CHALMERS

Experience feedback among project managers

Master of Science Thesis in the Master's Programme Design and Construction Project Management

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CHALMERS UNIVERSITY OF TECHNOLOGY

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ABSTRACT

AIM – Investigate if there are any barriers concerning experience feedback among the project managers. If there are any barriers the goal is to identify what kind of barriers that may influences the experience feedback.

METHOD – Methods used during this research have been questionnaire, interviews, observational studies and literature study.

FINDINGS – There are several barriers identified that affect the experience feedback among the project managers e.g. lack of time, lack of goals, an unclear work process, etc. for the work related to experience feedback. There are however some of them e.g. trust and culture that can be further investigated.

CONCLUSIONS – There are barriers towards experience feedback and there are ways of avoiding them but a good starting point would be to set goals, create a known process for the work with experience feedback and to improved interaction related to experience feedback. There is also a need for improvements of the technical systems and to create awareness about the barriers but also about were the experience feedback can be found.

Key Words project management, knowledge sharing, experience feedback, knowledge transferring, knowledge sharing barriers

Contents

Preface

I would like to thank Martine Buser from Chalmers University of Technology who has been my supervisor for this Master Thesis. She has during this maters thesis project supported me and given me guidance when needed. I would also like to thank Stefan Paterson who has been my supervisor from the National Transport Administration. He has helped me with not only support and guidance but also helped me with access to different parts of the division of major projects within the National Transport Administration. I would also like to thank Bo Larsson for the help with putting me in contact with Stefan Paterson. Finally I would like to thank all interviewees and questionnaire respondents, without you participation and involvement in this study, this had not been possible.

Göteborg, December 2012

Niclas Carnebratt

1 Introduction

The upbringing of this study was several lectures and presentations held by companies related to construction especially in Sweden that was talking about how they worked with knowledge managements systems and to keep experiences and lessoned learned from earlier projects. All companies seemed to have a system in place but if it actually worked was a questioned that emerged. This in combination with that all people make mistakes was how the interest for this study started. Because that all people make mistakes is not something new.

1.1 Background

The Swedish construction industry is the largest branch of industry in Sweden according to the organization Byggherrarna's website (2012). The industry had in 2009 a turnover at approximately 1000 billion SEK, employed approximately 500 000 and used 75 million tons of material (www.byggherre.se, 2012). All this indicated a large and important industry.

Within the construction industry there have been indications on a weak knowledge transferring (Josephson, Styhre & Wasif, 2008). This while companies from the construction industry sometimes imply that they have and use knowledge management systems nevertheless none of them seems to utilize the benefits of this. Why this is the situation is not clear but it may lead to reason to ask oneself if their knowledge managements systems really work or are used at all. However, it is presented that companies within the construction industry are making the same mistakes over and over again (Josephson, Styhre & Wasif, 2008). During studies of this area it shows that in the beginning of 21th century there were signals from the employees in some Swedish construction companies that the feedback and transferring of experiences did not work in a satisfying way. These signals where intercepted by academic researches that investigated the concerns more closely. Their research showed that experiences and knowledge often where lost between different phases within the project life cycles and that almost no continuous improvements were taking place within the investigated organizations. The issue with the shortage of experience feedback where mentioned as a major challenge within this area (Josephson, Styhre & Wasif, 2008).

During discussions before the study started with different managers within Trafikverket which is the Swedish name at the Swedish Transport Administration (Trafikverket, 2012c) about how to transfer, share and capture experiences there were indications that the experience feedback did not work as many of them would like.

Trafikverket is the Swedish Transport Administration and was founded in 2010 (Trafikverket, 2010a). Before Trafikverket was founded in 2010 as already mentioned it were several separate organizations governed by the Swedish government. The two largest and for this report most important organizations that merged where the former National Rail Administration and the former National Road Administration (Trafikverket, 2012a). Trafikverket is the Administration responsible for all long-term development plans for traffic in the airspace, at sea and at roads and railways in Sweden. They also have responsibility for construction, operations and maintenance of all roads and railways that are owed by the Swedish state (Trafikverket, 2012c).

