreed, only 2 from Lund strongly disagreed, and 42 selected the option that they did not have an opinion regarding the layout. Nobody in Tokyo and the respondents located at other sites did not find the layout appealing. Concluding, a majority of the respondents finds the layout appealing.

- The text is easy to read and understand

We asked the same question about their opinion about the understandability and readability of newsletters, 110 respondents agreed, 20 strongly agreed. Here 8 disagreed and among these 2 were from Beijing, 1 from Tokyo and 5 situated in Lund, only 2 strongly disagreed, from Lund and Beijing, and 20 did not have an opinion. This result shows that the newsletters are readable and clear according to the respondents as the bar graph below shows.

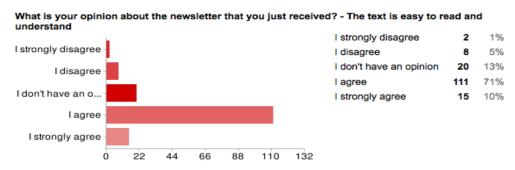


Illustration 6: Perception of newsletters regarding their readability and understandability

- The used colours are nice

When asked about their opinion if the used colours are nice, here 89 respondents agreed on that statement, 14 strongly agreed, 6 disagreed (4 from Lund and 2 from Beijing), 1 from Lund strongly disagreed and 46 did not have an opinion. From this we can tell that all the respondents from Tokyo and respondents located at other sites did find the used colours nice. Overall, since a majority of the respondents believes that the used colours are nice.

- The structure of the newsletter is clear

We asked the respondents on their opinion of the structure of the newsletter and 98 agreed that the structure was clear, 19 strongly agreed, 13 disagreed, 1 strongly disagreed and 25 did not have an opinion. All of the respondents located in Tokyo did find the structure clear and they same

goes for respondents from Beijing, accept for one respondent. In conclusion, that newsletters are perceived to be structured.

- The information is presented clearly

Whether the information were presented clearly in the newsletter 97 agreed, 15 strongly agreed, 16 disagreed, 28 did not have an opinion and none of the respondents strongly agreed. Nobody from the other sites or Tokyo found the information not presented clearly. We got the same results from respondents situated in Beijing, besides one respondent that disagreed to the statement. Since such the majority agrees on the statement we can conclude that the information is presented clearly within the newsletters.

- The information was relevant

We continued on the same question and made an assumption of the relevance of the information in the newsletter, 92 agreed that the information was relevant, 19 strongly agreed, 6 disagreed, 2 strongly disagreed and 37 selected that they did not have an opinion. Nobody located at the other sites or in Tokyo, agrees to the statement, and the same goes for the ones located in Beijing besides on respondent that disagrees. In conclusion, this tells us that employees in Sweden find the information relevant, employees at other locations however do not.

- I will recommend this newsletter to a friend

28 respondents agreed on the statement that they would like to recommend this newsletter to a friend, by for example sending it to a friend, 2 strongly agreed, 42 disagreed, 26 strongly disagreed and 58 of them did not have an opinion. From this we can tell that most of the respondents did not have an opinion and further a high percentage would not choose to recommend the newsletter to a friend. The ones that would agree to recommend the newsletter to a friend are the respondents located in Lund. However the majority would not recommend the newsletter or has no opinion about it.

- The newsletter has increased my awareness

Whether the newsletter has increased the respondents awareness 88 of them agreed, 14 strongly agreed, 18 disagreed, 3 strongly disagreed and 33 did not have an opinion. The results shows that newsletter generally increase the employees awareness of changes within the company.

- The newsletters makes my daily work easier

58 did not have an opinion on the statement that the newsletter makes their daily work easier, 26 agreed on the statement, 4 strongly agreed, 51 disagreed and 17 respondents selected "I strongly disagree". From this results we have reached to the conclusion that newsletters do not directly

improve the employees every day work. The bar graph below shows what we mean by "not directly", since the variance in the answers are not that distinct. This result is later discussed in the discussion chapter.

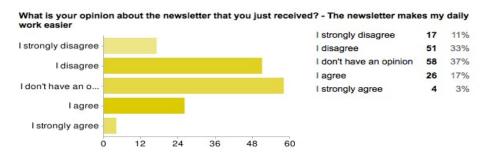


Illustration 7: perceived contribution of newsletters to daily work

- The newsletter contribute to my decision-making

In the last question we asked whether the newsletter contributed to the respondent's decision making and 33 agreed, 2 strongly agreed, 51 disagreed, 12 strongly disagreed and 58 respondents did not have an opinion. None of the respondents from Tokyo agreed with those two statements. By this we can see that newsletters in most cases do no contribute to the employees' decision making.

5.1.2 General Communication Channels

The third and last part of our survey was about existing communication channels within the Development-Section. In the following chapters we refer to the Intranet as "IntraWeb" (compare Glossary, page 4). The respondents were asked to select the alternative that best suited their own opinion about the different statements connected to Development-Section information and updates.

Q3) What is your opinion about below statements connected to Development information and updates?

- I read updates sent by e-mail

134 respondents agreed or strongly agreed to this statement, which includes all employees located in Tokyo. Besides that, 9 disagreed, 1 strongly disagreed and 13 did not have an opinion. None of the respondents from Beijing or the ones located at other sites disagrees on this statement. This tells us that the majority of employees reads general updates that they receive via e-mail from Development.

- Development updates are good

When asked about Development-Section updates, for example in form of a monthly newsletter, 130 respondents agreed or strongly agreed that it is good, 7 disagreed, 2 strongly disagreed and 18 did not have an opinion. All the respondents from from the other sites and Tokyo agrees, and from Beijing none of the respondents disagrees except for one respondent that disagrees. The results shows that the respondents do read updates sent by e-mail and that the Development-Section updates are good¹¹.

- I use the IntraWeb to get updated

The IntraWeb contains different sub-pages of which we asked employees to provide an answer about their use. There was no significant difference between the use of the different sub-pages of the IntraWeb, so we can state that the result for the IntraWeb is that the majority of employees does either not refer to the IntraWeb at all (selection "I disagree" or "I disagree strongly") to get updated or does not have an opinion about the question. For the exact numbers please refer to the Appendices (chapter 8).

- I watch informational videos shared through email

80 of the respondents agreed on the statement "I watch informational videos shared through email" and 16 strongly agreed, 28 did not have an opinion, 26 disagreed and 7 strongly disagreed. This means that most of the respondents watch informational videos that they receive via e-mail.

- I attend all managers/ all employees meetings to get updated

In the statement "I attend all managers meetings to get updated" 50 respondents did not have an opinion, 36 agreed on the statement, 23 strongly agreed, 32 disagreed and 16 strongly disagreed. In comparison, 77 agreed and 55 strongly agreed that they do attend all employees meetings to get updated. 18 respondents did not have an opinion, 5 disagreed and 2 strongly disagreed. Concluding, all manager meetings have not as many participants as all employee meetings.

Q4) Which of the following channels do you prefer to receive information through?

- Face-to-Face, SMS / MMS, Video, Email, Newsletters

When we asked the respondents which of the communication channels they preferred to receive information through, the following graph illustrates the results.

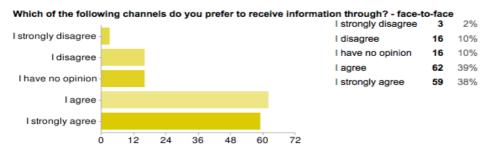


Illustration 8: Preferences towards face-to-face communication

This tells us that face-to-face communication is the most preferred communication channel of all currently available channels, which is clearly shown by the bar graph above. The second option on the same question was text message/MMS and here 105 disagreed or strongly disagreed, 28 respondents did not have an opinion, 20 agreed and 3 strongly agreed. This results shows that the respondents did not prefer text message/MMS as a way to receive information. On the third option about videos, 71 respondents preferred to receive information through videos, 21 strongly agreed, 30 disagreed, 25 did not have an opinion and 9 strongly disagreed. In conclusion this means that the employees that answered our survey prefer to receive information through videos. 104 respondents agreed on the statement that they preferred to receive information through mail, 30 strongly agreed, 10 did not have an opinion, 7 disagreed and finally 5 strongly disagreed. By this we can see that the respondents like e-mail as a communication channel. Compared to this, 95 of the respondents agreed that they preferred newsletters as a communication channel to receive information, 28 strongly agreed, 18 did not have an opinion, 9 disagreed and 6 strongly disagreed.

Q4.1.) If you prefer to receive information through other channels not listed above, please indicate your preferences

The majority of respondents answered in this semi-open questions that they would prefer to have more face-to-face communication including more meetings, workshops, presentations, all employee meetings and personal discussions. Also, a large part of the employees answered that the would like to receive information through one focused information platform. The existing platform, the IntraWeb was mentioned negatively in this context, for instance that it is "not clear to find information there". Further blogs and RSS feeds were suggested. In conclusion we can say that there were suggestions on other communication channels, but the main focus were on improvements on the already existing channels.

Q5) If you read newsletters, why?

On the question "If you read newsletters" the following graph illustrates the results.

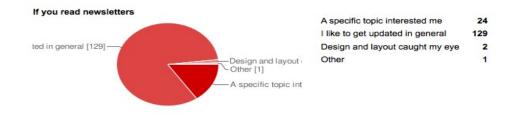


Illustration 9: Reasons to read a newsletter

Q6) If you delete newsletters before reading them, why?

If the respondents were deleting the newsletters before reading them, here 32 selected the option "I do not have time to read newsletters", 34 choose to answer that they did not add any value to them, 15 respondents delete newsletters because they are not clear and easy to read and 76 of the respondents selected the option "Other". We can here state that if newsletters are deleted before reading them, it is in most of the cases due to a lack of time or lack of relevance (for the discussion of those results please refer to chapter 6).

5.2 Results of the Qualitative Interviews

During the interviews the main topics of the survey were in-depth investigated and the following chapter is thus separated into the different sub-topics accordingly. The interviews served not only the purpose to get a more detailed understanding of the existing communication channels but also to find answers to the apparent contradictions within the survey. For the fully transcribed interviews, which were conducted mainly in English refer to the Appendices¹². Quotes taken from interviews that were conducted in Swedish have been translated by the authors of this thesis.

In both the interviews and in our survey we started with some general questions to profile the interviewee in the same way as in the survey according to for example location. In total there were seven interviews and in one of the interviews we were interviewing two persons at the same time, so there were eight interviewees. 4 of the interviewees were placed in Redwood, 1 in Beijing, 1 in Taiwan and 2 in Sweden. For a discussion of the response rate please refer to chapter 6.4. The interviewees came from a broad range of different functions e.g. the upper management, accounting consultancy, software development or engineering units. All interviewees received the email that was sent out with the survey, however the majority of the interviewees did not answer the survey and only one of them looked through it (discussed in chapter 6).

5.2.1 The Purpose of Communication and Expectations

In the interviews respondents were asked what the purpose and their expectations of the corporate communication channels were. Interviewee B2 from interview number 3 responded the following:

¹² During the interviews the dream communication scenario was also investigated with the intention to see whether newsletters were part of the ideal communication that employees can imagine. However, as newsletters were not part of any of the dream scenarios it was decided to just include the results about the dream scenarios in the Appendices and not the actual thesis as they do not have further relevance for the research question.

"...I believe the goal of those channels is to share information, I agree with the goal but I don't agree with the way it is being done, or rather I find the way that it is being done less than comfortable. B1 and I talked about this last year and tried to come up with a solution. I think that you hit on something (information transfer within a company) that not only this company, but very few companies do that company-wide very well".

According to interviewee number 6 there are several purposes with (corporate) communication: "...the first is to share information and then to have a transparent organisation to create motivation". Transparency in relation to corporate communication was mentioned by several other interviewees as well, for example interviewee number 4 said that his expectations from corporate communication is that "it must be clear and direct communication and it must be fast and transparent as well".

The interviewees agreed that the goal of the corporate communication is to share information and that they expect it to give them updates about future plans. Regarding goals and expectations for newsletters in specific, interviewee number 5 means that newsletters is a "top-down" way of communication that goes out to everyone in a big organisation:

"For the regular update it is a good thing, but for the daily work it doesn't help that much. I do not think that everybody got the time to read through every newsletter. So, my expectations would be..to have a shorter version of the newsletter, that are more precise and easy to read. If you are really interested you can get into articles...or to get deeper information about that. That kind of newsletters is a good way to really get the employees interested and get them to read them and get updated and informed".

5.2.2 Communication Culture, Location and Trust

In the following paragraph the results in regard to the general communication culture are outlined. The location of interviewees played a role when they described their communication culture, which is the reason why both location and trust are discussed in the same paragraph as the communication culture.

Regarding the existing communication culture within the company the majority of the interviewees use e-mails to communicate with others in the company. Besides e-mails employees use other communication channels like face-to-face meetings, all-employee meetings, all-managers meetings, newsletters and information sharing for all the different sites through their intranet IntraWeb as well as communicate through text messaging (see for instance interview 4, 5 and 6). For the existing communication culture, interviewee 5 explains: "normally we use e-mail and face-to-face meetings and telephone conferences for the internal communication. ...e-mails as a confirmation after a face-to-face meeting is a very good way of communicating. People like to

have face-to-face meetings". However, interviewee number 7 did not seem to be pleased with the existing communication culture:

"...information comes too late and when it will come, I have already heard it through rumour. Information through word of mouth is common, it is faster. There are also significant differences between the different buildings.... Different departments have different information and it depends very much on the managers you have, so the different buildings have different information, and it may be very different priority to certain buildings in a different way than others. I feel that the main building is the number one priority".

This quote also shows that there is an apparent difference in relation to where recipients of any form of communication are located within the company. Interviewee number 6 means that the ambition is high when it comes to the communication culture, but when it comes to delivery they are "not there yet". Interviewee number 1 said to this:

"From the family-like face-to-face communication you have a hole now because it did not get replaced with anything else actively like a newsletter or anything on a weekly basis. So yes there is a communication culture but its not as good as the face-to-face culture before. ...I really see there is a big hole when it comes to communication. There is not really good communication practice or methods or procedures implemented for this site".

Further there is a lack of trust when it comes to the communication culture generally within the company. The communication channels do not inform personnel in the way they are supposed to (compare also interview 3, quote from the previous paragraph about the expectations towards corporate communication). A feeling that prevails throughout all interviews is that there is not a consistent informational distribution to anybody not located within the head-offices. Employees not sitting in Sweden mention that the communication stops at the border of Sweden (compare interview 1 and 3). Employees located in Sweden further explained that there were differences between the different buildings at the same site. Employee sitting at the head-office in the mainbuilding are mentioned to be prioritised information-wise compared to employees in smaller neighbouring building (compare interview 7). It depends on which building a person is located in, what kind of information the person gets. Even on a department level it depends in some cases on what development team one is working with: "If you're not on the right team you don't get the right information" (interview 3). Furthermore, newsletters that comes from the head-office in Sweden are according to the interviewee, done with Sweden in mind (especially supported by interviewees in USA). Employees sitting at another location do not feel included in the communication. Examples like the following from the third interview where two teams had developed on the same solution for three month without knowing from each other further take away from trusting in the current communication channels:

"we've been working on (this project) for two or three month. There is communication with Lund, email, talking to people in Lund, and B1 and were even in Lund. ... We found out just last week, that not only that there is an internal solution coming and its developed but also it's ready and that the last two month of work were just wasted because no one bothered to tell us...."

What all this implies for the communication culture and newsletters in specific as a communication medium is discussed in chapter 6.2 and onwards.

5.2.3 Channels Employees Currently Use to Get Updated

On the question which communication channels they currently use to get updated about the Development-Section, interviewees often mention face-to-face as preferred communication medium including all-hand meetings, all-manager meetings, and small talk with colleagues. However, if they do not use face-to-face communication newsletters, emails, posters and TV screens are mentioned that employees use to get updated. Interviewee number 6 and 5 use also videos and the IntraWeb. Interviewee B1 in interview number 3 prefer e-mails to get updated:

"Because time-wise I am so overloaded, that if it comes in and it is not a newsletter, sooner or later I will get to it before the end of the day. And I get to it in my timeframe and when it is important I can save it, go back, read it, research the information to see if I got it right. It is a blessing and a curse".

Interviewee number 7 uses e-mails frequently to get updated but she interacts with colleagues located in the different buildings:

"...It is from my contacts that I get the fastest information from. Information through word of mouth goes a lot faster, since it provides information but then you have already heard about those things before just through rumours. It is previously mentioned, a big difference where you sit in the building".

E-mails are generally the communication channel that the interviewees have the most contact with when communicating within their company. Interviewee number 1 gets updated through emails as well, but has a different opinion when it comes to the intranet: "IntraWeb might maybe play a role, but IntraWeb is down quite often so no one trust that". Those down times were also mentioned by other interviewees in the third interviews. There it was also pointed out that the IntraWeb is not up to date and therefore is not used as communication channel (compare interview 3 as well as next paragraph and discussion in chapter 6).

5.2.4 Excess Communication Channels

In regard to taking away communication channels we know now that interviewees did not want to take away any of the existing communication channels, instead they wanted to have more information, to quote interviewee 2 who states - "No, I just think that there should be more". One of the suggestions, from interviewee number 7, was to have "communicators" that are good at communicating and know how to reach out to people, since the managers are expected to be skilled in that area but have been criticised to be far from good in communicating in most of the cases (interview 7). According to interviewee number 1 there are different channels for different content but she would never erase one channel. Interviewee number 6 would not wish to remove any of the communication channels or use any of the channels less either. The same goes for interviewees number 4 and 5, and here interviewee number 5 points out her wish for better structured newsletters.

The only channel that was repeatedly criticized (as in the previous paragraphs) for not meeting the employees expectations as a communication platform was the IntraWeb. Interviewee B1 from the third interview concludes the general feeling as follows:

"IntraWeb is there butif you look at the last time it got updated in our specific field it was November 2005. The Intranet is a bit of a disaster. There are two problems with it, one is: the information is often out of date and secondly the search functionality it's very poor: You can't actually find what you wanted to find. It certainly doesn't help".