Trafikverket's organization consists of several divisions and within the organization of Trafikverket this study investigates a scope of practice of the division of Major

Projects. Where it is located can be seen I Figure 1.1 below, it is marked with a red circle around. All project mangers employed within Trafikverket and the division of Major Projects received in June the questionnaire that was preformed in this study, which results will be presented later on in this report.
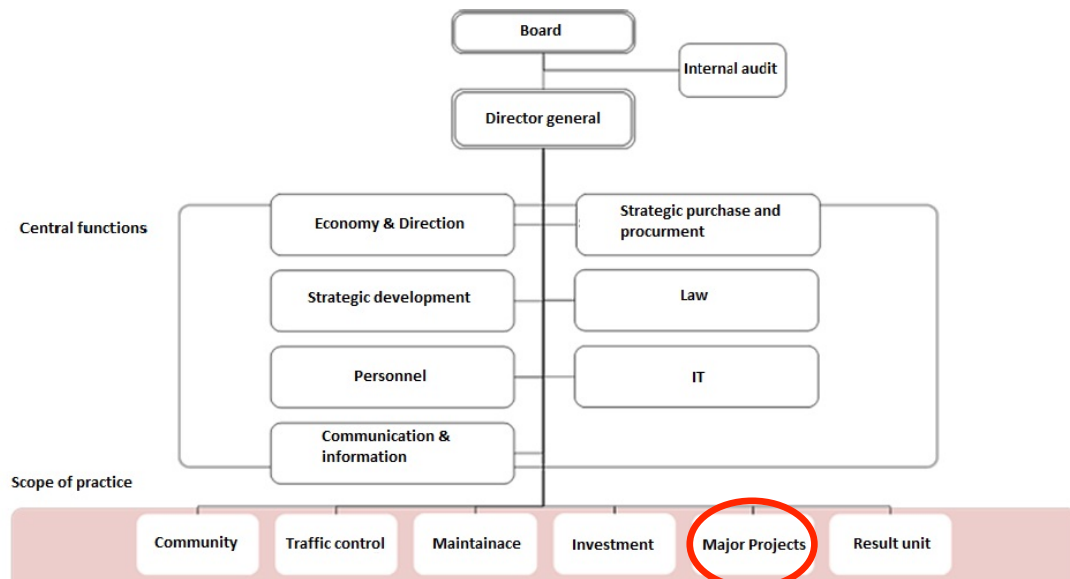
Figure 1.1 Organization based on a figure from (Trafikverket, 2012b)

1.2 Purpose and Objective

The purpose of this report is to investigate how the work with experience feedback that is a combination of knowledge sharing and transferring and how it works within Trafikverket and especially the division of major projects with focus on the project managers. The main focus has been how experience and knowledge are shared and transferred and if there are any barriers towards experience feedback that may exist within the division for the project managers. If any barriers that affect the experience feedback are found these shall be identified and investigated.

1.3 Limitations

In order to make this study possible some limitations have been necessary especially since Trafikverket is a large organization. The focus of this report is limited to project managers within the division of major projects within Trafikverket. The projects managers in this study are employed by Trafikverket, which means that no consultants are participating in this study. No geographical limitations have been made during the questionnaire but during the interview stage with project managers it have been limited to project managers located in the area around Göteborg. The study has also focus at knowledge sharing barriers within this part of the organization that affects the project managers.

1.4 Research Questions

Do there exist any knowledge sharing barriers that affect the experience feedback within Trafikverket? If there are any barriers that affect this, what are the barriers for sharing and transferring of experiences within the division of major projects in Trafikverket?

1.5 Outline of the report

The report begins by explaining how the idea of this report was born and what are its purpose and objective. Some limitations are also presented in order to make the report possible to write. Following this is a methodology chapter that explain the work processes and the methods that have been used. It also mentions the challenges that had to be considered. After this comes the theoretical framework, which defines and explains important terms and theories related to the topic of experience feedback. This will be followed by the empirical study, this material includes results from earlier studies which were the foundation to the questionnaire which results also will be presented. The Questionnaire results were the foundation to the interview questions and the results from the interviews both with the project managers and the program managers are presented in appendix A1. After that comes the analysis chapter that analyse the theory and the empirical study and this will then be followed by the conclusion to this report.

2   Methodology

The method used during these studies is based on a case study which includes a questionnaire, semi-structured interviews and observational studies of the certain parts and project and program managers within the organization.

2.1   Process

The work performed during this study has been divided in to four main stages. The purpose of this structure of the process is to simplify and create an overview of this study. The stages that the process consists of can be seen below in Figure 2.1. The process of this study has been to initially create an overview over Trafikverket and their work. This has included data systems, organization and how the employees work in order to find out how Trafikverket works with capturing experiences.

Reseach Stage
- Questionaire
- Litterature studies
- Introduction interviews
- Learn about the organization

Interview Stage
- Interview with project managers a Trafikverket
- Summarize interviews
- Complementary litterature stidues
- Summarize questionaire

Anyalysis Stage
- Summarize interviews
- Analyze interviews
- Analys collcted material

Final Stage
- Write conclusion
- Editing

Figure 2.1. The research process

2.1.1   Research Stage

The research stage has been the part of the study where most of the background facts and a large part of theories on the topic have been collected. Early in this phase most of the work was to investigate how the organization is organized, what systems that were used and how Trafikverket share and transfer experiences. The study reviewed both the work within Trafikverket in general and within the projects belonging to the division of major projects that are responsible for larger investments in railways or roads. During this initial part of the research two interviews with Josefin Larking and Jesper Mårtensson from the project BanaVäg west where held in order to get an brief overview of the work within the projects. After the initial part of this phase was performed the emphasis was on creating a questionnaire and send it out to all project managers employed by Trafikverket within the division of major projects. This was done in order to get a view of what areas that may create barriers for the sharing and transferring of experiences. Parallel with the work of the questionnaire a literature study started which ran through the rest of this stage. The literature studies included reading literature as articles, books and other information as e.g. web pages and databases.

2.1.2   Interview Stage

The interview stage involved interviews with five project managers within two different projects both located in the western region of Sweden. The projects represented were the BanaVäg west project and the Marieholm construction project. Both of these projects belong within the division of Major projects. In order to make the study even more comprehensive two interviews with two different program

managers, which are or have been manager to some of the project managers interviewed. This was done to gain more knowledge about how the sharing and transferring of experiences worked.

The interviews have been based on the results from the questionnaire which given the chosen project managers an opportunity to elaborate on the topic of experience feedback and their work with this. Each was given approximately two hours each in order to give the project managers time to express their thoughts on the topic.

2.1.3 Analysis Stage

The analysis stage was the phase of the study when theory and results from questionnaires, interviews and all other information gathered during the project came together and was analyzed.

2.1.4 Final Stage

The final stage in the process was where the report was put together and the last editing and complementary work was done. In this phase some additional literature studies were done and the editing together with some restructuring of the report were done.

2.2 Research Methods

This section will explain the research methods used during this case study of Trafikverket and especially project manages within the division of major projects. All project managers employed by Trafikverket have been given the opportunity to participate in this study. The research methods that have been used are case study, self-completion questionnaire, interviews and observational studies and will in the sections below be further explained.

2.2.1 Case Study

A case study typically focuses at an organization, location, person or a single event and they can often be described as intensive and detailed way of examining a specific case. This case study is focusing at Trafikverket and five project managers and two program managers within the division of major projects. A case study namely is a combination of focuses such as an organization and certain people. It is also determined from this that case studies often are a combination of understanding of larger issues and specific situations (Bryman & Bell, 2011).

During case studies qualitative methods such as interviews and observations often works as preferable methods. However, one issue with case studies may be the quality of the theoretical reasoning that has to be carefully considered. It is also recommended not to get to detail of the simple reason that the case then easily could be too complex (Bryman & Bell, 2011).