5.2.5 Effective Communication Channels

Interviewee number 6 believes that it is hard to point out which of the communication channels that are the most effective because they depend on the specific communication situation. There is no channel of communication that he prefers over another communication channel:

"They are effective in different ways as I see it. If you look at an all-hands meeting and you have an extremely good penetration, you'll get all your employees so you can share information and ensure that you really have all to get the message, but you can never go in-depth on specific topics. IntraWeb is a web site where you can go how deep as you want any time. ...They (different communication channels) are effective in different ways, they must complement each other".

In interview number 2 the interviewee would prefer to get updated face-to-face instead of receiving a large amount of emails:

"I think the best communication would be if the management development group present in person to us. That's the strongest communication, or we can read emails and newsletters...reading will not really help us, because we are not Lund or in the US".

The referred to information imbalance between the core of the company and the off-shores as well as the role of trust (as mentioned above) in this connection is discussed in chapter 6.3. In regard to newsletters as effective communication channels, interviewee B1 (interview 3) states that they "a great start but we need a place for everything where you can go and share ideas and

talk to each other!". Newsletter are considered good when it comes to informing staff according to interviewee number 4 and 5, but interviewee number 7. However this goes not without critique on the way newsletters are put together:

"The weekly newsletter is the most efficient channel, but the letters usually contain uninteresting things which is a shame. But weekly message could go to use much more efficient when there are very many who reads them. If we look at the IntraWeb it is a site that really should be about, it is quite useless as it is right now. IntraWeb has poor search tools which is a shame".

Interviewee number 1 has heard that employees do not receive enough information which means that people are looking for information, even though employees are bombard with e-mails, which is supported by almost all interviewees. This contradiction is discussed starting with chapter 6.2.

5.2.6 Prioritising E-mails

As newsletters are received via email interviewees were also asked about their behaviours towards e-mails and how different emails are being prioritised. Here the interviewees from the third interview told us how they prioritise their e-mails:

"I have a very long set of folders set up for every year, and then I go: irrelevant, irrelevant, trash, relevant, irrelevant... I just go through it pretty quickly. ... I will pretty much scan a new e-mail and in 10 seconds I know "that's for later, that's for now" and then there are important emails which I know will come so I wait for them".

This is the clearest description we got within regard to email prioritising behaviour. However, generally we can say that all other interviewees had a similar approach. In regard to this topic, interviewee number 2 noted that face-to-face communication will always be prioritised among all communication channels because it is obviously harder to ignore a person talking to one instead of an email. When it comes to emails though, respondents generally sorted first by person and then by subject. What this behaviour towards email prioritising means is discussed further below.

5.2.7 Newsletter Results

The following subsections conclude the results in relation to newsletters from the qualitative part of the conducted investigation. All results are discussed separately in the next chapter.

5.2.7.1 Reading Newsletters

One result from the interviews was that most of the interviewees at least quickly scan over the newsletters and read them to get updated about the Development-Section, here interviewee number 2 stated: "I read them because we are at the site in the US and they are at the

headquarters. So all the people at this site will read them because people here will not have much exposure to what happens". Interviewee number 1 has the same opinion that information distribution from the head-office in Sweden to the off-shores is fixed and therefore she reads newsletters because it seems to be the only news-update they get. Interviewee number 1 explains why she was reading newsletters and further supported the previous statement:

"I normally read newsletters. Just to get the normal information. ...We are here in the United States remote from the centre so I am trying to get information from Lund.. it's kind of away from Lund where many things are happening".

In interview 6, it is mentioned that newsletters are too long to be read by all employees in detail: "it includes ...at least 4 sections, and at least 1 page per section. There are at least 4 to 5 pages in a newsletter to the engineers and I do not think there are so many who make it through the whole newsletter".

5.2.7.2 Deleting Newsletters

When it comes to deleting newsletters before reading them, there were diverse responses from the different interviewees. The interviewees that did respond had different ways to deal with newsletters. Interviewee 4 for example said that although there is a lot of e-mails to deal with, the employee does not seem to delete newsletters but rather saves them "to read it later". Interviewees 5 and 6 stated that they do read newsletters as well even if quickly. Contradicting to this is the behaviour of the interviewees of the third interviewee: "...and newsletters... I ignore newsletters completely. I have a rule: I delete it, because if it is important, I will get a second notice about it". For the discussion of the behaviour towards newsletters refer to chapter 6.5.

5.2.7.3 Content of Newsletters

Regarding the content of the so far distributed newsletters, interviewee number 7, who is located in Lund, thinks the content of the newsletters are relevant: "Yes it is, it is often at a high level and it is good that we get the newsletters because we do not get the information by other means usually". In comparison, newsletters are at a high level according to interviewee 5: "Normally it is a high level message, that doesn't directly relate to my daily work". We asked the interviewees if they thought that the content of the newsletter is relevant and here interviewee number 3 do believe they have a certain use but he suggested if possible "to have a more personal way of communicating then that would be better". (The discussion of those findings can be found starting on page 47). Further we can conclude that newsletters do not full-fill interviewee number 1 expectations content-wise:

"I wouldn't say that we get the whole picture of what's going on in the company. Maybe because there are information that can't be disclosed yet. But then if so, there are some speculations among people if there is no communication. I wouldn't say that we get enough information as of today".

5.2.7.4 Readability and Understandability of Newsletters

The results from the interviews shows that the employees believe that the information they receive from Development-Section newsletters is easy to read and understand. Interviewee number 6 says: "it is quite easy to understand them, yes.", and interviewee number 5 and 7 agrees on that statement as well. The information from Development-Section communication is easy to read and understand from what we can tell from the interviews, but here interviewee number 4 explains that she needs some time to digest the information: "Sometimes I need time and need to discuss with my colleagues".

In conclusion, most of the content of the newsletters is of some relevance for some persons within the company (interviewee 3 and 4), the newsletters do have a place as a communication channel (interview 5 and 7) but they should only be considered as a start for a more focused communication (interview 3). In accordance with interviewee 3, 6 and 7 newsletters do not full-fill the employees' expectations and it is criticized that they are not focused enough to be of relevance or are too long to read the details. How readability and understandability tie into the structure of newsletters is discussed in chapter 6.5.

5.3 Contradictions

Looking at the results from the interviews and from the survey we found many similarities, but there were some contradictions as well that surfaced right away (compare data analysis in the methodology chapter 4). From the survey 77% either strongly disagreed or disagreed that they would like to receive information through text messaging and MMS. But here several of the interviewees were positive on receiving information via text message. When asked about other communication channels that can be used, both interviewee number 1 and 6 thought it could be worth trying. Interviewee number 6 said to this: "...one could try to use text message or similar. But I don't know, it could be tested whether it is very effective". The use of text message as a way of communicating is already in use according to interviewee number 5, when asked about the existing communication culture within the company. This contradiction is discussed in chapter 6.6. Other contradictions that surfaced were whether the structure of the newsletters are clear or not. Results from the survey tells that 63% of the respondents agreed on the statement that the structure of the newsletter is clear, but from the interviews we get a different result. Both interviewee number 5 and 6 would like to get a better structure of the newsletters and would like

them to follow a theme. This is discussed in chapter 6.5 as well as in the chapter about possible improvements to newsletters (chapter 6.7 and onward). The mentioned information imbalance within the company and its implications for the communication culture are discussed in chapter 6.2 and 6.3.

5.4 Information Overload

From all interviews we can now say that it is a clear result of the conducted investigation that employees at the investigated IT company feel that they are working in an information overloaded environment where they receive a large number of emails each day. Interviewee B2 from interview number 3 receives, according to his statement, 600 e-mails a day and in interview number 7, the interviewee gets about 70 e-mails every day. Furthermore, working in a information overloaded environment is according to the interviewees the nature of job. Here interviewee B2 in interview number 3 said "It is expected to be. It's half the job. Everywhere I have been! Definitely information overload. There is so much going on all the time, but this is what we do". Other interviewees agree on the information overload, here interviewee number 5 says: "Yes, there is a lot of information to deal with, everybody needs to deal with that". In this environment interviewees repeatedly mention that that face-to-face communication is one of the most preferred communication channels within the sample group because it is considered to convey most information in a direct and focused way (compare effective communication channels above). The implications are discussed in the next chapter.

6 Discussion

In this chapter the results are discussed. This includes not only providing possible explanations for the apparent differences between the qualitative and quantitative part of this study but also includes an overview of theory-based solutions for the identified issues in regard to the investigated communication culture.

6.1 Research Questions

The first research question for this study was whether newsletters inform in an information- and cognitively overloaded environment. Given the results from the case study a generally applicable answer cannot be provided but rather an answer that applies within the limitations of this thesis. The main reason is that the communication culture of the studied IT company had such basic communication issues, including inconsistent information flows on different levels of the company and a lack of trust in the information provider or the actuality of the information received through digital information channels including newsletters. Adding to this was the (expected) prevailing information overload that employees described in several cases, of which newsletters and emails were only one of many channels that made up the data smog surrounding employees. In this communication culture newsletters hardly meet their intended goal, which is to inform a certain group of people (compare for example results in chapter 5.2.2). Newsletters were generally not deleted without at least being scanned (see chapter 5.2.7), however as their information was often outdated or irrelevant (compare e.g. chapter 5.2.2) they cannot be considered to meet their purpose to inform their recipients. Thus, the first research question can be answered in a way that newsletters within the investigated IT company do not inform employees to the extent that they should according to their definition (chapter 2). However, we cannot exclude that informing generally is not possible using newsletters for companies within the same sector. Thus, at the end of this chapter suggestions are made to how newsletters could be alternated so they inform their recipients.

The second research question, whether the location of a person plays a role in regard to the information distribution processes can also be answered for the investigated company. Firstly, the response rate of the survey indicates that newsletters are not met with such enthusiasm as they are in Sweden or Beijing (see also discussion of the response rate chapter 6.4). Secondly, in the interviews it was repeatedly mentioned that the information that is sent out via newsletters or email varies depending on where a person is located (compare results in previous chapter). This

leaves us to conclude that the location of a person does play a role in regard to the information the person receives even if the information is distributed digitally (in the following chapter location will discussed more detailed in different paragraphs). A possible explanation for this phenomenon is that even though national barriers have been taken away from communication by digital communication channels, people still think in local instead of global dimensions. However, whether this holds to be true is to be investigated by a more sociological focused study that investigates the underlying communication behaviour and how it has been influenced by globalisation. For this investigation we will conclude from this finding that the location of an information receiver in relation to the sender is still a factor to be considered when it comes to distributing information on an organisational level in an information overloaded environment.

Lastly it has to be discussed why the majority of the interviewees did not answer the survey link that they received. As it was not part of the questions of the interviews to investigate why interviewees did not answer the survey no direct answer can be provided for this phenonemon. However, in accordance with the observed email behaviour (emails regarding newsletters are either deleted or saved to be read at a later point) and the support that the survey and the interview provide that employees are within the third stage of the 3-Stage-Model, it is likely that the received link to the survey has either not been read yet or was deleted.

6.2 A Local Communication Culture & the Coffee-Machine Analogy

The investigated IT company was a variety of communication channels that distribute information. However if those channels do not work properly, they simply add to the existing data smog. One of those channels is with certainty the IntraWeb, which is not perceived as being useful by interviewees because, among others, of its poor search function and its outdated content (compare results chapter 5.2.3 and 5.2.4). This is in line with the survey results, where the IntraWeb was not one of the channels that employees frequented to get updated. At the same time that the IntraWeb was criticised for not meeting the employees needs, it was repeatedly emphasized in the interviews that no communication channel should be eliminated. Even though interviewees were bombard with information especially via email (compare previously mentioned amounts of email received per day in the interviews) many of the interviewees felt that they constantly had to search for relevant information. Some interviewees wanted to receive more information through the currently employed communication channels as they felt that they did not receive the information that they needed. Thinking back to the outlined theories for this thesis and the 3-Stage-Model, this is precisely the data smog that has been described earlier in which it is hard for a person to "see the forest among the trees" (compare chapter 3). Even though there is a lot of information employees cannot separate the relevant information from the lot of unfocused, irrelevant or outdated pieces of information they receive on a daily basis. One part of this data smog are emails, which are received by all interviewees in large quantities but believe them to be a "necessary evil" within their company's communication culture (compare for instance interview 1 and 3).

However, interviewees prefer face-to-face communication or staff meetings, which is also supported by the results of the survey (compare results chapter 5.1). Employees standing in the hallway discussing or chatting by the coffee-machines while sharing information are therefore a fast and direct way of communicating with others. It is clear that it is impossible to have coffee-machine-meetings in a global company where employees are distributed all over the world. Further we do not suggest that newsletters should be substituted by face-to-face communication. Rather what we can take from the coffee-machines analogy is that in order to get information across it is important to reach out to the employees and to do so directly and fast - as a colleague would who we meet at the coffee-machine (compare e.g. interview 3 where interviewees specifically ask for a more direct and focused way of communication). Suggestions on how to communicate in other ways in order to be able to share information in a focused way were for instance text messages and blogs, twitter, and a social network for the company's employees (discussion of those follows in chapter 6.7).

6.3 The Role of Trust

One of the results of the interviews that ties right into the discussion of the general communication culture is that several interviewees described a lack of trust within the IT company in regard to a) the information distribution channels, b) the information being up to date and deriving from that the relevance of the received information.

In regard to trust employees mention several times in the interviews that they are rather sceptical towards information distribution channels within their company. The existing communication channels within the IT company are inconsistent and in-transparent (compare imbalance regarding information distribution according to location) which gives employees no reason to trust the information that they receive. For instance, from the third interview we know that the interviewees have been working on a project for several month when they found out that there was already a solution to their development issue. The new solution had been developed in another part of the company but this did not get communicated (compare results chapter). Cases like this lead to a distrust of the employees in the company's information distribution and also in the actuality of the information they receive (compare e.g. information provided by the IntraWeb that has been criticized for being out of date by several interviewees). Interviewee 7 further supports this feeling of a lack of trust by mentioning that projects that should have taken only a

few weeks can take several month now due to the lack of trust within the IT company since it slows down communication. In addition, employees situated in Sweden, but not in the main building mention that they get different information than employees situated in the head-office (see e.g. results chapter 5.2.2). This imbalance of information distribution contributes to the feeling of being of low priority in regard to information worsens when it comes to the off-shores, where employees describe that they get "news-blasts" of "feel good news" whenever Sweden considers them to be relevant enough to talk to, as an interviewee described it (see interview 3 and also compare results in chapter 5.2.2).

When it comes to the relevance of information provided through corporate information channels and newsletters in particular, the survey showed interesting results: in the survey only personnel located in Sweden considered the information presented in newsletters to be relevant. This is also supported by the image that prevailed throughout the interviews, especially with employees from the USA. Several employees mention in this regard that the provided information is either on a "too high level" or its content is out-dated which makes the newsletter irrelevant to read. Worst case, this mistrust in the different aspects of the information distributed though corporate communication channels leads to blocking information that is sent out via newsletters from Sweden to the off-shores (see for example interview 3). This is also another point that supports the previous statement that location plays a role when it comes to information distribution within the company.

6.4 The Survey Response Rate and its Implications

According to the IT company that distributed the link to the online survey, the online survey should have reached a group of 200 employees among which around 50 should have been from each of the four different sites of the investigated company. The fact that of the 157 answers, 1 respondent came from USA, only 5 were from Japan, significantly more than 50 were from Lund and 9 were located in "Other" locations, leaves space for several interpretations: either the survey was sent out to a larger or different sample group than initially assured and the email along with the newsletter was simply not read by personnel in America and only a small percentage in Japan. Especially the last result (the existence of "Other"-locations) is surprising as the survey and the attached newsletter should only have been received by employees of the Development-Section which does not have employees located anywhere else than the first four mentioned sites.

¹³ Those "Other" locations were included in the survey as possible answer to see who received the survey link and to verify that only the asserted group received it.

An optimistic explanation, at least for the sample group in Sweden, is that employees who initially received the newsletter could have been so motivated by the survey that they recommend it to friends within the firm. This could explain how there were more than 50 respondents located in Sweden. However, the survey result to the question whether a respondent would recommend the newsletter to a friend, which was only supported by a fraction of the respondents leaves this explanation sounding rather thin. A more pessimistic interpretation is that the IT company sent out the survey link to more than the initially agreed sample. However as the IT company who distributed the link of the survey in our name to the employees did not defer from their statement that the survey was sent out to only the assured 200 employees, the first explanation will have to suffice to explain the phenomenon (for the email that was attached to the survey refer to the Appendices, chapter 8).

The main point that those results proves though, is that information distribution does not work equally efficient throughout the investigated IT company. This provides further support for two aspects: firstly that newsletters fail to inform at least the off-shores and secondly that the aspect of trust (as mentioned before) of employees in regard to the current communication channels cannot be underestimated. Also the answer to the second research question is supported further that location still plays a role even then information is distributed digitally. For the rest of this chapter in this thesis this means that any results from the survey that are discussed apply only for employees within Sweden or China. The group of interviewees was more equally distributed and those results can be seen as representative to all invested countries.

6.5 A Newsletter Discussion

Before we go on to discuss the findings and a newsletters contribution to daily work, we first have to discuss how carefully newsletters are read in order to support further how much they meet their goal in informing their recipients.

From the results chapter we know that the majority of interviewed employees at least scan the newsletters that they receive from Development. The main motivation for this is described by interviewee number 2: "I read them because we are at the site in the US and they are at the headquarters. So all the people at this site will read them because people here will not have much exposure to what happens". This falls in line with the findings of the survey, where the conclusion is that newsletters are not deleted and at least scanned by the vast majority of employees from Sweden and China. Whether they are read carefully is debatable as the results from the survey with 157 respondents indicate that 87 people read the newsletter carefully, and

108 take a quick look¹⁴, which means that several respondents entered contradicting answers which prohibits us from concluding that newsletters are in fact read carefully upon reception. We know now though that newsletters are at least scanned in most cases as this finding is also supported by the results from the all but one interview. This is again in line with the previously outlined results of the survey: according to the interviewees newsletters are easy to read and understand (see interviewee number 5, 6 and 7), but they do not prioritise enough to go through them in detail and it is hard to find the time to really sit down and read them (compare for instance interview number 3). That something is readable and understandable does not imply that it is considered worth actually paying attention to, especially in an informationally overloaded environment where each information has to evaluated according to relevance and not to readability.

A newsletter in this situation can be compared to a well written textbook that a student has to read for school in order to know the current findings regarding some issues. The book can have the best design, if a trusted friend can explain the main findings of the book over a good cup of coffee, the book will not be read in detail. Rather, the friend who knows it will be recommended and this is also the picture that we get from the survey. Employees still prefer any personal or face-to-face communication compared to digital communication channels. All-employee and allmanager meetings are attended according to the results of the survey. We acknowledge that faceto-face communication is not always feasible on a corporate level, however, as there is obviously a certain lack of trust regarding the existing communication channels (compare chapter 6.3) within the investigated IT company we can say that improving the design or the structure (as discussed below) of newsletters will not solve the actual underlying communication issues. Interestingly enough, the only positive responses towards deleting emails were from employees either located in Sweden (compare survey results) or from USA (compare interviews). To which extent this can be explained by cultural differences in communication is beyond the scope of this thesis as it falls in the field of sociology and not informatics. In conclusion, we can derive at this point that newsletters are scanned but most likely not read in detail.

In regard to the structure of newsletters we can say that the results from the survey show that 63% of the respondents agreed on the statement that the structure of the newsletter is clear. In comparison, there was a recurring wish from the interviewees specifically for improvements of the newsletter and almost all of them asked for an enhanced structure (compare outlined results in chapter 5.2). From the interviewees there were also suggestions on how improvements could be made to improve the structure of the newsletters, as for instance following a certain theme. What we can see as a reasonable explanation for this, for us unaccountable, contradiction from

¹⁴ Multiple selection of two consecutive contradicting answers within the survey could not be prevented due to the restrictions imposed by the survey software as mentioned in chapter 4.

the results is just an enhancement of our previously answered research question that employees of the investigated IT company are working in an environment of information and cognitive overload.

A clear result from the survey was that newsletters are read and are considered to be a start in regard to understandability and readability. At the same time though there was also a clear negation of the statement that newsletters improve one's daily work. However, as newsletters are not intended to aid someone with their daily work but rather to inform them on a regular, mostly monthly basis, this result is not surprising. Unfortunately, the phrasing of the question was too imprecise to allow for the conclusion that the negation of the question implies that newsletters meet their initial goal of informing staff.

Overall, according to our research newsletters as they look like today are a good start in informing staff, but as mentioned before there is space for improvements to be made. From the interviews we could further get the picture that if the company would be willing to put in an effort to enhance the communication with i.e. the newsletters, it might end up with effects that could be useful in the employees daily work and even contribute to their decision making. In conclusion, to quote one of the interviewees from the third interview:

"I understand that they want people informed. But then do it fully or don't do it at all."

6.6 The Text Message Contradiction

The outlined results show certain differences in the perception of the existing communication channels and their usefulness especially when it comes to text messages and their use as communication media. A very high percentage of the respondents of the survey would not like to receive information through text messaging or MMS, but we get a different picture from the interviews where the response was positive to the idea of using text messaging as a communication channel. The most obvious explanation of this diversion is that there are national differences in the use of text messages and that employees in Sweden and China prefer not to receive text messages with news updates.

Besides that one of the interviewees even indicated that this way of communication already existed. A possible explanation for this though could be that the interviewee misinterpreted the question. We interpret those contradicting answers in a way that employees are already sending text messages and MMS as a way of communicating to one-another but that does not imply that they would like to receive information from Development through that channel. In addition, if we consider the proven high level of data smog that is created from the the already existing communication channels that surrounds employees today (see 3-Stage-Model, page 16) and

further add what we know from for example Sweller's theory about enhanced learning from integrated information sources (compare Theoretical Foundation and discussion in chapter 6.7), we can only distance ourselves from the result that text messages should be added to the information load of today's employees.

6.7 Possible Implications for Practitioners

As said before, one of the main findings from the case study was that the initial assumption that employees live in a cognitive overloaded proved to be true. So in reference to the previously described positioning of our research in relation to the theoretical framework (compare illustrations in chapter 2) possible solutions and improvements to the described issues in relation to newsletters as communication mean will be outlined.

6.7.1 Corporate Facebook versus a Coherent ICT Policy

From the Theoretical Foundation (page 21) of this thesis we know that intrinsic and extraneous cognitive loads are additive and that as soon as their sum exceeds a certain memory limit the information processing ability of a person and the competence to finish the task at hand is impaired. The integration of information into one source reduces extraneous load because the receiver of information does not need to assemble the information from different sources by her or himself (compare Mousavi 1995; Sweller and van Merrierboer 2009). Applied to our case study this means that if there was one central database for all updates regarding a certain part of the company instead of an intranet along with a Sharepoint server application, emails, videos and newsletters. Another possibility could be a Facebook-like source for employees that they can use to get updated as it has been suggested by two of the interviewees (Appendices, page 64, Interview 3) and also mentioned in the survey. This corporate Facebook will ultimately reduce the probability of newsletters being deleted before being read because the overall data smog will be reduced by the existence of one corporate information source if implemented correctly.

However, we cannot jump to the conclusion that a corporate Facebook will solve all issues related to the identified cognitive- and information overload that allows to question the usefulness of newsletters as communication mean. Such a corporate Facebook is only reasonable when it is integrated in connection with a solid information and communication policy. An information and communication policy "is not a technology policy, but a policy for information content, its management, its life cycle and its relationship to the information needs of those working in the organization" (compare "information policy" by Allen & Wilson 2003, p. 39).

This means that with just providing one common source of information the actual communication issues identified earlier are not solved because the core issue lies as hinted before with the information usage and communication management and not with the available technology (compare e.g. issues with information overload by Allen and Wilson as well as chapter 2). Technology is simply the mean to transfer information from one point in a company to another. The information overload therefore cannot come from the technology, but comes from the faulty or over enthusiastic use of it by the people that access it. A bare technology policy that presents a new corporate Facebook will not resolve the issue that employees spend a lot of time with irrelevant information (Allen & Wilson 2003). If this corporate Facebook is not accompanied by a coherent information and communication policy, this would simply mean adding another communication channel to the existing data smog. However, a corporate information and communication policy that aims at meeting the employees needs instead of adding just another communication channel to bombard them with more information can definitely be considered a solution. It could therefore be part of this information and communication policy to spend 10 minutes in the morning in each department to have a short meeting with all employees of a section within the company (in addition to a new corporate Facebook that substitutes the existing intranet). This meeting could be used to just quickly and informally give a news-update about happenings within the company.

Most of all, this more face-to-face based way of communicating gives employees more time to check their emails that are actually of interest as the data smog should be reduced by all the emails saying for example "Hey, today there are donuts down the hall!" (quote from Interview 3) and therefore even increase chances that they even read through newsletters no matter of what design (relation between a reduced data smog that leads to a better perception of the available communication channels has been outlined in the first stage of the 3-Stage-Mode, chapter 3). Also, such a direct way of communicating can increase the trust that people have in the company's communication (Craig and Worral 2009). This in turn would contribute positively to the organisational information distribution processes within the company (as suggested previously by Craig and Worral 2009). Secondly, this time gain would reduce workplace stress (compare NIOSH, 1999) if the available time is not stuffed with more meetings once available. Whether this happens or not is however not part of an information policy. In conclusion, a technology policy that aims at informing staff via newsletters in the current environment or just adds a corporate Facebook to the already existing data smog will not suffice to increase information use within a company. The existing communication channels must be categorically overhauled by a corporate information policy that accompanies it.

6.7.2 The Applied Modality Principle

Another solution suggested in relation to the cognitive load theory is the modality principle (see chapter 2). This principle according to, for example, Sweller and van Merrienboer says that if one replaces text or other purely visual explanations with a multimodal source like videos or face-to-face interaction the extraneous load is reduced and therefore the informing effect higher (2009). If applied to newsletters as a communication channel, this suggest to focus for the future on a more multimodal interaction (as suggested by Carroll and Carrithers 1984 in relation to learning) when it comes to communicating important information or updates within the company. However, when it comes to videos one should also take into account the available time as a factor. Depending on how long the video is and the relevance of the message written communication can be advantageous. Or put differently, if the message is of such low relevance that a video or face-to-face interaction might be too time consuming, then why not skip it all together? As one interviewee nailed the feeling towards newsletters that prevailed throughout the majority of the conducted interviews:

"I would trade every warm fuzzy newsletters that takes me thirty minutes to read out of those 600 emails that I get a day for something that's targeted, and something that's direct and that affects my group or my area in a very unique way" (interview 3).

Of course it has to be acknowledged that not every single employee receives that many emails a day, but the general feeling that there is too much unfocused information floating around in a diversity of communication channels (compare chapter e.g. 5.2.2) pertained throughout the majority of the interviews. The existence of one united information source will contribute at least to a reduction of this issue as employees do not have to integrate the information from different information channels themselves (compare Mayer 2001). However, in this context it must be added that Sweller and van Merrienboer mention that the advantage of multimodal communication only prevails with novel users (expertise reversal effect). So once a functioning communication platform has been established it has to be ensured that smaller sub-pages and specialised groups can be formed so that the learning effect is not reversed (Sweller and van Marrienboer 2009, p. 92).

6.7.3 Trust Increase

In addition, one result of the interviews and survey was that trust into the actuality and relevance in the available information does not exist to the extent that it should. A transparent way of communicating can increase the level of trust (Craig and Worral 2009). One solution to increase the transparency and therefore the trust that employees can have in their upper management can be, in accordance with Craig and Worral (2009), that management do not only inform about the

good news but also about the bad news. As described in the results chapter, employees in the investigated IT company feel "deloused" by the way newsletters are sent out at the moment (i.e. interview 3 and 1). This would allow for a self critical climate instead of a "say no evil, see no evil" climate in which bad news are not communicated but their effects still felt (as it has been mentioned when the product has been already developed by another team in the same company, interview 3).

One possible way to make newsletters more focused and to increase the trust employees have in them as well as their chance of delivering up-to-date information (and thus informing the recipient) is be to send it out to a smaller and more focused group of people than it is the case right now. In this way, a newsletter do not only just add to the existing data smog but also transport the right message and increase the trust a person has in this communication channel. Once this is established, actual technological improvements like integrated flash animations (compare modality principle by e.g. Mayer 2001) and other digital distribution channels than emails can be explored (see future studies in chapter 7.3).

6.7.4 Design- and Structural Improvements for Newsletters

From the results of the survey we can say that there is a red line here regarding the newsletters – they must be improved. They are, according to the interviewees, easy to understand. However, employees still do not prioritise to read them thoroughly. Interviewees mentioned that they are either too long or contain too much shallow or irrelevant information (compare results e.g. chapter 5.2.7). Some suggestions from the interviewees were to make newsletters shorter so it would require less time and effort to read through them. All this is further supported by the results of the interviews, where the same picture in regard to newsletters prevails. So, in the following paragraphs some suggestions based on our literature research are provided how newsletters could be improved to meet their purpose to inform on an organisational level.

Sweller et al. (1998) observed that employees must prioritise to get time to go through all the information that they receive from the different communication channels that surround them. In this case this means that they have to sort the mails and newsletters they get from friends, colleagues and their managers. In order for an organisation to inform their staff via newsletters, they have to be structured and presented in a meaningful, direct and focused way to get the readers attention in an cognitively overloaded environment (compare 3-Stage-Model, chapter 3).

One possible solution to increase the likeliness that a newsletter is read is to structure its content in an appropriate way as suggested by Sweller, et al (1990): if information is presented in an integrated way where the receiving person does not need to integrate the presented data from

different information source themselves, learning and being informed is supported (compare modality principle above). In other words, if the information presented to a person in diagrams and text is presented in a coherent way instead of kept apart by a roomy layout, the person will learn more effectively and therefore be informed because they can focus their attention on the actual problem instead of mentally having to integrate the various data channels. Several experiments with physics and mathematics students support this theory (compare Carroll and Carrithers 1984; Tarmizi and Sweller 1988; Ward and Sweller 1990).

This can however not be interpreted as a suggestion to simply reduce the spacing between graphs and related text. This rather means that, according to this theory, text should be integrated in the graphs or diagrams that they are supposed to be presented with to form a unitary entity even if a more spacey design would be considered more aesthetic (Sweller 1990, p. 189). Sweller's acknowledges that a practical application of those findings would imply "substantial rewriting" of most instructional material in technical areas and therefore the benefits would not necessarily outweigh the accompanied costs of such an undertaking.

If we take the essence of Sweller's (et al. 1990) and Mayer's (2001) findings and apply them to newsletters this means that once newsletters are focused more clearly towards their target group they have to be lay-outed in a way that information is presented as a unitary entity where graphs, diagrams and text are well integrated into each other instead of presented separately. If we further add guidelines as they exists for a human centred design of websites (see Preece et al. 2007, p. 99 and pp. 688) we can conclude this passage with the following list of possible suggestions how the design of newsletters can be improved to enhance the information intake:

- The general design of all newsletters follows a corporate colour and layout theme
- Present graphics or diagrams in a integrated way to enable the reader to focus on information processing instead of unnecessary search
- Use groupings instead of contrasting colours to guide the reader's attention to different topics and parts of the document

If those guidelines are generally followed the probability that newsletters are read and convey their intended message is increased.

6.8 Criticism of Sources

During the interviews we encountered quite a lot of frustration from the side of the interviewees when it came to topic information distribution especially from interviewees located in the USA. At this point we have to acknowledge that it is possible that some of the sources exaggerated some of their statements at points when it for example came to stating how many emails they received on a daily basis. However, this does not change the overall impression that those

employees are living and working in an information- and cognitive overloaded environment where there is a need for alternative communication media that reach employees on a direct and personal level.

After all the interviews were conducted we could see that there were certain differences in the way interviewees responded to our questions: some answered more freely, gave a clear picture of their opinion about the corporate communication culture as well as email prioritisation and others were more shy to even describe their impression of the current newsletter. As mentioned before all interviewees were given the assurance of anonymity but still we got the impression that answers from other sites than Asia where more comprehensively expressed and made it easier for us to get a view of the actual communication behaviour inside the company. However, as there were only 2 interviews conducted with sites located in Asia, no generally applicable conclusions can be drawn from the nationality of the interviewees in this regard.

7 Conclusion

The following chapter concludes the theoretical and practical findings of the described research and outlines the key findings. Also, further field of studies, as shortly introduced in the 3-Stage-Model, are detailed along with an evaluation of the conducted research.

There are several findings that can be concluded within regard to the theoretical framework as well as the practical part of this investigation. In the following subchapters findings are separated in theoretical- and practical findings because the investigation delivered answers to the outlined theories and also allows for conclusions that could be applied in real live to, for example, the investigated IT company to improve their information distributing processes. All named findings that contributed to the better understanding of newsletters as communication medium within information systems are simply stated as a conclusion of the previously discussed results (in chapter 6).

7.1 Theoretical Key Findings

With this investigation several theoretical findings have been gained in regard to our understanding of newsletters as a communication mean. Firstly, newsletters have a place in the investigated IT company's communication culture and are at least scanned by employees. Besides that is has been confirmed that employees at the investigated IT-company are working in an information- and cognitive overloaded environment (as described by e.g. Allen and Wilson 2003) and that newsletters are not the preferred communication channel within this environment as they do not always penetrate the data smog (as outlined by Shenk 1997) surrounding employees. Thus, newsletters as a communication means are not the best choice to inform a person in the third stage of the 3-Stage-Model (page 16). However, as email is widely used (compare interview results), they do have a place if they are composed in a focused way and are directed to a specific group of recipients (compare previous discussion). However, reducing the data smog surrounding an individual decreases the extraneous load on a person and enhance the information intake (e.g. Sweller 1988), which in turn can lead to an increased usefulness of newsletters as communication mean. Whether this is true, is subject to further studies, as outlined below. We also now know that trust plays an important role when it comes to prioritizing information (compare e.g. Mayer et al. 1995) in an informationally overloaded situation. This opens up a news field of research into how information and communication technology can make use of findings from cognition science and societal studies to improve information handling and management (see chapter 7.3). Beyond all this it can now

also be said that the location of the recipient of information in relation to the sender plays a role. This means that the amount of relevant information is location dependent even if distributed via digital channels like newsletters (compare results of the case study, chapter 5). Lastly, the outlined 3-Stage-Model in this investigation added to the better understanding of how cognitive and information overload are related and what implication this has for the communication channels surrounding today's employees. One implication being that any communication channel that is addressed at a person in an information and cognitive overloaded environment has to penetrate the data smog to be received by an individual.

7.2 Practical Key Findings

Besides this we could further derive several practical key findings from our investigation, that should be at least considered to be applied in practice by the investigated IT company.

Firstly, the investigated communication channels, and in specific newsletters, must be improved since the employees do not always prioritise to read them. Reasons why they do not get prioritized have been mentioned (compare interviews and survey results, chapter 5) to be a lack of time, relevance and focus of the newsletter in respect to their recipients located in the off-shores of the investigated IT company. In comparison, the preferred way of communication is face-to-face (see again chapter 5). Thus, the currently deployed communication channels at the investigated IT company, especially newsletters, have to be adapted to better suite the employees needs and convey their message in a more focused fashion. Secondly, trust plays an important role as trust in the sender of newsletters might increase the likeliness of them being read and therefore enables newsletters to be used to support information distribution processes. Thirdly, a coherent information technology that contributes to the reduction of the overall data smog as well as the consideration of certain structural and design guidelines (as outlined previously in chapter 6.7) can further contribute to a more even distribution of information throughout the company. This answers our research questions and concludes our main findings in respect to newsletters as a communication medium and leaves us to present further fields of study.

7.3 Further Fields of Study

Further studies will have to be conducted in other communication channels and media that could be used to support information distribution and information management on an organisational level where they support even organisational learning. Thus, any following studies can reuse the same first research questions as outlined in the first chapter. More specifically, the first research question could be used to test whether communication channels like videos could be used to convey a certain message in an information and cognitive overloaded environment. As videos are

a multimodal communication mean they will make more effective use of available communication channels in regard to the modality principle as outlined by for example Mayer 2001 (compare chapter 2). Based on this investigation though we suggest that more research is conducted in how face-to-face communication can be used more efficiently even in a global context before more communication channels are added.