2.2.2 Self-completion questionnaire

The purpose of using questionnaire in this study was to find out what areas concerning experience feedback that the study should focus at later on during the interview stage. The self-completion questionnaire is used as a way to get a more general picture of how the project managers within the division of major projects in Trafikverket works with sharing and receiving experiences and what they find as issues related to this. In this report the self-completion questionnaire has been a web-based questionnaire including 13 questions. The questionnaire was sent out through e-

mail to 58 project managers within the division for large projects at Trafikverket. Out of these 58 project managers 36 responded, which gave a response rate of 62 %, which is considered as acceptable by Swanson & Elwood (2005).

However this method has advantages that are the reason for why it is used but it has also disadvantages that had to be taken into account. The advantages with a survey are that it is cheap and quick to administer which also are reasons to why it is used as a method in this report (Bryman & Bell, 2011). In this case it also got to a rather large amount of project manages within a short amount of time. Using this method also creates the advantage that the respondent will not be affected in any way by the interviewer and that the questions always will be asked in the same order. Except this it is also up to the respondent to answer and this can be done whenever it suits the respondent (Bryman & Bell, 2011).

Disadvantages with this method are that the questions must be asked in a way that is clear and not can be misunderstood by the respondent. It is also important to keep the interest and not make the respondent tired of answering the questionnaire which can be prevented by using short questions, not to many questions and just a small number of open questions and only if necessary (Bryman & Bell, 2011). In order to avoid this the questionnaire has been limited to 13 questions that has been read by other than the researcher in order do decrease the risk of the questions to be misunderstood. The sender of the survey have also no opportunity to make the respondent elaborate more on certain answers as they can in example a structured interview and neither can additional data be collected if this later on is discovered necessary (Bryman & Bell, 2011). Even if there not are opportunities to interview specific participants have 5 project managers been given the possibility to elaborate more at the topic during interviews. While using this method there is a risk of low response rate that could affect the variation and credibility to the results (Bryman & Bell, 2011). In order to get as many respondents as possible the participants have been reminded about the questionnaire several times and some program managers has also encouraged his or her project managers to participate. There are however no guarantees that the project managers really answers. The respondents might also read the entire questionnaire before they start answering and the consequences of this can become that the questions no longer are independent from each other and that the respondent not might answer the questions in the right order (Bryman & Bell, 2011).

2.2.3 Interviews

The interviews were based on the results of the questionnaire and used for increasing the understanding for both project managers opinions but also how they worked. In order to get familiar with the setting and get to know the organization two semi-structured interviews where performed with the responsible of HMSQ and the support function within BanaVäg west. While the later interviews with the project managers and program managers have focused at gathering as much information as possible but still in the topic. A semi-structured interview is based on a set of predetermined questions or an Interview guide. The questions are rather specific for the topic but the interviewee can speak relatively free when answering the questions. Questions outside of the predetermined can be asked but the structure within the interview guide is what can be used to compare answers between different interviewees (Bryman & Bell, 2011).

The reason that the interviews are semi-structured is because it gives an opportunity to compare some of the questions from the different interviews against each others, to

keep the focus at experiences without the interviewees getting off track and at the same time been given the opportunity to describe more about the topic of sharing and receiving experiences (Bryman & Bell, 2011).

The interviews with the project and program managers started with some coffee and small talks in order to get to know a bit about the project and about each other. Then the main interview started and lasted for approximately on hour for each of them. It was clear that many of the interviewees started to relax and speak more free at the end of the most interviews and sometimes after the interviews a discussion followed and most of them spoke even more free when the recorder was turned off which led to interesting conversations about the topic. These conversations were e.g. about what they thought worked and not worked concerning sharing and receiving experience between co-workers. Most interviewees opened up and are considered as credible and trustworthy. Three of them are seen as they opened up and gave their true opinions. All results are seen as credible but there way of expressing themselves and talking are considered. The results may not be applicable at the entire Trafikverket but because of the fact that the results from these interviews seem to be inline with the answers from the questionnaire that involved the entire division of major project it seems that it is reasons the believe that it may be applicable at this division. The project that are most certain to be related to these results are the BanaVäg west but some of the project managers from that project will also participate in the West Link project within the nearest future.