One of the findings of this case study was also, that it plays a role where a person is located in relation to what information they receive even though the information is distributed digitally. Further studies have to be conducted to investigate first of all, if this phenomenon only occurs with the investigated IT company or whether it is a more common phenomenon. Once it has been confirmed that received information depends on the location of an employee within a company, possible explanations have to be explored that explain this in more detail than it has been within the scope of this thesis.

Thinking back to the original 3-Stage-Model that showed the case study in relation to the theoretical foundation (compare chapter 2 and 3) it also is a further field of study to investigate the effects of any of the proposed solutions on the information distribution processes of a company. This implies that the investigated IT company first adapts one or more of the proposed solutions, for example by developing a corporate Facebook along with a coherent information and communication policy that reduces the existing data smog. Then in a second step, a study with a similar set up to this one should be conducted to verify the expected improvements of the informing processes within the company. In this context another study could also be conducted into the expected decreased extraneous load in relation to the decreased data smog (compare e.g. Allen and Wilson 2003). This study could also add to the validity of this study if it tests our finding that data smog increases the extraneous load, which in turn impairs the information processing of the receiver if the working memory is exceeded.

7.4 Evaluation

Some might have noticed that the referenced sources especially when it comes to the cognitive load theory are partially pre-1990s. However, precisely in this field Sweller was the main promoter and developer of the cognitive load theory. Thus it is justified to include some of his first articles on the topics as references as they can be considered pioneering material. In addition, the fact that his latest paper from 2009 that he wrote in cooperation with van Merrierboer presents no contradicting findings to his original thesis and that other recent articles by for example Bawden and Robinson (2010) refer to the cognitive load theory in the same way as Sweller originally proposed it further supports the quality of our sources. In regard to our other sources it was ensured

that both, the informatics as well as the cognition science perspective got integrated to provide an as differentiated picture as possible in the given time frame.

Regarding the survey it can be said in retrospect that there were two situations where the phrasing could have been more accurate than initially decided on. More specifically, this means that the questions whether communication is "good" or whether newsletters have increased ones "awareness" could have been more clear. However, since the survey still provided us with useful results and further added to the understanding of the available communication culture and the use of newsletters in specific, this phrasing error can be seen as negligibly small.

Regarding the interviews we can say on a evaluating note that since all interviews were semistructured it was possible that the interviewer deferred from the outlined questions at times to investigate deeper into parts of interest. However, as it was ensured that all outlined questions were answered and followed closely wherever possible by using a printed hand out of all questions as described in chapter 4 and displayed in the Appendices (page 64). Therefore a high quality of the interviews was ensured providing us with much data to work with.

This leaves to mention that with the taken measures regarding validity, reliability and generalisation we can claim that this thesis describes a solid investigation process within the field of informatics. We acknowledge that there are several fields that are suspect to further studies, but the main research question of this thesis was answered in adequate detail and the proposed model proved to be valid.

8 Appendices

The Appendices contain all additional information for the conducted research, for instance all transcribed interviews, a reasoning for the different interview and survey questions as well the communication dream-scenario which was originally part of the interviews but then not included in the main thesis because it did not contribute to the actual research question.

8.1 Interview Template

Interview Nr: Interviewee: Interviewer: Date:

Profile interviewee

Gender: (not used for the actual investigation)
Age: (not used for the actual investigation)

Site: (ex: Software Development, Platform Development, Engineering Units, Verification and Common Engineering, Development

Planning and execution)

Questions

- 1. Did you answer our survey? (we can compare those who did answer our survey in our discussion part and those who didn't answer...)
- 2. Please describe the existing communication culture within Sony Ericsson from your perspective. (How do you communicate today with others in your company)
- 3. What do you do when you receive newsletters/videos? (Do you read them or just take a quick look? why? motivate, develop
- 4. If you read newsletters/videos Why? (A specific topic interested me, I like to get updated in general, design and layout caught my eye, Other)
- 5. If you delete newsletters/videos before reading them Why? (I do not have time to read newsletters, They do not add any value to me, It is not clear and easy to read, Other)
- 6. Is the content of the development communication relevant for you?
- 7. Is the information you receive from Development communication easy to read and understand?
- 8. From your point of view, what is the goal (purpose) and expectations of the communication?
- 9. Which communication channels do you currently use to get updated about Development?
- 10. What do you perceive are currently the most effective communication channels?
- 11. Do you prefer another communication channel to get updated?
- 12. Do you think there are communication channels that can be minimized or removed all together in development communication?
- 13. Describe your communication dream-scenario. How would you like to receive information and interact? (If you could choose freely)

- 14. Do you feel that you are working in a information intensive environment? (Why? How will you describe your working environment?)
- 15. How do you prioritize about information in general? (How do you prioritise which mails to read and which to delete?)

8.2 Interview Question Motivation

In the following paragraphs, each question of the interview is explained to illustrate the motivation behind each question.

Profile interviewee

We decided to get general information about each interviewee to get a picture of the interviewee. Together with the IT-company we agreed that it would be better to get as much information as possible during the interviews and then, later on decide wether to include the information or not. Here we included information about the interviewees age, gender and what site they were located in. In the profile of the interviewees we did as well ask them about their function within the company, like software development, platform development, engineering units, verification and common engineering, development planning and executive level management. Age and gender were later not included in the results of the survey as their results were not of scientific relevance for the actual research question.

Did you answer our survey?

In conducting the interviews we were be able to go more in-depth than we were able to do in the survey, and therefore it could be of interest to know how many of them answered our survey. This question is not one of the most vital questions in the interviews, but we wanted to see if our survey had reached out to our interviewees and see if we could draw any conclusions from that.

Please describe the existing communication culture within the IT-company from your perspective.

With this question we wanted to see how the employees were communicating with each other in the company and let them speak more freely about their own picture of the communication culture.

What do you do when you receive newsletters/videos?

Our basis when developing the interview questions was our survey and the questions we used there. Therefore we believed it to be relevant to include some of the questions used in the survey. With this questions we could give the interviewees a chance to speak up and explain what they were doing and explain why, more than just get an answer that they were reading newsletters or just taking a quick look at the newsletter.

If you read newsletters/videos - Why?

This question is the same as one of the survey questions and was included for the same reason as mentioned above. We wanted to get a more comprehensive answer than just "a specific topic interested me", "I like to get updated in general", or "design and layout caught my eye" from the survey.

If you delete newsletters/videos before reading them – Why?

The same reason applies even to this interview question, we would like to get a more detailed answer and let the interviewees motivate why they were e.g. deleting the newsletters before reading them. In our survey we could only get the respondents to fill out the following alternatives: "I do not have time to read newsletters", "They do not add any value to me", "It is not clear and easy to read" and "Other".

Is the content of the Development-Section communication relevant for you?

By this interview question we wanted to get the interviewees own opinion of the newsletter's content and wether this content did add any value to the employees and was considered useful in their work or could contribute to their decision making process.

Is the information you receive from Development-Section communication easy to read and understand?

This question was desired to be included in the interviews from the IT-company and we agreed on using the question to get a better picture of how the newsletters layout and language was perceived.

From your point of view, what is the purpose and expectations of the communication?

In consensus with the IT-company we here believed it to be useful to let the interviewees point out their own expectations and what the goal is of the communication, to get a better understanding of their point of view.

Which communication channels do you currently use to get updated about the Development-Section?

Here we were interested in how employees are handling the different communication channels, which channels they are using on everyday basis, which channels they are using the most and which channels are the easiest to use. Further, we wanted to let them motivate what they are doing to get updated about the Development-Section.

What do you perceive are currently the most effective communication channels?

The interviewees are working at different sites and functions and with this question we intended to see whether there were any differences in their way of using the communication channels. We were also interested in which channels were the most popular and seen as the most effective ones.

Do you prefer another communication channel to get updated?

In this interview question, we could see if the employees are using other channels than we suggested in the survey. The interviewees could explain which channels they were using, which other channels they were using and which they prefer and why.

Do you think there are communication channels that can be minimized or removed all together in Development-Section communication?

The interviewees all came from a different cultural background which we had to consider while developing the interview questions. We further knew that it was hard and unusual for some interviewees to speak up and therefore we added this follow-up question to the questions above. By this question we thought we would be able to see wether the were any communication channels that they did not find useful at all and/or did not like to use.

Describe your communication dream-scenario. How would you like to receive information and interact?

As mentioned before we choose to conduct the interviews in a semi-structured way to let the interviewees speak freely and give us their own sight and view of communication. That is why we included this more free-minded question to give the interviewees an opportunity to open themselves up and give us and the company suggestions on how they would like to interact and receive information.

Do you feel that you are working in a information intensive environment?

Here we wanted the interviewees to describe their working environment and how it is to work in such an environment: do they feel a cognitive overload and how does that effect the employees? This question is one of the most important questions and because of that we decided to have this in the end, when the interviewees have been warmed-up.

How do you prioritize about information in general?

In our research question we are assuming there is a cognitive overload caused by the constant information flow. In accordance with this we wanted to see how the interviewees prioritise which mails to read and which to delete.

8.3 Interview Transcriptions

All interviews below have been first transcribed in verbatim and then were later edited to enhance their readability. The editing process is described in detail in chapter 4. It was ensured however, that the original meaning has not been modified during this process. The interviewer is in the following referred to as "A" and the interviewee as "B".

8.3.1 Interview Nr. 1

Date: Monday 16/4 - 2010, 18:00-18:25

Profile interviewee: Gender: Female Age: 28-35

Site: Redwood, USA

Function: Upper Management

- A: First of all I would like to ask you whether you have received and read all the information about out master thesis.
- B: Yes, I have.
- A: Did you also see our survey and answer it?
- B: Oh, there was a survey? No, I haven't answered it.
- A: That's no problem. Could you then please describe to me how the existing communication culture is within your department?
- B: We were a rather small part of the company, you know 10 people by the end of summer 2008. And then 20 people by the end of that year...so it was rather small. So, ehm, it was more like a family where you know we communicate by mouth.
- A: Okay. Good.
- B: Then as of today, we're nearly 200 people.. we grew rapidly last year. Then, erhm, the company was suffering a little financially so we didn't get any headcount for communication ... per person ... here ...So right now, you know, we are in a part of the history where, you know, from the family business to more small organisation, you know? So I really see there is a... erhh ...a big hole when it comes to communication. There is not really good communication, errrhm, practice or methods or procedures implemented for this site. Well, I think that I send out some information from time to time maybe sometimes once a month, sometimes twice a month. That is really practical information, you know? For example, this big operator is coming here you know this really basic practical information that has nothing to do with a strategy or with how or what's going on in this project or nothing like that.
- A: So, with the processes right now you get basic information but its not that you receive very detailed and current information all the time, its more monthly, and you are active and send things out, right?
- B: Yes.
- A: So, you wish that there was more active communication from the side of the company?
- B: Yes, I think so. Well the principal sends out this message once a month sometimes twice. Other than that... the head of Redwood Engineering he sends out maybe quarterly maybe every other month he sends out this note what's going on in the company. but we don't get any like software well this is a development organisation so we don't get any project related information so to speak.
- A: What would be project related information that you would like to get updated on? Like how the projects go or?
- B: Its' always difficult because well we are about 200 people but not everyone works with the project there are some support functions like human relations, you know, finance and others. Maybe the people working in the project or like the software department they may get some sort of information from somewhere... To be honest I don't know if they are getting or not.
- A: Ok. So, it's kind of just to conclude. From the family-like face to face communication you have a hole now because it didn't get switched with anything else actively like a newsletter or anything on a weekly basis. So yes, there is a communication culture but its not as good as the face to face culture before.
- B: Right.
- A: So, if you get a newsletter, what do you do? What do you do with them?
- B: I will...I normally read newsletters. Just to get the normal information.
- A: Have you ever gotten videos or something instead of newsletters?
- B: In Lund there were some broadcasted to other sites.. but nothing more than that.
- A: Ok. So why do you read newsletters?

- B: Well, Lund is kind of core or the main of the IT-company and many important function and a lot of things are going on there. We are here in the United States remote from the centre so I am trying to get information from Lund.. it's kind of you know from Lund where many things are happening.
- A: You hope for an insight really from the newsletters?
- B: Yes.
- A: Ok. Do you get that? Do you think that newsletters full-fill your expectations?
- B: Hm... (pause)....that's a good question. I... I don't think so. Of right now there are many changes of the organisation. I wouldn't say that we get, hmm.. a whole picture of what's going on in the company. Maybe because there are information that can't be disclosed yet. But then if so, there are some speculations among people if there is no communication. Yeah, I wouldn't say that we get enough information as of today.
- A: Ok. It's just important to know what you feel like. It's one thing that you get the newsletter if still doesn't get you the feeling that you did not get an insight tells us something about the newsletter. I forgot to ask at the beginning, which how to call that which function do you work with? Engineering or Software Development?
- B: Well I am the office monitor. So basically I was here to establish the site. So I don't work to develop a product I facilitate and set up the office. So more support function.
- A: So if you're facilitating is the content of development information relevant for you?
- B: I don't need detailed development information because I don't work with software. But just to get an overview is the project on time, or is very delayed. So I need more information more executive bullet information.
- A: Do you think something like that can be communicated using newsletters?
- B: Absolutely!
- A: If we think back about the newsletter that you've gotten so far. We said that the newsletters that you got so far. What kind of information would you call that?
- B: Well, the organisation was under "Kroation rule". And there is still some development organisation. Only a month ago there might not be communication among our development organisation but I personally haven't gotten any newsletters from development information that was related to software development.
- A: So, we can basically say that there is no development communication in form of a newsletter right now?
- B: No... I haven't seen.
- A: My next question would be what kind of goal is the Development communication but that's not applicable anymore. If you forget about newsletters right now. What do you think is the goal of the communication within your department?
- B: I know. I hear from at least telling that they don't receive enough information so people are looking for information. If you sent out newsletter or an IntraWeb update. I don't know how many people really read it. They may but if the content is a lot people probably put it in a folder and say read it later. We basically bombard a lot of you.. lots of emails! I think there must.. effective communication... you know every team has a team meeting and you know the head of the meeting, the manager of that team would cascade information verbally, or a presentation ten minutes of fresh information. I think thats the best way to cascade best information from top to bottom within a company.
- A: So something like Scrum Meetings?
- B: Right. Yes. Of course it can be effective sometimes it's just a .. if its too many letters or email. the format.. some people just think its too much time to read it through and then they never come back to it.
- A: So, you say that its the best way to have face to face meetings. what do you use besides those team meetings to get updated? Because there are not too many newsletters and emails.
- B: You know we have been talking about this for years in this company! We are working in the mobile phone industry we have text message technology. I don't know today but like three years ago I hear a lot, that there are updates to employees via text message on a monday morning. I think that's a cool idea. Maybe it's too late now so.. or you know like there is a you know I used to work in Lund. And I don't know if its still there but they had a monitor or a screen in the main entrance and on every floor and they put like you know sales graphs and development plans and that kind of you know. so people take elevators quite often while waiting in the elevator they see the updates. I thought that was really need and I would like to have this on my sight. But I haven't seen it. But I think it's quite net.
- A: So, that's basically what you would like to see in the future. But what do you do right now to get updated on development. What do you personally use?
- B: You mean as a information receiver or as information?

- A: You as a information receiver? How do you get information about current happening in your department or in Redwood? How do you get updated?
- B: Email, and we have a TV monitor on the first floor we project something down there like the latest product. And if there is a new feature so we have a TV monitor with project and almost ppt-slides. ... IntraWeb might maybe play a role but IntraWeb is down quite often so no one trust that.
- A: So, do you think there are any kind of communication channels that you could get rid off if you could? Which ones would you scratch or not use any more?
- B: ...(pause)....difficult.. but ... hm....
- A: Or maybe you think all of them have a reason why they are there, maybe we should keep all of them.
- B: ..Depending on the content every tour has its meaning. Yes I think it depends on the tunnels depending on the content.
- A: So different tunnels for different content but you should never erase one channel?
- B: Right.
- A: Before you said that you use emails to get updated. Are those emails from colleagues or what are those emails, where do they come from? From further up in the company?
- B: Sometimes from the president. Sometimes from the head of this site. Actually when it comes to this site, private person send out communication and information to the whole site. Like if you work for google and they made a big deal with google its like really like a milestone information or if we launch a product... then it would be sent by a private person, which I never see in Lund because there are like thousands of people. No one would send a message to 3000 people at this site. But we are kind of small.. we send out messages if its good or bad I don't know.
- A: I don't know exactly it works in Lund but its good to know that you would appreciated it that other people send it out to you. So, could you describe your dream-scenario. How would you like to receive information in a perfect world?
- B: You know, Dan he is the head he should be more visible. If we could get regular communication in some way could be newsletter could be email it doesn't matter how, structured information in a structured way. I don't think we have that yet.
- A: Do you think there should be... you mentioned text message on a monday morning. Would that be something you would like to get?
- B: I think that could be cool to try, yes.
- A: I like to idea when you said it. not every day but you know maybe once a week telling you "hey this is what happens this week". If I would be working that would be cool.
- B: Yes (laughs).
- A: So, now I have two more questions for you then we are done. If we think generally about your work. Do you think you work in an information intense environment? Do you think that there is a lot of information coming at you all the time?
- B: No, I don't think we have enough information throughout the company generally speaking. Maybe there is enough information. But I don't feel like we are getting the information we are looking for. I feel like there is too much information, a lot of emails but I still feel like I don't get enough information. Not only me but others also we don't get any information. you know what I mean?
- A: So, you got tons of emails but no information?
- B: Exactly.
- A: Have you ever hear about cognitive load theory?
- B: No.
- A: Basically .. people right now they don't only have emails, there cell is ringing constantly, five people talking to them at the same time. They are bombarded with constantly with information can you relate to that.
- B: Absolutely.
- A: If you are in that environment where you are bombarded with information. How do you prioritise what you actually process, how do you decide which email to read and which not to read who to talk to who not to talk to?
- B: Probably I prioritise by people unfortunately and then by subject. Sometimes on the phone you can quite often know who's calling. If I'm dealing with something else I choose to sometimes not to and to call this person later. Or if an important person is calling me then I'll probably answer, or in email you can see the title or the subject.
- A: In that situation has it ever happened that an important message has slipped your mind?
- B: Yes. Unfortunately.

8.3.2 Interview Nr. 2

Date: Monday 16/4 - 2010, 18:00-18:25

Profile interviewee: Gender: Female Age: 30-35

Site: Redwood, USA

Function: Accounting Consultant

- A: First of all, did you receive the email and all the information concerning the interview.
- B: The email...about ...? What kind of email I am not sure..
- A: The email about us and that we are writing our thesis and what the interview is going to be about.
- R· Yes
- A: Great! Have you also seen the link for the online survey? I don't know did you answer that?
- B: That I haven't done.
- A: That's totally fine that's no problem. Then we can get started right away. I would be interested in how do you right now communicate within your department if you want to get updated? How does the communication work?
- B: Usually I send out email.
- A: How do you receive information?
- B: Usually through email readings we communicate. For example guidelines.
- A: And if you want to get updated about for example a project or anything, how do you do that? Do you receive emails or write e-mails talk to somebody?
- B: In terms of that we have Sharepoint. So, if there are updates we find those at the Sharepoit site.
- A: So, you also have documents you have all the document management in Sharepoint?
- B: Exactly.
- A: Have you ever received newsletters?
- B: Yes.
- A: Educational videos about current happening in the companies have you seen that yet?
- B: No, videos I maybe skipped those.
- A: Alright that's fine. But when you receive newsletters or something like that.
- B: I read through them.
- A: Do you like normally take a long time to read them or skim scam over them, like.. yeah?
- B: I try to finish them.
- A: It's always kind of.. sometimes you can't finish them. I know that feeling! What would be an incentive. Why do you read newsletters?
- B: I read them because we are at the site in the US and we are at the headquarters. So, all the people at this site will read them because people here will not have much exposure to what happens.
- A: So, you want to kind of hey what's going on at the headquarters.
- B: Exactly.
- A: Do you generally there could be more information from the headquarters?
- B: Yes.
- A: I forgot to ask. Which kind of function or department do you belong to? What do you do?
- B: I am a Business controller.
- A: Maybe when we write our thesis everything we say, we will not mention your name. It's just for our thesis it's good to know from what kind of part of the company you come from. If you work as a business consultant is development information important for you?
- B: Sorry, I don't understand.
- A: If there is information about current development about project or what kind of stuff is going on in the Development department. Is that important for you?
- B: It's probably relevant.
- A: Once you get information in form of a newsletter. Do you think it's easy to read or hard to read? How do you feel?

- B: I don't usually... basically we get really usually information from development... I really can't answer this question.
- A: So, there is definitely a need for more communication for more information. If I understand you right. So, what do you think are the best communication channels so far. which are the channels where you get the most information?
- B: I think it's the best communication that would be if the Management development group to present in person to us. That's the strongest communication or we can read email newsletters. Or I think that reading will not really help us so. Because we are not in Lund but in the US.
- A: I see. Those management meetings that you suggested. Do you think once a week or once a month. How often would you like that?
- B. Meeting with whom?
- A: You just said that you think it would be great if there was a management presentation for you.
- B: I think quarterly would be good enough.
- A: So, from so far as I understand it. You would prefer to get updated face to face instead of receiving a ton of emails.
- B: That's strong words. Kind of.
- A: No but it's totally normal. I'd rather have a person talking to me two than reading for ten minutes a newsletter but I guess that's kind of hard. So, right now when you think about your. you said that there is not too much information. How do you get information? Do you read emails or do you as other emails in your department?
- B: Yes, I read emails.
- A: And that's the only way you get updated.
- B: Yes.
- A: Do you sometimes send out an email yourself. Maybe to others in the company?
- B. Voc
- A: What would you write in those email?
- B: Depends on the purpose of the email. For example at the site we need to communicate guidelines in terms of ... of sending out communication to all people at this site.
- A: So, you would write an email about a new guideline or something to others in and around your department?
- B: Yes.
- A: Okay. You said that there is not that much information coming. Do you still think that there is a communication channel that could be deleted? Do you think that there is a way that the company is communicating with you that you don't need?
- B: No, I just think that there should be more.
- A: From others I have the feeling that there is a lot of information, but it's not like you receive 50 emails, but you still feel like you got any information.
- B: I don't have this feeling.
- A: Good! My question was can you identify yourself with this feeling. So, you don't feel like you live in an information intensive environment?
- B: No.
- A: That already brings me to my last question: If you get information from people talking to you, from the internet, from emails. How do you prioritise what for example what emails you read.
- B: Actually, if somebody talks to me that would be priority but then the subject would be the prioritisation.
- A: So, you would say face to face is priority one, but if you have something that you can select you would select it by subject.
- B: Yes.
- A: Great that was everything I wanted to ask you thank you for participating.
- B: No problem!

8.3.3 Interview Nr. 3

The interview was conducted with two interviewees at the same time, which are referred to as B1 & B2.

Date: Monday 16/4 - 2010, 19:30-20:10

Gender: both Male

Age: 30-40

Site: Redwood, USA

Function: Software Development

- A: First of all, I would like to know did you receive the email with the presentation of Sofia and me and what our thesis is about.
- B1: Yes, I have.
- B2: I did, this is B2.
- A: Ok. Cool. So, did you also answer this survey?
- B1: What survey? The questions on the second page? I got this pdf..
- A: No, there was also a ... you were supposed to have gotten a newsletter were there was a survey online.. I don't know did you get
- B1: Was it specifically to us or to the whole company?
- A: To the whole company.
- B1: Oh I trash those I don't have time to read those.
- A: Oh, that's good to know.
- B1: You know most of them aren't relevant. Most of them really sorry but you know that's a long story.
- A: No worry that's totally fine. That what's our thesis is about and how maybe how they are not good for yeah transcribing information.. anyway... How would you, maybe we go first with B, how would describe.. first of all are you in the same department?
- B1: Same organisation, same department.
- A: How would you describe the communication culture in your department?
- B1: Sorry, do you mean within the team that I am in or with the company as a whole.
- A: Both, if possible.
- B1: Ok. Well, I have three different answers based on different levels and granularity. Within my department I think the communication is good because it is handled in a face to face, email kind of way. Things that are relevant are brought to your attention. There are weekly meetings. There are in prompt ad-hoc meetings in the hallways, calls etc. Corporate wide I think that the communication is also good. I think we're getting the right kind of information from that and ...at the others a senior executive level. However in between is where things seem to fall apart. We don't have a good way to say ...at the down redeem level or, or... or even one or two step lower. The communication is inconsistent, not relevant and very site-specific.
- A: When it comes between corporate and the department, like when those two want to talk to each then it doesn't work...?
- B1: Oh we...we..we get those blast emails about how great things are going and ... it's ...it feels like its done with Sweden in mind. Without any sensitivity to say Tokyo or Beijing or other off-shores... it's very very local. And I don't belong to that locale so,so it it's just.. it feels wrong.
- A: Oh I got it. So it's local feel good news..?
- B1: ...Or or or they don't bother to tie in ..in at least an extent or a token to the different sites.
- A: Ok
- B1: There is nothing in for me in the communication at the... say.. its from the "vp-general-manager-level". the down redeem and its head.. they don't seem to have a good way to communicate in this sort of email, newsletter way.
- A: Ok. What about you, B2? I think B1 is talking right now, right?
- B2: Actually, I will step right in line with you B1. We're this local off-shore office we're pretty well synced. Again, its the same thing we have ad-hoc meetings... You know, if you need somebody beyond that, you just go get them and get what you need. We are very, very synchronized together and that works fairly well... Apart form that, I do delete a lot of the emails coming from corporate.. but most of the stuff is not relevant for us, you know, and if it is stuff relevant its either old because we've heard about it before or.. you know its a waste of time to read it so most of its gets trashed... and B1, I may even step further. In terms of corporate level communication between Sweden and further ashore it stops at the rim or Sweden...and if they feel like we're important enough to talk to. I don't think its something personal. I think it's the time difference you know. So, when they're sending these emails out. It's the time difference that really causes really somewhat of a problem.... You would think it wouldn't but it really does because... a very good example: there was a database review that we were doing company wide. And what they did was, that they wrote us a we got a vacation they put it up on Friday and they said we needed to call them about this thing in Sweden on Monday. So, when I wake I've already missed it...(laughs) I'm getting the email... sort of like.. I said this: "okay, why did they just do this?" There are a lot of those things. I think people just take it for granted that we're looped in and we're really not. It's sort of a lot of break down and a lot of massive time lost or wasted in the wrong areas on the wrong things... let's put it like that.
- A: Down times.. do you mean that the intranet is down, or?

- B2: No, it's just wasted time. A really good example is.. during a project we've had daily meetings on the phone were we've been working on for two or three month. There is communication with Lund, email, talking to people in Lund, B1 and we're in Lund. And we talk about those mini groups. We found out just last week, that not only that there is an internal solution coming, its developed but also it's ready and that the last two month of work were just wasted because no one bothered to tell us....that would have been a perfect example, right?
- B1: ..Can I just add a little bit information on that?..
- A: Please, go ahead.
- B1: In this specified incident there was a team in Sweden,.. there were multiple teams in Sweden, doing the same work and they didn't know it. So, this is not just inter-site but even within the engineering team within Lund. If there is a situation where multiple teams, doing the same thing stepping on each other toes. If you're not on the right team you don't get the right information.
- B2: ... Or within the same organisation because both of the main managers, the people in charge of each one, B1, I didn't tell you that, they were reporting to the same manager.
- B1: You're kidding!
- A: So, we can basically can it boil down to there is a communication issue ..or at least there is space for improvement..
- (B1& 2 laugh)
- B1: Yes. But it's not on purpose so that's the good thing!
- A: Yes of course, that's true. That's something good. So if you communicate, apparently emails is a little overused maybe or you said that you delete newsletters B2, B you too?
- B1: Let me take this first with you: In the email question number five, I love it. Where it says "What is your opinion about newsletters that you receive?" You know what?! That is once a month, once a quarter, whatever. But don't delouse me with all of these... I don't find them interesting. Sometimes I guess I do. They don't increase my awareness because they are on such a high level of "some day we're going to do this" and we want you to know that we're happy about it. But I tell you if you don't belong to this exact group.. it's the one thing you hear ...so it's the market perspective. I understand that they want people informed. But then you know do it fully or don't do it at all! If that makes sense?
- A: Yea, it does totally make sense.
- B1: The problem is that different people have different needs. And it's hard to create a communication structure that gives everybody what they need without being 45 pages and then people ignore it. .. I don't like emails or video. I'd rather have wikipedia or a knowledge website. You're gonna kill me for this, but what about a social knowledge interaction on a work level. You can have groups questions, you know. Let us connect! So we can have this area, when you're online where you can post questions online and there you would really have communication. There would be a corporate little blurp, but there would be also interesting stuff! You know that would be cool. You know newsletters they are out of date. I don't know. B2, what do you think, am I too hard on it?
- B2: I think that both is optimal. I think you need to have a way for people at a root level.. at a person to person level to convey information. It might be a wiki share where people can help each other. You where people connect where the real work is done.
- A: So, would you scratch newsletters totally? Or would you still say that they have a meaning there?
- B2: If it's the only mode of communication it has less meaning. I think if you have the chance to have a more personal way of communicating then that would be better, but I guess they have a place after all.
- A: Are there any communication channels that you would see as a dream scenario in the future? Anything that you would like to have?
- B2: A corporate Facebook, a internal Facebook.. you have groups, you can chat, you can share links. Bring the corporate community together.
- B1: Yes. The one thing that we did really bad.. we don't share.. I could learn so much from group "C" only if I knew that group "C" existed. And they are actually doing a lot of data into something.. and that happens here a lot. We have so many groups replicating what we all do because we don't talk and because our systems don't talk to each other. We could save so much time and so much work! Because I find, for example, that this person here needs exactly what I need or has exactly what I need and by sharing we can cut our work down. We need this kind of communication.
- $A: So, it is also something about best practices and not being shared, kind of \dots ?$
- B1: No, we just don't even know that they exist. We're such a big company and We're all focused on our little cause. When you do that then you have ten people doing the same job you know all over the world and that is very inefficient!
- A: With that situation in mind that you just described... What do you think is the most effective way at all to communicate information to you?
- B1: Good question.. on a corporate level.. newsletters I guess. We open all those databases and there has to be somewhere were all those communication boards are linked where you can make a search and find. I think that's we're we gotta go. If there was a website or

knowledge site where we can connect ourselves. Newsletters are a great start but we need a place for everything where you can go and share ideas and talk to each other!

- A: Isn't the intranet used for that?
- B1: No!
- A: Is the intranet anything that is used? Or is it a communication channel that can be used to get updated?
- B1: SE-Connect is there butif you look at the last time it got updated it was November 2005. The Intranet is a bit of a disaster. There are two problems with it, one is: The information is often out of date and 2: The search functionality is very very poor: You can't actually find what you wanted to find. It certainly doesn't help.
- A: So, right now the only existing communication channels are newsletters as you said and face-to-face meetings in the hallway. Is there something like a management meeting where managers of each department meet, or face to face meetings that happen on a constant level?
- B1: Are you talking about breakfast rehearsals? We have all kinds of this. All of these are great for the distribution of information, but by the time that managers get down and talk about whats going on ... they do try to ask questions, but there is no in-depth! You're just skimming the surface, as long as you just want to have a short update. I you bring 200 people together, scheduled for 2 hours, you wont get to the introduction before you're almost done.
- A: So, if you think about the communication channels that you have right now, what do you think they expect from you, from those channels? Why do you have them, what do you think is the point of those?
- B1: I have no idea..... I mean they sure share knowledge, but I would never respond to one, it just goes to the never-verse (laughter)
- A: I couldn't pick apart the voices, but does the other one agree too?
- B2: ...I believe the goal of those channels is to share information, I agree with the goal but I don't agree with the way it is being done, or rather I find the way that it is being done less than comfortable. B1 and I talked about this last year and try to come up with a solution. I think that you hit on something that not only this company, but very few companies do that company-wide very well.
- A: I have not met many companies yet, but I already got that impression too.
- B1: They lose touch.
- B2: Well, I used to work for another IT-company and the reason things tended to work OK with them is because each team is so focused and there was no big amount of overlap, you did not have teams doing the same thing in the same way that you do in this company. You have one team building a product, you don't have five. We have a distributed nature of warfare because we are doing because we have multiple teams doing the same thing all over the world, that means the need to communicate is greater. But you have this kind of power issue where one side tries to be in control off all the information. And it's fine if you are living in Sweden but when you are not there, having them is this thing and it makes it very hard to trust or get valid information because it's always hard to see an agenda or is there a real agenda?
- A: Do you think that a corporate Facebook or a similar application would solve the best practice problem mentioned earlier?
- B2: I think it would make it more interesting, it is a new dynamic, a new kind of medium of information sharing. If you could post a status on your internal Facebook page saying: "I am having a real hard time with X" and your network friends just say: "Ah, i just solved that problem, here, take a look at this" that would be a interesting way of breaking up with the official and unofficial channels of communication. There are so many good intentioned people, we just don't have a good way of sharing the knowledge that we learned through hard work.
- B1: And the Facebook-wiki example is so good because it's a little bit "loosy-goosy" and you don't want to have it so stringent, because you want to make it fun, because one thing about Facebook that is neat is that it is people you know and see every day and you get to keep in touch with them on Facebook. And since we are such a separated company, we have friends around the world in different locations and it is a neat way to draw you back and to keep in touch with them and at the same time getting work done. It is making work fun, unfortunately. If Facebook is so addictive, why not make not something addictive at work?
- B1: We tried to do something like this, but it failed miserably. We wrote a proposed business plan that included something like this just last year.
- A: What happened to it?
- B1: What do you think?
- A: It got lost in the communication?
- B1: It was taken from us. It is good intentions again. Now we have a quality manager or something?
- B2: There is a company called Jira which does something very similar what we are talking about, they have some open sources based tools. But because we are not in Sweden... any kind of significance or corporate infrastructure thing has to be driven from Sweden. We've had several excellent initiatives and they were shut down entirely or taken from us and then changed.

- A: With all the communication channels that you have right now, like of course they are improvable, but which of the existing ones do you like best to get updated?
- B1: E-mail. Because time-wise I am so overloaded, that if it comes in and it is not a newsletter, sooner or later I will get to it before the end of the day. And I get to it in my timeframe and when it is important I can save it, go back, read it, research the information to see if I got it right, I can forward it, forward all the parts that I need, I can put vacation on and it is something like a safe medium, that you go back later and know that it is working. It is a blessing and a curse.
- B2: I actually like video, to be perfectly frank. Unfortunately the nature off all information is so time-sensitive. E-mail is easier to ignore when it's old. Video is harder to ignore when its old because it is visual. I think the most pressing way of providing good information that gets absorbed is video. I checked on the internet yesterday information in preparation for this discussion. This videos are there and I watch and I listen to the man and I take it in because it is visual and auditory. It is a really good way to share information. But if you have a video that is four months old, the data is often irrelevant. But i think thats a good way to share information that gets taken in.
- A: Have you seen more than that one video, I think about videos that haven been sent via email, do you talk about those videos? Or those videos that have been posted on the intranet.
- B2: These are videos that are posted on the Team-Sharepoint site at the sidebar. The first thing I do, I look at the videos before reading the pdf's of the newsletters.
- A: Do you think that the newsletters or videos are easy to understand?
- B2: When I find something that is relevant, like with anything that i am doing then it's fine. What is hard is getting that focused message.
- A: So, the message is all over the place and not directed at you?
- B2: I got the feeling they do it because they have to.
- A: If you get email, how do you prioritise them?
- B2: I have a very loooong set of folders set up for every year, and then I go: irrelevant, irrelevant, trash, relevant, irrelevant... I just go through it pretty quickly, if i is a email that is new, that comes to me, I will pretty much scan it and in 10 seconds I know "thats for later, that's for now" and then there are important e-mails which I know will come so I wait for them. And newsletters I ignore newsletters completely. I have a rule: I delete it, because if it is important, I will get a second notice about it.
- A: What about you B1, same or?
- B1: I... actually.. yes (laughter).
- B2: Great now I feel better.
- B1: I tend to go back every six months and sort emails that are irrelevant based on things that have changed, newsletters are one of those things that do change. So, they tend not to have a long live. I have emails saying: "hey, there are donuts down the hall"...
- B2: For me, I delete it, but I do not throw it away. I have every email I received from the company, every single one.
- A: So, I take it that both of you feel that you are living in an information intensive environment.
- B1: It is the nature of job.
- B2: It is expected to be. It's half the job. Everywhere I have been! Definitely information overload. There is so much going on all the time, but this is what we do.
- A: In that environment, and with your behaviour with email, has any important stuff slipped through by any chance?
- B1: Certainly, but generally I have a rule that if an email is marked red or starts with "cost" I will read if before I stop working through the night so that works.