2.2.4   Observational Studies

During this observational study the used research method is an unstructured observational study. The reason that the unstructured observational study is chosen in this case was that the situations that would be observed was unknown in advanced and to capture general observations. During an unstructured observational studies no observational schedules is used to record what happening. During unstructured observations the participants' behavior and activities that are observed and recorded in as much detail as possible (Bryman & Bell, 2011).

The credibility is higher when a third party does observations than if an employee does it because a third party observer have less reason to manipulate the information. An observational study is more about what really happened than on how people percepts their reality (Rothwell & Kazanas, 2003).

3   Theoretical Framework

In this chapter will the theory be presented and it begins by explaining important definitions and terms and then presents theoretical barriers towards experience feedback.

3.1   Definition of experience

Defining the terms experience and knowledge will support the deeper understanding of this report and some expressions must be explained and further developed because of this. According to the National Encyclopedia experience is described "a philosophical term with varying content" (Nationalencyklopedin, 2012a). When investigating more in depth what the word experience means, several different explanations occurs both at the Swedish National Encyclopedia and at the British encyclopedia Britannica. However, the most common definition and explanation of experience is *"Practical knowledge, skill, or practice derived from direct observation of or participation"* (Britannica, 2012; Nationalencyklopedin, 2012a).

From these definitions knowledge is mentioned, because of that the definition of knowledge is investigated. Newell et.al. (2009) stated that there is no clear definition of knowledge this might depend on the fact that even knowledge in similarity to experiences is a philosophical term (Nationalencyklopedin, 2012b). Knowledge can be seen as possessed knowledge that is as described in Managing knowledge work and innovation written by Newell et.al. (2009) as "personal property of the individual knower who is able to confer meaning on data and information by drawing from his or her own subjective experiences, perceptions and previous understandings". It can also be seen as practiced knowledge that (Sue Newell, 2009) is described as "constructed and negotiated through social interaction. Knowledge is, therefore, intrinsic to the localized social situation and practices". Another way to describe knowledge is as Davenport does in the article written by Barson (2000) "information combined with experience, context, interpretation and reflection".

Mentioned above is that knowledge is a part of the definition of experience and experience is a part of the definition of knowledge. There must because of that be a relation between these two word and philosophical terms. In this report they are because of these facts seen as similar and because of that knowledge is seen as experience and the other way around. There for methods that is applicable for knowledge should also be applicable at experience. Because of the close connections between knowledge and experience the same methods and processes are seen as suitable for experience feedback and knowledge management, which will be seen as similar.

3.1.1   Explicit and Tacit Knowledge

When looking more at the view that knowledge is possessed this view can be divided in to two categories of knowledge, the tacit knowledge and the explicit knowledge. Tacit knowledge is knowledge that is difficult to express in words both by writing it and by speaking. Explicit knowledge can be both spoken and written (Newell et.al., 2009). These two views seem to complicate things further. However, can the tacit knowledge be converted into explicit knowledge (Newell et.al., 2009).

Explicit Knowledge

As mentioned in chapter 3.1.1 there are two categories of knowledge where one of these is explicit knowledge. Explicit knowledge is often described as knowledge that can be expressed in writing or by someone telling it according to Newell et.al. (2009). Explicit knowledge can also be describes as formal written documents and texts in databases (Buckman, 2007). Sometimes explicit knowledge is even described as information, which means that it easily can be codified and transferred (Dyer & Nobeoka, 2000). Cabrera and Cabrera (2002) described explicit knowledge as knowledge that is easy to communicate. In this report explicit knowledge is simple knowledge that easily can be explained to another person without explaining different parameters or context in order to be able to understand.

Tacit Knowledge

By now one of the two categories of knowledge has been explained earlier in this chapter. The category left to explain is tacit knowledge, which is knowledge that is difficult to express in writing or verbally as explicit knowledge even if it is possible to convert into explicit knowledge, which can be expressed in earlier mentioned ways. Tacit knowledge is built on a person's experiences (Newll et.al., 2009). Buckman (2007) describes tacit knowledge as "the knowledge that is in people's brains". It is also further developed as ever changing and developing knowledge (Buckman, 2007). Dyer & Nobeoka (2000) also mention that tacit knowledge is difficult to codify but also notes that it is complex and involves context specific learning (Dyer & Nobeoka, 2000). Cabrera and Cabrera (2002) wrote about it as know-how and practical skills that are difficult to communicate. In this report it is seen as knowledge that is a complex and a combination of different areas that require understanding of the context and various surrounding factors.