8.3.4 Interview Nr. 4

Date: Friday 16/4 - 2010, 08:30 - 09:00

Profile interviewee Gender: Female

Age: 33 Site: Beijing

Function: Engineering Units

A: Hello?

B: Hi, this is from Beijing Engineering.

- A: Hi B, My name is X and I am going to do the interview with you today.
- B: Okey. Yeah.
- A: Okey, so you are in Beijing now?
- B: Yeas, I'm at the office.
- A: First of all, thank you so much for participating in this interview.
- B: Ehh, you're welcome.
- A: Thank you. Ehhm, I'm just gonna ask you a couple of questions. I guess that you gender is female right?
- B: Yes.
- A: What function do you belong to?
- B: Executive assistant to the head of Beijing Engineering...and I'm most in charge of the internal communication for Beijing Engineering.
- A: Okey, I see. Thank you so much. Can you please tell me your age?
- B: 33.
- A: 33, okey thank you.
- B: Yes.
- A: Okey, we just wonder, me and the girl I am doing my master thesis together with..if you have done our survey? Did you answer our survey?
- B: Yes.
- A: Yes? You did answer our survey, great. Thank you. Ehmm we just wonder if you please can describe the existing communication culture within the IT-company from your perspective?
- B: Ehmm, actually here from Beijing...we have so many channels for the communication...
- A. Yes
- B: Face-to-face meetings, all employee meetings and all managers meetings. This is more like information sharing from the top management team to the employees and the managers. And then we got the newsletters that comes on monthly basis..informations sharing for all the different sites Redwood, Lund, Beijing, Tokyo etcetera..with important information.
- A: Ok great, thank you. Did you read the newsletter and did you see the video that we send out together with the information regarding this interview?
- B: Yes.
- A: Ok, great. Moving on...what do you do when you receive newsletters and videos?
- B: Normally I like to read it, because it is work related.
- A: Do you read them or do you just take a quick look?
- B: It depends, I read them but some parts that are more specific and detailed I'm just taking a quick look at.
- A: Ok, I see..is it the same for the videos?
- B: Yes it depends, it depends on the content how carefully I look at them...the same for the newsletters.
- A: Ok so it's more or less depending on the topic that's interests you.
- B: Yes, yes.
- A: Can it be the design in general or the layout that makes you read it or watching the video?
- B: I think it is quite okay..the layout is not that fancy but it is okay. It is quite clear.
- A: Have you ever deleted a newsletter before reading them?
- B: No, I don't think so. Sometimes I don't have time to read it right away but then I read it later.
- A: Ok thank you. Is the content of the development communication relevant for you?
- B: Yes, most of the parts.
- A: Is the information you receive from Development communication, is it easy to read and understand?
- B: Yes, but you need some time to digest it. Sometimes I need time and need to discuss with my colleagues.
- A: From your point of view, what is the goal and expectations of the communication?
- B: How daily basis work..it must be clear and direct communication and it must be fast and transparent as well.
- A: Ok great, which communication channels do you currently use to get updated about Development?
- B: Actually, we have face-to-face meetings, and all managers meetings...thats one way..and then we got the newsletters and we send emails as announcements and ..if we would like to highlight something we may use posters to do that, to have more people knowing about it.

- A: Ok, great.
- B: In Beijing we got a showroom where we got our products, we promote our products.
- A: Ok, but do you go to colleagues sometimes as well?
- B: Yes.
- A: What do you perceive are currently the most effective communication channels?
- B: Communication is not only about one way..is both ways. It's hard to define which way are the most effective, it depends..the are good in different ways and for different things. You can not have only one way..
- A: Ok, so that's hard to define because the different communication channels are good for different things.
- B: Yes, that's what I think.
- A: Ok, I just wonder if you prefer another communication channel to get updated? That you can think of..
- B: I prefer official and the face-to-face talk...
- A: Is there another communication channel that you can think of that you would like to use to get updated?
- B: No..nothing I can think of.
- A: Ok..Do you think there are communication channels that can be minimized or removed all together in development communication?
- B: No
- A: Ok..you can choose freely here in this question..Describe your communication dream-scenario.. how would you like to receive information and interact?
- B: The current communication channels are okay here...but communication is two way..for me to have someone to talk to would be good so I can ask and interact that way.
- A: Oh, thank you. Do you feel that you are working in a information intensive environment?
- B: No, I don't think so.
- A: Ok, how will you describe your working environment?
- B: People here are more focused on the product. Within the telecom industry thinks are changing very fast...we would like to know how to catch the change. The information that we got..it's all changing fast.
- A: Ok good, I only got one question left..How do you prioritize about information in general? How do you prioritise which mails to read and which to delete?
- B: Is the information that is related to financial somehow it got high priority but if it's more about information sharing I can read it later, but I would never delete any of my e-mails.
- A: Ok, great. Thank you so much for participating.
- B: Thank you very much. Bye.
- A: Good bye.

8.3.5 Interview Nr. 5

Date: Friday 16/4 - 2010, 09:30 - 10:00

Profile interviewee: Gender: Female

Age: 34 Site: Taipei

Function: Engineering Units

- A: Hello?
- B: Hi, this is from Beijing Engineering.
- A: Hi B, My name is X. How are you?
- B: I'm fine thank you, and you?
- A: I'm fine thank you. So, you are located in Beijing right?
- B: I'm located in Taipei.
- A: Ok, in Taipei great. Thank you. Can I ask you about your age?
- B: 34.

- A: 34, ok thank you. What function do you belong to at the company?
- B: Engineering, engineering department.
- A: Ok, great. We send out a survey, did you answer that survey?
- B: No I didn't see that. Have not got any.
- A: Ok, can you please tell me about the existing communication culture within the company?
- B: Ok, normally we use e-mail and face-to-face meetings and telephone conference for the internal communication. The written format of e-mails and the confirmation after a face-to-face meeting is a very good way of communicate. People like to have face-to-face meetings...and then text message is a useful way to communicate and it is expected from my point of view.
- A: Ok, thank you. What do you do when you receive newsletters and videos? Do you read them..?
- B: Yes, for the newsletter I usually read through them, but very quickly. It is part of my communication role, to read through them. Normally there is no action to be taken, it is more just for information. I quickly read through, it's more to get updated on the different functions and what they are doing etcetera.
- A: Do you delete any newsletters and videos?
- B: Yes when I clean my computer...after reading them.
- A: Ok, and the same for the videos?
- B: Actually, for the video part, if we got a video live that all of us are going to see, we sometimes go into a conference room to see the video together. It's a good way to go for big announcements.
- A: Yes, okay, good. Is the content of the development communication relevant for you?
- B: Normally it is a high level message, that doesn't directly relate to my daily work.
- A: Ok, is the information you receive from Development communication easy to read and understand?
- B: Yes.
- A: It is, okay good. From your point of view what is the goal and expectations of the communication?
- B: Regarding the newsletter it's the top-down message that goes out to everyone, because it's a very big organisation and if you want everybody to know what is going on, the newsletters is a good way. For the regular updated it is a good thing, but for the daily work it doesn't help that much. I do not think that everybody got the time to read through every newsletter. So my expectations would be..to have a shorter version of the newsletter, that are more precise and easy to read. If you then are really interested you can get into articles...or to get deeper information about that. That kind of newsletters is a good way to really get the employees interested and get them to read them and get updated and informed.
- A: Ok, thank you. Which communication channels do you currently use to get updated about Development?
- B: Face-to-face, e-mails, monthly employee meeting..management share strategy and what's going on every month.
- A: Okay, what do you perceive are currently the most effective communication channels?
- B: Face-to-face and e-mails.
- A: Okay, do you prefer another communication channel to get updated?
- B: For example?
- A: Like if you go to colleagues to get updated etcetera.
- B: I think we can use more of the intranet, the system can be more used..when there is something new going on I would like to have a reminding e-mail about that, even though I do get a lot of e-mails I would like to get a update about that. E-mails and live video communication are very good communications channels as well as the intranet.
- A: Ok, do you think there are communication channels that can be minimized or removed all together in development communication?
- B: No, not at the moment. But newsletter that are better structured would be great.
- $A: Thank \ you. \ Can \ you \ please \ describe \ your \ communication \ dream \ scenario? \ How \ would \ you \ like \ to \ receive \ information \ and \ interact?$
- B: If we can use more of the intranet or something like Facebook would be good, if we could have some quick interacting tool that we could use..for internal use, would be a easier way to communicate. For the newsletter that could really be improved.
- A: Great, in general do you feel that you are working in a information intensive environment?
- B: Yes
- A: Yes, okay and how would you describe your working environment?
- B: Yes there is a lot of information to deal with, everybody need to deal with that.
- A: Yes, and how do you prioritise about information in general? Meaning how do you prioritise which mails to read and which to delete?

- B: Work related would I read as a first priority and then the information sharing I read after that and last I think junk e-mails should be removed.
- A: Ok thank you so must for your time. Have a great day, take care bye bye!
- B: My pleasure, you too thank you, bye bye.

8.3.6 Interview Nr. 6

Date: Monday 19/4 - 2010, 10:00 - 10:30

Profile interviewee: Gender: Male

Age: 39

Site: Stockholm, Sweden

Function: Software Development

A: Hej, Ja jag heter X.

B: Mm hej.

A: Jag ska göra intervjun här..em tänkte här..och du heter x..?

B: Stämmer bra.

A: Och du sitter uppe i Stockholm?

B: Japp.

A: Japp, precis och du är ju man då. Får jag fråga hur gamal du är?

B: Ehh..född 71, 39 år.

A: 39. Ok. Kanon. Ehh..ok då undrar jag vad det är för avdelning du sitter på.

B: Jag sitter i .. mjukvaruavdelningen, som en del av development då.

- A: Ok, ja. Tack. Vi undrar, Ina och jag som gör vår magisteruppsats ihop, vi har skickat ut en enkätundersökning. Vi undrar om du har fått den och svarat på den?
- B: Nej, jag har inte fått den, jag har inte svarat på den.
- A: Nej, ok. Bra bra, ehh då skulle jag vilja be dig om du kan beskriva, beskriva hur er kommunikationskultur ser ut, där du arbetar just nu på Sony?
- B: Mm, jag tror att den är..ehh om man om man, eh typ jag tror ambitionen är hög så tror jag den är inte riktigt där än när det gäller att leverera på den då..
- A: Mmm.
- B: ..Så jag tror att kulturen är att man vill tror jag, men jag tror inte att det är riktigt riktigt högsta prio alla gånger då.

A: Ok.

- B: Så försöker vi ändra på det då.
- A: Ja, ok ok. Mm då ska vi se här..ja, jag förstår det är inte riktigt högsta prio.
- B: Jag tror inte det, så kan det vara så att det är ngt fel i kontext med att det har gått fel i någon period med, som har varit ganska tuff och all kommunikation har handlat mest om att..ja, lite liksom "crisis mode" då, snarare än att tänka igenom strukturerad kommunikationsplan och leverera på det. Det är påväg att ändras nu, det är påväg åt rätt håll, men det är därifrån vi kommer.
- A: Ok, ska vi se, du fick nyhetsbrevet och videon?

B: Jepp.

A: Har du kollat på det?

B: Jepp.

- A: Ja ok, bra. Vi undrar...när du får nyhetsbrev vad gör du då? Läser du igenom dessa eller vad gör du?
- B: Ja, jag gör det. Jag är..inom mjukvaru är jag ansvarig inom skriva de där, så det gör jag. Jag är lite mera engagerad i framtagandet i att ta fram och exekvera dessa, av kommunikationsplanen om development från mjukvaruns sida. Så jag läser dessa, även om jag kan tycka att det är lite mastigt.
- A: Ok, det tycker du, skulle du vilja förbättra dessa på något sätt?
- B: Jag tror att det skulle kunna att göra lite bättre med mer struktur på det, med lite mer hirerarki i kommunikationen. Om man tittar brett, så är det få som läser igenom helheten där då.

- A: Ok
- B: Om du tittar på de nyhetsbreven som går ut varje månad, det innehåller mjukvara, det innehåller PBD, innehåller produkt och det innehåller ja, minst fyra sektioner och minst en sida per sektion. Det blir minst fyra till fem sidor i ett nyhetsbrev till ingenjörerna och jag tror inte det är så många som tar sig igenom hela det.
- A: Ok, du skulle vilja få det mer översiktligt, mer kort och koncist.
- B: Ja, jag tror det, man skulle kunna ha en mer exekutiv sammanfattning över a, b, c och d. Sen kan folk säga att d väljer jag att läsa. Kanske inte ska vara meningen att man ska läsa allt utan att man istället ska ha möjlighet att läsa en sektion. För så som det ser ut nu så är det lite för mastigt och man orkar bara igenom inledningen, sen ja ja..så tänker man att man tar det en annan gång och efter ett tag så har redan nästa nyhetsbrev kommit ut.
- A: Ok, bra. Video, gällanden de videona som har skickats ut har ni fått dessa?
- B: Ja, jag vet inte om det är två eller tre som har skickats ut. De går ut brett till hela development. De är på de nyckelprinciperna i vår utvecklingsmodel. De är de bättre penetration på.
- A: Ia.
- B: När man väl har startat videon tittar man igenom hela. De är effektivare på så sätt.
- A: Och du har kollat igenom dessa förstår jag för du var mer ansvarig. Kan du säga vad du har för roll?
- B: Ja, inom mjukvara har jag en liten stab, en liten funktion som har kommunikationsansvaret inom mjukvara. Person x är inom Development och jag är denna person x fast inom mjukvara.
- A: Ja ok, bra, kanon tack. Men videos tror du har en bättre genomslagskraft?
- B: Ja, video är mer lätttillgängligt, börjar man se en video så är det lättare, nyhetsbrev börjar man på och så kommer något emellan och så läser man inte klart det.
- A: Ok, men du kollar igenom alla videos och läser alla nyhetsbrev, du deletar inte dessa direkt?
- B: Näe precis jag kollar igenom och så, men jag deletar dessa efteråt.
- A: Ja, bra. Innehållet av kommunikations..tycker du att innehållet är relevant?
- B: Jag tycker det är relevant, men det vore bättre, det är flera olika parter som bidrar till innehållet i ett nyhetsbrev och alla har möjlighet att skriva vad de vill så det blir lite spretigt. Jag tycker det vore bättre om man kunde ha ett tema exempelvis. I ena nyhetsbrevet så pratar man bara om en produkt och i ett annat pratar man bara om Developments koppling till försäljning i västeuropa eller så..så man har ett tema genomgående. Sen är det fritt att skriva om vad man vill så länge det är ett genomgående tema.
- A: Ok, gäller det samma för videona?
- B: Nä, där har man ett tema som man håller sig till med flera principer så de håller man sig till så de hänger ihop.
- A: Ja, hur pass lätt är det att läsa och förstå nyhetsbreven tycker du?
- B: Mm det är ganska lätt att förstå dessa, ja.
- A: Och detsamma gäller för videona, budskapet är lätt att förstå i videona?
- B: Ja det tycker jag, de är väldigt lätt tillgängliga.
- A: Ja, från din synvinkel vad är målet och förväntningarna med kommunikationen tror du?
- B: Ja, det finns flera syften. Det ena är att dela information, se till att anställda har tillgång till information och tar till sig saker som gör att de blir mer effektiva i jobbet. Rena informationsnära, sprida information. Det andra är motivationsmässigt, känner att man har information man har en transparatant organisation, man förstår den som man lever i och jobbar med, det är mer att man skapar transparens för att skapa motivation och så vidare. Jag tror att det är båda de delarna. Dels den informationen man tar till sig och dels det att man få ta till sig den informationen.
- A: Ja, ok, vilka kommunikations kanaler använder du just nu för att uppdatera dig om vad som händer?
- B: Nyhetsbrevet, videos, SE-connect, all-handsmöten, all managers möten, face-to-face eller så kallade one-on-one, så som att prata med folk och prata med kollegor.
- A: Vilken av dessa tycker du är de mest effektiva som kommunikations kanaler?
- B: De är effektiva på olika sätt så som jag ser det. Om man tittar på ett all-hands möte så har du en extremt bra penetration, så får du dit alla dina anställda så kan du dela information och säkerställa att du verkligen har kommit hem alla, men du kommer aldrig komma speciellt djupt. Du kan inte gå in på djupet på specifika ämnen. SE-connect som är en internet sida kan du gå hur djupt som helst, du kan göra en doktorsavhandling på intranätsidan men dock kommer du att nå tio procent av dina anställda. De är effektiva på olika sätt, de måste komplettera varandra.
- A: Ok, ja jag förstår, finns det någon kommunikationskanal som du föredrar mer än någon annan?
- B: Nej inte riktigt.