3.2   Experience Feedback

Experience feedback in this report is seen as a combination of both knowledge sharing and knowledge transferring. In this section will both knowledge sharing and knowledge transferring be explained and in the end of it the view on experience feedback in this report will be presented.

3.2.1   Knowledge Sharing

Knowledge sharing is often used in organizations as ways of creating themselves a competitive edge (Schwartz, 2006; Riege, 2005). This however requires that knowledge sharing within the organization works. The knowledge sharing differs from knowledge transferring, which will be discussed further in chapter 3.2.2. Knowledge sharing is an unintended, multidirectional, informal and do not have a specific purpose or objective. In the Encyclopedia of Management by Schwartz (2006) is Foy cited and said "facilitating learning, through sharing, into usable ideas, products and processes." about knowledge sharing.

There are also different views and perspectives of knowledge sharing. There are two quite different perspectives from where knowledge sharing can be seen. One is that knowledge sharing is dangerous because you share personal secrets concerning how you work. This view is negative and persons with this attitude will neither share or support sharing within the organization. The other perspective is the positive one that views knowledge sharing as something with great potential and because of this will support it. Both views provide an angle on the topic of knowledge sharing and even if

there are clear benefits in knowledge sharing it does not come without some issues. One issue with knowledge sharing is that a "free-rider-syndrome" may occur among some of the employees within the organization which means that the take advantage of the benefits but not contribute to the system by in this case sharing their own knowledge or experiences (Schwartz, 2006).

Potential sharers of knowledge may also possibly consider the cost of sharing such as e.g. time and effort required to share knowledge. These factors may affect if the potential knowledge sharer shares his or her knowledge or not. However, even if there are high amount of time and efforts that is required motivators as improved self-esteem, strengthened individuals by understanding of knowledge or shared values for example can motivate to share knowledge except the high cost perspective. Another thing that could affect the individual to share knowledge could be the surrounding context within an organization. One factor when implementing a system for sharing of knowledge is to have a culture that supports the knowledge sharing needed (Schwartz, 2006). This can of course be affected by different motivational factors. Concerning sharing knowledge there are two ways on how to make the employees to share knowledge. First there is the supervisory control approach, which means that the supervisors' checks up on the employees and introduce mandatory meetings etc. Second approach is the social exchange approach that may be related to organizational support, relationships and employees commitment to an organization. But how to make employees to share their valuable knowledge is not a question that has been answered so far. So far the research within the topic of knowledge sharing has also most focused at the supply of knowledge i.e. knowledge sharing (Schwartz, 2006). There are matters that are complex concerning knowledge sharing. While other assets to an organization can be owned and developed over time is knowledge facilitated within the employees and can both be outdated or disappear if the employee decides to leave the company (Riege, 2005). The access to the knowledge can also be limited because there is tacit knowledge that is stored in persons and explicit knowledge that is stored in documents that not might be accessible for others (Reige, 2005). These issues will be further developed in the section about knowledge sharing barriers.

3.2.2   Knowledge Transferring

Knowledge transferring is formal and clearly defined and unidirectional which means that knowledge transferring differs from knowledge sharing that has been explained earlier (Schwartz, 2006). Knowledge transferring is an important aspect of the development. This can easily be understood when realized that without it every problem-solving situation solution or operational way of working have to be reinvented every time it is used (Schwartz, 2006).

A clear definition what knowledge transfer mean does not exist but there are several rather different perspectives of with it means. One of these perspectives is that knowledge has to be communicated and applied in order to be transferred. Another perspective is that knowledge has to be communicated but that it has to be applied but first afterwards the transfer has taken place. Another presented perspective is that the knowledge has not only to be communicated but also understood by the person that receives it before it is completely transferred. The only certain thing about knowledge transferring is that it can be seen in many different ways and that there are not one way to interpretive it (Schwartz, 2006).