- A: Ja för de är så olika till olika situationer.
- B: Ja, precis.
- A: Finns det någon annan kommunikationskanal du skulle vilja inkludera?
- B: Nja, man skulle kunna tänka sig då vi jobbar med mobiltelefoner, en kanal som är bättre då skulle man kunna tänka sig typ text message eller liknande. Men jag vet inte, man skulle kunna testa det, det är ju väldigt effektivt.
- A: Ja, ok. Men finns det någon kommunikationskanal som du skulle helt vilja ta bort eller använda mindre?
- B: Nej.
- A: Nej, inte det. Ok. Sen har vi en fråga om du skulle kunna beskriva ditt kommunikationsdrömscenario? Hur du skulle vilja få information och vilja interagera?
- B: Drömscenariot är nog att ha en set-up med en all-employee där man får bredden, med möten fyra gånger per år. Då får du verkligen en update om vad som händer, en till en, ganska så tunnt. Sedan har du nyhetsbrev på månadsbasis som ger lite mera bredd på selektiva områden, det är inte heltäckande men ger mer bredden. Sedan har du intranät, en SE-connect sida där du har välstrukturerad, där du får en översikt men där du kan dyka ner på djupet i alla ämen. Alla de tre kanalerna är strukturerade på samma sätt, så du kan gå från all-employee till att läsa nyhetsbrevet och till SE-connect och söka mer och mer information inom mer specifika domäner som du är intresserad av. Men nu är det inte så, nu är vi inte där ännu.
- A: Näe, ok men det är drömscenariot för dig då.
- B: Ja, det tror jag vore bra.
- A: Ja, det tror du vore bra. Mer övergripande känner du att du arbetar i ett informationsöverflöd i en sådan miljö?
- B: Om man inkulderar all e-mail kommunikation så är det givet ja.
- A: Ja, det är det. Med all information är det svårt att veta hur du ska prioritera? Med vilka mail du ska läsa?
- B: Nej jag tycker inte det är så svårt. Däremot tar det lite tid men det är inte så svårt. Det tar bara tid.
- A: Ok, tar tid. Jättebra, är det något du vill tillägga. Tusen tack. Min kollega vill ställa några frågor hon med.
- B: Ok
- C: Jättebra är det ok om jag talar engelska med dig då jag är tysk?
- B: Ja det går bra.
- C: Ok..I was wondering, you said that you were using SE-connect, the intranet. What kind of information do you retrieve from the intranet?
- B: So, it could be project related information for instance that you hear about the project and you visit the project site on SE-connect and then you find kind of a project plan, status update, projectile etcetera. Deep information that was important for the overall presentation. It could also be references information if you are looking for the latest roadmap on technology x, if we have hundreds of technologies that are important that's impossible to present in any other forum. If you are interested in that specific roadmap you can find it on SE-connect. The very specific deep kind of information. That's what I seek on SE-connect.
- C: Yes, have you experienced any downtime?
- B: No.
- C: Ok perfect. Do you think that SE-connect is updated?
- B: I think it's so so, it's okay, it's not perfect. The major drawback is that it is very easy to publish information, it's very unstructured. I hate when you search for information and you find it and then two days later you find additional information on the same topic. It's all over the place, it's very unstructured.
- C: Okay and the search function that you mentioned..
- B: Yeah it worked it's like google search, you search and you get thousand in return and you never have the time to look through thousand pages, you need to have a hierarchy of information, but it's not there.
- C: So you mean that the search function could be improved.
- B: Yeah.
- C: Okay, the newsletter that you have gotten so far, were they more in general or did they apply to your field?
- B: I sit in software..I would say they are pretty close to what we do.
- C: You were part of writing the newsletters, do they tell you anything new?
- B: Yes, I would say so. The other parts, the engineering parts and the PLD parts, that's usually new stuff. They are packaged in a way I didn't get earlier.
- C: Yes, I got that. You said earlier that you could imagine to get text message as a mean of communication of the company. What would you like to receive an text message as an update of what is going to happen in your department. Would you consider that useful?

- B: Yupp, I think so, that could be cool. If you do that on regular basis, but if you abuse it and send text message people would be annoyed I think. And if you send it every monday morning, why not send it as an e-mail instead, because people read e-mail frequently on their devices so..it's a cool thing but you need to think about what it adds to the people. text message is a really good tool if you want to push information and want them to read the information within 15 minutes, but if you are fine with that they are reading it during the day you can just use e-mail.
- C: Ok, how many e-mails do you receive on a normal day?
- B: Probably too many. 50-100.
- C: So, one more newsletter is one more e-mail every monday morning..would you read that compare to text message?
- B: I would definitely read it if it's giving me a good overview and is well structured and well though through. But it can not be three pages long, it need to bee three sections or three paragraphs, very breaf.
- C: Ok, good that was everything.
- B: Good.
- C: Thank you so much.
- A: Thank you for your time. Bye.

8.3.7 Interview Nr. 7

Date: Wednesday 21/4 - 2010, 09:30 - 10:00

Profile interviewee: Gender: Female

Age: 34

Site: Lund, Sweden

Department/ function: Android Software, Position: executive section manager

A: Hallå? Hej.

B: Hej hej.

A: Hej jag heter X, tack för att du kan ställa upp på denna intervjun.

B: Inga problem.

A: Ok, bra. Du sitter I Lund?

B: Ja.

A: Ok, fint och hur gamal är du?

B: 34 år.

A: 34, ok, bra. Vilken funktion tillhör du och vilken position har du där?

B: Android Software som Executive Section Manager.

A: Ok, bra. Vi har innan vi började med intervjuerna skickat ut enkäter till flera av företagets enheter, har du svarat på vår enkät?

B: Nej, jag har inte fått någon sådan.

A: Ok, skulle du kunna beskriva hur er nuvarande kommunikationskultur ser ut på ert företag?

- B: Ja, den är dessvärre mycket dålig som det ser ut nu. Det fungerar dåligt med kommunikationsvägarna, information kommer försent och när den kommer har man redan hört liknande via ryktesvägar. Information via ryktesvägen är vanligt, det går snabbare. Det är även stora skillnader mellan de olika byggnaderna här där jag sitter på företaget. Olika avdelningar får olika information och det beror mycket på vilka chefer man har, så de olika byggnaderna får olika information, får olika mycket vissa byggnader prioriteras på ett annat sätt än andra. Huvudbyggnaden, den stora känner alla är prio nummer ett.
- A: Ok, ja vi har intervjuat flera personer som sitter uspridda och känner samma sak gällande informations spridningen. Hur tror du de som siter I Redwood känner sig?
- B: Ja det kan jag tänka mig, de känner nog inte samma tillhörighet..där jag sitter är ändå en av de stora huvudkontoren som är I Tokyo och I Lund. Det är mycket hemlighetsmakeri med mycket information och beroende på vart man sitter och på vilken post är det stor skillnad på vilken information man får. Om man tar sig upp inom företaget och har varit på olika nivåer vet man att utvecklare inte alls får samma mängd information som de som sitter högre upp I organisationen.

A: Ok, vad kan man göra åt detta? Vilka förbättringar kan göras?

- B: Enklare, klarare och mer tydlig kommunikation. Vi får veckomail om mer ointressanta saker så som att den och den parkeringen inte fungerar, dessa veckomail läser de flesta anställda för att det kommer ut regelbundet och är ett kort och snabböverskådligt mail, dock med irrelevant information. Det vore bättre att kunna kombinera månadsnyhetsbreven och veckomailen så att det går ut nyhetsbrev som är betydligt kortare varje vecka. Kanske man till och med skulle sätta det som obligatoriskt att alla ska läsa dessa mailen.
- A: Ok, tack vidare vad gör du då du får nyhetsbrev och videos?
- B: Jag skummar alltid igenom nyhetsbreven och I mån av tid läser jag mer, om jag inte hinner bli avbruten. Det finns alltid viktigare saker som jag måste prioritera högre. Om jag läser nyhetsbreven beror helt på hur mycket tid jag har, men jag skummar alltid igenom då jag alltid läser alla mina mail. Men nyhetsbreven måste bli kortare och det vore bra om de kom ut oftare.
- A: Ok, hur är det med videona?
- B: Ja, videona är sällan intressanta. Om jag har tid kollar jag igenom dessa men det är helt beroende på hur mycket annat jag har runt omkring I arbetet. Jag kan starta upp en video men det är inte alltid jag kollar klart dessa.
- A: Händer det att du slänger några videos eller nyhetsbrev I papperskorgen direkt, utan att titta på dessa?
- B: Näe, även om jag får mycket mail går jag alltid igenom alla. Men det är I mån av tid som avgör om jag hinner läsa igenom nyhetsbreven och se videona ordentligt. Tror att det är få anställda som verkligen har tid och prioriterar att gå igenom dessa till fullo.
- A: Ok tack, vad tycker du om innehållet? Är innehållet relevant?
- B: Ja det är det, det är ofta på hög nivå och det är bra att vi får nyhetsbreven för vi får inte den informationen på något annat sät vanligen. Men det finns mycket man kan ändra på, många förbättringar kan göras här.
- A: Ok, bra. Vidare, är informationen lätt att förstå och lätt att läsa och ta till sig?
- B: Ja det tycker jag.
- A: Vad tycker du är målet och vad är dina förväntningar med kommunikationen?
- B: Ja, det är att man vill få information om vad som händer och sker I företaget och vad som händer just inom mitt område och annan releveant information som berör just mig. Sedan är det dåligt med information om framtiden och vad som kommer att hända och ske framöver I ett längre perspektiv. Från min sida vill jag veta hur det ser hur I framtiden och vad som kommer att hända framöver.
- A: Ok, vilka kommunikationskanaler använder du just nu för att hålla dig updaterad och få information?
- B: Mycket via mail men även så pratar jag mycket med kollegor och de kontakter jag har I de olika byggnaderna och som sitter utspridda på olika platser. Det är ifrån mina kontakter som jag får den snabbaste informationen ifrån. Information via ryktesvägen går betydligt snabbare, sedan får man information men då har man redan hört talas om de sakerna innan just via rykten. Det är som tidigare nämnt stor skillnad vart man sitter och I vilken byggnad.
- A: Ok, ja, vilken tycker du är den mest effektiva kommunikations kanalen?
- B: Veckobrevet är den mest effektiva kanalen, men de breven innehåller vanligen ointressanta saker vilket är synd. Men veckobrevet skulle kunna gå att använda betydligt mer effektivt då det är väldigt många som läser det. Om vi tittar på SE-connect så är det en sajt som verkligen bör göras om, den är rätt värdelös som den är just nu. SE-connect har dåliga sökfunktioner vilket är synd.
- A: Ja, finns det någon annan kommunikationskanal som du föredrar att hålla dig updaterad genom?
- B: Ja, det vore smidigt att gå via twitter eller ha någon form av social community för spridning och delning av information. Men Facebook är nog inte så pass relevant och passande att använda sig av. Men när det gäller information är det viktigt att den når de som berörs av den och att de får informationen snabbt. Jag har själv en blogg som jag uppdaterar frekvent och där kan de som ingår I mitt team gå in och ta del av den informationen för att snabbt få en bild om vad som händer, hur saker och ting går, vad som kommer att hända med mera.
- A: Intressant, hur mottas detta av de som ingår I ditt team?
- B: Ja, det är mycket positiva reaktioner då de snabbt kan få information om vad som pågår, men det är olika för vissa har inte vanan inne att läsa bloggar. Det som är bra är att alla har direkt tillgång till information om vad som händer. Det som är olika är at vissa kollar bloggen ofta medans andra inte gör det, men det är ett val de själva gör om de vill titta eller inte.
- A: Jaja, säpnnande. Vidare, tycker du det finns några kommunikationskanaler som man helt kan ta bort eller några som man bör använda sig mindre av?
- B: Nej, tvärtom så borde det finnas fler kanaler som använder sig av. Det borde även tillsättas kommunikatörer som är duktiga och bra på att kommunicera och vet hur man gör för att nå ut till folk. Chefer som man får informationen ifrån förväntas kunna detta men så är inte alltid fallet.
- A: Hur ser ditt kommunikatons-drömscenario ut?

- B: Ja, det skulle vara att ha en kombination av flera saker. Använda sig av telefonerna och skicka ut text message/MMS till de anställda och updatera via den kanalen, finns mycket man kan göra där. text message tror jag skulle vara mycket effektiv sätt en effektiv kanal att använda sig av då alla har med sig sina telefoner I jobbet överallt och har de påslagna mer eller mindre hela tiden. Att som anställd få text message från högre chefer och ledningen skulle bidra till bättre stämning och man skulle känna sig utvald. Förtroendet för ledningen skulle troligen öka avsevärt. Vore även bra att kombinera detta med att ha stora tv-skärmar där det rullar veckoschema om vad som händer, kommer att hända den kommande veckan och vad som har hänt osv. När man går förbi dessa skärmar kan man få sig en snabb överblick och på så sätt snabbt få en uppdatering. Sedan vore det även bra med någon form av social community internt.
- A: Ja, kanon, tack. Känner du att du arbetar I en miljö med ett stort informations överflöd?
- B: Nej, det känner jag inte. Tvärtom det borde vara betydlit mer information och bättre flöde och struktur på informationen. Märker klart och tydligt hur informationen flödar olika beroende på vilken nivå du befinner dig på, vilken avdelning du är på, vilka chefer du har och vilken byggnad du sitter I. Mycket ska vara hemligt och mycket information är allt annat än tillgänglig för alla anställda, detta skapar förtroende problem.
- A: Ok, du känner inte att det är något informations överflöd. Hur är det med e-mail? Hur många får du en vanlig dag, uppskatningsvis?
- B: Det ligger på minst en 70 st e-mail varje dag. Jag vet att det är många som finner detta stressande men jag är en person som svarar snabbt och direkt på e-mails och hinner gå igenom alla. Det tar mig två sekunder att svara på ett mail. Men det är klart att det är jobbigt för de personer som inte är snabba att svara på mail, för det är extremt mycket mail som kommer.
- A: Ok, hur prioriterar du bland alla dessa?
- B: Ja jag hinner gå igenom alla men det är klart att man tittar på vem det är som har skickat mailet.
- A: Ok tusen tack jag har fått svar på alla mina frågor. Tack för dina svar, de har gett oss mycket att arbeta med. Vi uppskattar att du tog dig tid, ha en fortsatt bra dag.
- B: Det var så lite så, tack detsamma. Hej då.

A: Hej då!

8.4 Communication Dream Scenario from the Interviews

Interviewees were also asked to describe their communication dream-scenario to get on one hand a better understanding how our interviewees would picture the perfect communication and also in investigate whether newsletters would be part of it. Interviewee 7 outlines the following dream-communication-scenario: "I think text message would be a very effective way of effective communications to use when everyone is carrying their cell-phones anywhere in the job... To get text message as an employee from senior management and leadership would help to improve trust.... Confidence in management would probably increase significantly. It would also be good to combine this with having large TV screens that shows weekly schedule of what is happening, will happen the next week and so on. There you can get a quick overview and get a quick update. Then it would also be good with some form of social community internally".

This social community could also include form of twitter as a possible communication channel: "When it comes to information, it is important that it reaches those affected by it and that they get information fast. I myself have a blog that I update frequently" (interview 7). For a detailed discussion of those suggestions, please refer to chapter 6.7. In interview number 1 the interviewee thought it could be a good idea to receive a text message on a Monday morning and in his dream-scenario he would also like to se structured information in a structured way.

The interviewee from interview number 6 would also like to see a combination of the communication channels where all of them are structured in the same way: "..so you could go from the all-employee meetings to the newsletters and to the IntraWeb and here search for more information that you are interested in. But that is not the case right now, we are not there yet". Further the same interviewee could consider text message as an update of what is going on useful: "If you do that on regular basis, but if you abuse it and send text message people would be annoyed I think. And if you send it every Monday morning, why not send it as an e-mail instead, because people read e-mail frequently on their devices so..it's a cool thing but you need to think about what it adds to the people. Text message is a really good tool if you want to push information and want them to read the information within 15 minutes, but if you are fine with that they are reading it during the day you can just use e-mail".

Interviewee B1 and B2 from interview number 3 would also like to see some kind of internal community as a communication channel that they would see as a dream scenario in the future. B1: "I could learn so much from group "C" only if I knew that group "C" existed... We have so many groups replicating what we all do because we don't talk to each other and because our systems don't talk to each

other. We could save so much time and so much work! Because I find, for example, that this person here needs exactly what I need or has exactly what I need and by sharing we can cut our work down. We need this kind of communication".

Interviewee number 4 thinks that the current communication channels are okay, but she likes face-to-face communication: "...but communication is two way..for me to have someone to talk to would be good so I can ask and interact that way.". Interviewee number 5 suggested a site similar to Facebook: "If we can use more of the intranet or something like Facebook would be good, if we could have some quick interacting tool that we could use..for internal use, would be a easier way to communicate. For the newsletter that could really be improved".

Interviewees B1 and B2 are further suggesting a corporate Facebook site or a similar application as well, here interviewee B2 explains why: "If you could post a status on your internal Facebook page saying: "I am having a real hard time with X" and your network friends just say: "ah, I just solved that problem, here, take a look at this" that would be a interesting way of breaking up with the official and unofficial channels of communication. There are so many good intentioned people, we just don't have a good way of sharing the knowledge that we learned through hard work".

Further interviewee B1 fills in: "And the Facebook-Wiki example is so good because it's a little bit "loosy-goosy" and you don't want to have it so stringent, because you want to make it fun, because one thing about Facebook that is neat is that it is people you know and see every day and you get to keep in touch with them on Facebook. And since we are such a separated company, we have friends around the world in different locations and it is a neat way to draw you back and to keep in touch with them and at the same time getting work done. It is making work fun". To conclude the results from all this: employees are aware of the drawbacks that their current communication system has and do have clear ideas how to improve this. However, newsletters are not part of any of the scenarios.

8.5 The Survey

The following is the email that was sent out along with the survey. Here, also a reasoning for each question and why it was included in the thesis is provided.

Dear participant

Thank you for taking the time to respond to this short survey about the newsletter and communication in general. The scope of the survey is to better understand the impact of the newsletter and other communications channels used, as well as to check how well we meet your expectations of communication within Development. All respondents will remain anonymous. We have support from two students from Lund University doing their Master thesis, which is why we are using Google survey format. The results from the survey will be used to improve the existing communication channels & formats, and give us a good direction on how we can develop the communications area in the future Thank you again for participating, Development Communications.

General Information

Please indicate your gender¹⁵ • □ Female • □ Male
Please indicate your age ¹⁶
What site are you located in? • □ Lund • □ Beijing • □ Tokyo • □ Redwood

¹⁵ Information later not used for the research.

¹⁶ Information later not used for the research.

What function do you belong to?	ution		
The following part consists of questions about the newsletter that you just received. (The scale is from 1 to 5, where $1 = I$ strongly disagree, $2 = I$ disagree, $3 = I$ don't have an opinion, $4 = I$ agree, $5 = I$ strongly agree)			
What do you do when you receive the mon-	thly Development newsletter?		
I delete the newsletter before reading it	00000		
I read the newsletter carefully	00000		
I open it and take a quick look	00000		
Reasoning: Question aimed at investigating whether newsletters are deleted and to see if not, how careful they are read. Purpose was to be able to make a statement about how much information a newsletter conveys.			
What is your opinion about the newsletter t	hat you just received?		
The layout is appealing		00000	
The text is easy to read and understand		00000	
The used colours are nice		00000	
The structure of the newsletter is clear		00000	
The information is presented clearly		00000	
The information was relevant		00000	
I will recommend this newsletter to a friend (by for example sending it to a friend)		00000	
The newsletter has increased my awareness		00000	
The newsletter makes my daily work easier		00000	
The newsletter contribute to my decision making		00000	
Reasoning: Set of questions was included to be able to see how well the newsletter is received and to be able to see whether how the information is presented influenced the reader.			
The following part is about Development's	existing communication channels.		
What is your opinion about below statemer	nts connected to Development information	n and updates?	
I read updates sent by email		00000	
Development updates (for example as a mo	onthly newsletter) is good	00000	
I use the IntraWeb Quality Excellence to go	et updated	00000	
I use the IntraWeb R&D Excellence Program	n to get updated	00000	
I use the IntraWeb WCDM to get updated		00000	
I use the IntraWeb Your organizations fund	00000		

• 🗆 Other

I use IntraWeb Development main page to get updated	00000
I watch informational videos shared through email	00000
I attend all managers meetings to get updated	00000
I attend all employee meetings to get updated	00000

Reasoning: Set of questions had several goals a) cross-check to the previous question asked about newsletters and whether they are read b) to see what other communication channels, i.e. the IntraWeb are used and how frequently they are used b) what role face-to-face meetings have as a communication channel in an information overloaded environment.

Which of the following channels do you prefer to receive information through?

- Face-to-face
- text message/MMS
- video
- mail
- newsletters

Reasoning: Question is aimed at finding out what preferences employees have within an informational overloaded environment.

If you prefer to receive information through other channels not listed above:

..please indicate the alternatives.

Reasoning: This question was included to see whether other communication channels are also important to employees that have not been mentioned before. Also question was aimed at investigating how many would mention some other form of face-to-face communication as preference in relation to digital communication channels.

If you read newsletters

- ..please indicate why
 - O A specific topic interested me
 - O I like to get updated in general
 - O Design and layout caught my eye
 - O Other

Reasoning: Question was included to see why newsletters are read and also too investigate if location as a factor is mentioned as a reason to read newsletters sent by the head office.

If you delete newsletters before reading it

..please indicate why

- O I do not have time to read newsletters
- O It does not add any value to me
- O It is not clear and easy to read
- Other

Reasoning: Question was aimed at investigating to what extent the theory about blocking communication channels in an informationally overloaded environment holds to be true for newsletters in specific.

8.6 Answers for the different IntraWeb Sub-Sections

In the survey as outlined before there was a set of questions that investigated the use of the different sub-sections in detail. However, for the final thesis it turned out that it was more reasonable to present the results for the IntraWeb as one entity and not split according to the different sub-sections. As they were still part of the investigation, they are included in the following Appendices.

- I use the IntraWeb Quality Excellence to get updated

67 respondents answered that they disagreed on that they do use the IntraWeb to get updated, further 22 strongly disagreed, 25 agreed, 5 strongly agreed and 38 didn't have an opinion. In conclusion, this means that a high percentage of the respondents does not frequent the IntraWeb Quality Excellence for information.

- I use the IntraWeb R&D Excellence Program to get updated

We stated that the respondents use the IntraWeb R & D Excellence Program (see Glossary_(Page 4)) to get updated and got the answers that 73 of them disagreed, 22 strongly disagreed, 36 did not have an opinion, 22 did agree on the statement and 4 strongly agreed. Regarding this statement we came to the same conclusion as mentioned above, which is that a majority of the respondents do not use the IntraWeb R & D Excellence Program to get updated. The results from the survey show clearly the number and percentage of the respondents answers, we can here see that 46% disagrees and 14% strongly disagrees to the statement.

- I use the IntraWeb WCDM to get updated

65 respondents disagreed and 22 strongly disagreed on the statement in which they use the IntraWeb WCDM (see Glossary_(Page 4)) to get updated and 29 agreed, 4 strongly agreed and 37 did not have an opinion. Further, this means that a high majority of the respondents do not use IntraWeb WCDM to get updated.

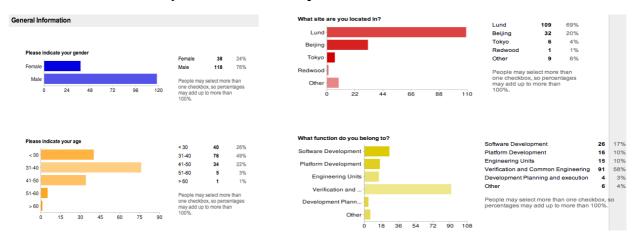
- I use the IntraWeb Your Organizations Functional Page to get updated

On the presumption that the respondents use the IntraWeb "Your Organizations Functional Page" (Glossary_(Page 4)) to get updated we got more evenly distributed answers were 14 strongly agreed, 41 agreed, 38 did not have an opinion, 46 disagreed and 18 strongly disagreed. This tells us that there are employees that do visit the IntraWeb "Your organizations functional page" often for information, as well as there are employees that does not visit the page often.

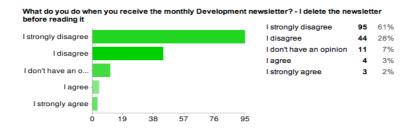
- I use the IntraWeb Development-Section Main Page to get updated

Respondents use the IntraWeb Development-Section Main Page (see Glossary_(Page 4)) to get updated 55 of them disagreed, 18 strongly disagreed, 38 did not have an opinion, 44 agreed and 2 strongly agreed. The respondents do not necessarily use the IntraWeb Development-Section Main Page to get updated, even if there are respondents that do.

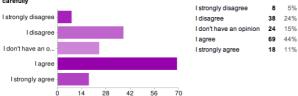
8.7 Result Graphs of the Survey

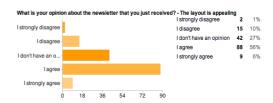




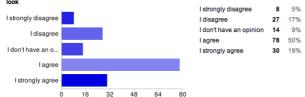


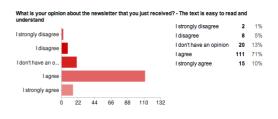
What do you do when you receive the monthly Development newsletter? - I read the newsletter



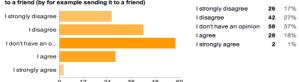


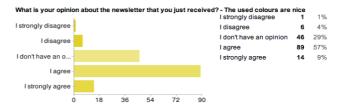
What do you do when you receive the monthly Development newsletter? - I open it and take a quick look



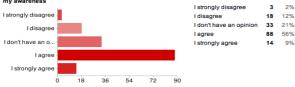


What is your opinion about the newsletter that you just received? - I will recommend this newsletter to a friend (by for example sending it to a friend)





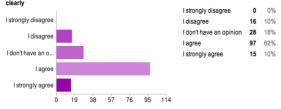
What is your opinion about the newsletter that you just received? - The newsletter has increased

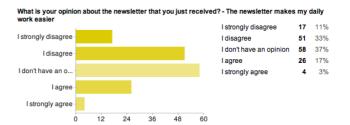




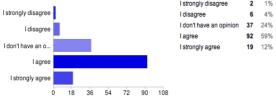
40 60 80

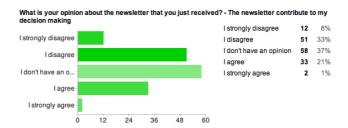
What is your opinion about the newsletter that you just received? - The information is presented clearly





What is your opinion about the newsletter that you just received? - The information was relevant I strongly disagree 2 1



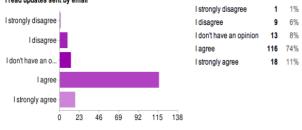


I strongly agree

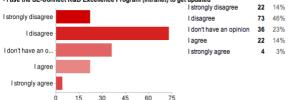
Part 2

The following part is about Development existing communication channels.

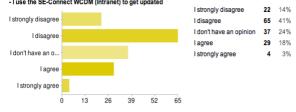
What is your opinion about below statements connected to Development information and updates? -I read updates sent by email

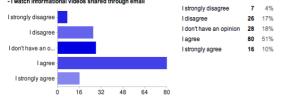


What is your opinion about below statements connected to Development -I use the SE-Connect R&D Excellence Program (Intranet) to get updated istrongly

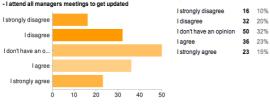


What is your opinion about below statements connected to Development information and updates? - I use the SE-Connect WCDM (intranet) to get updated





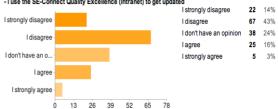
What is your opinion about below statements connected to Development information and updates? - I attend all managers meetings to get updated

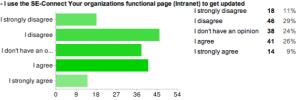


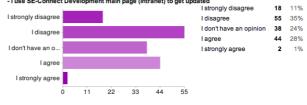
What is your opinion about below statements connected to Development information and updates? ment updates (for example as a monthly newsletter) is go



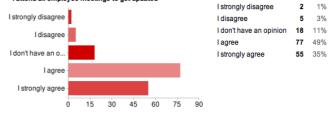
What is your opinion about below statements connected to Development information and updates? - I use the SE-Connect Quality Excellence (Intranet) to get updated



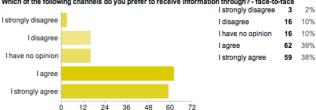




What is your opinion about below statements connected to Development information and updates? - I attend all employee meetings to get updated



Which of the following channels do you prefer to receive information through? - face-to-face





9 Literature Cited

- Anderson D R, Sweeney D J, Williams T A, Freeman J, Shoesmith E (2007) *Statistics for Business & Economics*. Thomson Learning EMEA.
- Allen D, Wilson T D, (2003) Information Overload: Context and Causes. The New Review of Information Behaviour Research.
- Bawden D (2001) Information and digital literacies: a review of concepts. Journal of Documentation (57): Nr. 2, pp. 218–259.
- Bawden D, Robinson L (2010) The dark side of information: overload, anxiety and other paradoxes and pathologies. Journal of Information Science (35): Nr. 2, pp. 180–191.
- Branin J (1990) Collection Management in the 1990s. American Library Association: Chicago, IL.
- Bryman A (2006) Samhällsvetenskapliga metoder. Liber: Malmö.
- Carroll J, Carrithers C, (1984) Blocking learner error states in a training-wheels system. Human Factors (26): 377-389.
- Colin B (2009) Overloaded. In The Black Magazine (79): Nr. 11, p.22-26.
- Creswell J W (2007) *Qualitative inquiry and research design : choosing among five traditions.* 2nd ed., Sage: Thousand Oaks, CA.
- Craig T, Worrall L, (2009) How to build a climate of trust. Personnel Today (1): 12-12.
- Dretske F, (1981) *Knowledge and the Flow of Information*, MIT Press, Cambridge, MA. Fourth Americas Conference on Information.
- Ehrlinger et al. (2005) Peering Into the Bias Blind Spot: People's Assessments of Bias in Themselves and Others. Personal Social Psychology Bulletin (31).
- Easterby-Smith M, Thorpe R, Jackson R P, Lowe A (2002) Management Research: Theory and Practice. 3rd Edition. London: Sage.
- Heylighen F (1999) *Change and information overload: negative effects.* In: F. Heylighen, C. Joslyn and V. Turchin, eds, Principia cybernetica web. Brussels: Principia Cybernetica, 1999, Retrieved on 4th May from http://pespmc1.vub.ac.be/CHINNEG.htm
- Israel M, Hay I (2006) Research ethics for social scientists: between ethical conduct and regulatory compliance. Sage: London.
- Jones O (1985) The analysis of depth interviews. In R. Walker, Applied Qualitative Research. Andershots: Gower. pp. 56-70.
- Korsgaard M, Schweiger D, Sapienza H (1995) Building commitment, attachment, and trust in strategic decision-making teams: The role of procedural justice. Academy of Management Journal (38) 60-84.
- Kvale S, Brinkmann S (2009) *Interviews: Learning the Craft of qualitative research interviewing,* 2nd ed. Sage: Thousand Oaks, CA.
- Liu H, Liu Z (2009) Conceptual Framework and Key Issues of Project Management based on Knowledge Management. Wuhan, China.
- Martin A, Madigan D (2006) Digital Literacies for Learning. Facet Publishing: London.
- Mayer R (2001) Multimedia Learning. Cambridge University Press: Cambridge.
- McAllister D J (1995) Affect- and cognition-based trust as foundation for interpersonal cooperation in organizations. Academy of Management Journal (38): 25-59.

- Mousavi S Y, Low R, Sweller J (1995) Reducing cognitive load by mixing auditory and visual presentation model. Journal of Educational Psychology, 87 (2): 319-334.
- NIOSH (1999) Stress at Work. U.S. National Institute for Occupational Safety and Health, DHHS (NIOSH) Publication Number 99-101.
- Khalil M K, Paas F, Johnson T E, Payer A F (2005) Design of interactive and dynamic anatomical visualizations: The implication of cognitive load theory. The Anatomical Record 286B, 15–20
- Koorsgaard M, Schweiger D, Sapienza H (1995) Building commitment, attachment, and trust in strategic decision-making teams: The role of procedural justice. Academy of Management Journal (38): 60-84.
- Koski J T (2001) Reflections on information glut and other issues of knowledge productivity. Elsevier Science Ltd., Futures (33): 483–495.
- Kirsch D (2000) *A few thoughts on cognitive overload.* Intellectica (30): pp. 19–51.
- Lee A S, Baskerville R L (2003) Generalizing generalizability. Information Systems Research (14) No. 3, pp. 221–243.
- Macevičiūtė E, Wilson T D (2005) Introducing information management: an Information Research Reader. (pp. 18-30) London: Facet Publishing.
- Mayer R C, Davis J H, Schoorman F D (1995) An integrative model on organizational trust. Academy of Management Review (20): 709-734.
- McAllister D J (1995) Affect- and cognition-based trust as foundations for interpersonal cooperation in organizations. Academy of Management Journal (38): 24-59.
- Nonaka I, Takeuchi H (1995) The Knowledge Creating Company. Oxford University Press: New York.
- Nonaka I, Toyama R, Hirata T (2008) *Managing Flow: A Process Theory of the Knowledge-Based Firm.* Palgrave Macmillan.
- Oxford Online Dictionary (2010) Definition for "Bulletin" and "Newsletter" retrieved on 28th April 2010 from http://www.askoxford.com/
- Preece J, Rogers Y, Sharp J (2007) *Interaction Design: Beyond Human-Computer Interaction.* 2nd Edition. John Wiley & Sons Inc: West Sussex.
- Seale C (1999) *The quality of qualitative research.* Sage Publications: London.
- Souren P, Derek N (2010) Input information complexity, perceived time pressure, and information processing in GSS-based work groups: An experimental investigation using a decision schema to alleviate information overload conditions. Decision Support Systems (49), pp. 31–40.
- Shenk D (1997) Data Smog. Harper and Collins: New York.
- Smith K, Carroll S, Ashford S (1995) Intra- and interorganizational cooperation: Toward a Research Agenda. Academy of Management Journal (38): 7-23.
- Sweller J (1988) Cognitive load during problem solving: Effects on learning. Cognitive Science 12 (2): 257–285.
- Sweller J, Van Merriënboer J, Paas (1998) Cognitive architecture and instructional design. Educational psychology Review (10): 251–296.
- Sweller J, Van Merriënboer J (2009) Cognitive load theory in health professional education: design principles and strategies. Blackwell Publishing Ldt. Medical Education 2010 (44): 85-93.
- Sweller J (2005) *The redundancy principle in multimedia learning*. In R. E. Mayer, Cambridge handbook of multimedia learning (pp. 159–167). Cambridge University Press: Cambridge, UK.

- Sweller J, Chandler P, Tierney P, Cooper M (1990) Cognitive load as a factor in the structuring of technical material. Journal of Experimental psychology (119): 176–192.
- Tarmizi R, Sweller J (1988) Guidance during mathematical problem solving. Journal of Educational psychology (80): 424-436.
- De Jong T (2010) Cognitive load theory, educational research, and instructional design: some food for thought. Instructional Science (38): Nr. 2, 105-134.
- Waddington P (1996) Dying for information? A report on the effects of information overload in he UK and worldwide. Reuters, United Kingdom. Retrieved from CNI Coalition of Networked Information on 23. April 2009 http://www.cni.org/regconfs/1997/ukoln-content/repor~13.html#34
- Ward M, Sweller J (1990) Structuring effective worked examples. Cognition and Instruction (7) pp. 1-39.
- Wilson T D (2003) *Information management*. In International encyclopedia of information and library science, pp. 263–278. Routledge: London, UK.
- Wilson T D (2002) The nonsense of knowledge management. Information Research, Vol. 8 No. 1, October 2002, Retrieved on 28th April from http://informationr.net/ir/8-1/paper144.html
- Wilson T D, Streatfield D R (1980) 'You can observe a lot...': a study of information use in local authority social services departments. Sheffield: University of Sheffield, Postgraduate School of Librarianship and Information Science, Retrieved on 3rd May 2010 from http://informationr.net/tdw/publ/INISS/