3.2.3 The view at experience feedback in this report

Knowledge sharing and knowledge transferring is now something that has been explained in chapter 3.2.1 knowledge sharing and 3.2.2 knowledge transferring. In this report from here on these two will together be seen as experience feedback. This because in this report feedback experience is seen as something that is both formal and informal, unidirectional and multidirectional, unintended and clearly defined but also as something that has a specific purpose. This means that what is seen as barriers towards both knowledge sharing and knowledge transferring are also seen as barriers towards experience feedback. This subject will be discussed further in the next section of this report.

3.3 Knowledge Sharing Barrier

Knowledge sharing is a topic that is discussed but the routines and process of how this occurs is still a rather new field. The knowledge sharing barriers is what interferes with knowledge sharing process and disturbs the sharing of knowledge (Schwartz, 2006, Chapter: knowledge sharing barriers). Knowledge sharing barriers may end up in large costs, slower production, unsuccessful gathering and translations of information into useful specifications (Barson et.al., 2000).

During the research preformed within the field of knowledge sharing several barriers has been identified (Schwartz, 2006,). Issues that could interfere with the knowledge sharing are culture, technology, access, usability, time limitations, understanding of context, low user friendliness, low trust, and lack of knowledge sharing facilities etc. (Schwartz, 2006). According to Riege (2005) there are many different barriers but they can also be located on different levels within an organization as the individual level, the organizational level or at the technological level. However, does also Barson et.al. (2000) separate the knowledge sharing barriers into categories of technology, organizations and people. This section will because of this be divided into three areas, which are, individual, organizational and technology. A majority of the knowledge sharing barriers are according to Barson et.al. (2000) barriers that involve issues related to people. The key to successful knowledge sharing is within the individuals because they are the once that learn and not the organizations according to Fraser et.al (2000).

Barson et.al. (2000) however notes that the main focus should not be on technology even if this is a widely discussed area involving software and so on should the focus rather be at the individual level. Much focus is because of this on individuals and organizations but Dixon (2002) also notes the importance of the receiver of knowledge that often is ignored.

One way to defeat the knowledge sharing barriers is to start in a small scale because it decrease the risk of not succeeding and allow the involved to experiment and in that way learn how the barriers can be defeated (Levina, 2000). Riege (2005) also mentions that smaller units have easier to share. According to Cabrera and Cabrera (2002) there are also so that large groups has less collaboration than smaller groups.

3.3.1 Individual Level

This section will present barriers at the individual level and what the impact of them may be fear and lack of context etc. An individual's knowledge is owned by that person and could not be property of the organization. When individual share knowledge it is by that person own will to share it (Dixon, 2002). This is also they

way it is viewed during this report even there are possibilities for others to see what a person have done, they can never know how they thought when they took decisions and worked with the specific activities without the person that has done it sharing it. Because of the importance of the individual there are several aspects that are important such as participation, rewards and to be encouraged (Fraser et.al, 2000). Cabrera and Cabrera (2002) mentioned that knowledge sharing is affected positive by personal responsibility and individuals that think that they can help others with it.

One individual barrier is that the individual may prevent that the knowledge reaches outside organizations. They may also dismiss other knowledge or focusing too much on the technical aspects of the knowledge sharing (Barson et.al., 2000).

Another barrier at the individual level is self interest, which is that competitive organizations will gain from the knowledge sharing the organizations perform (Barson et.al., 2000). It may also be that a person share when they gain more than the effort and resources they put into the work of sharing (Bock & Kim, 2002). The issue and barrier with self-interest is that it prevent that it reaches competitive organizations (Dyer & Nobeoka, 2000).

Barriers are created by people and can because of that also be solved by them if they put some effort on solving them (Buckman, 2007). The knowledge sharing still builds on the participation of people even if technical solutions and systems make it easier to overcome the barriers (Ellis, 2001).

What to keep in mind is that even if there is a positive attitude among the individuals toward knowledge sharing it does not mean that they will act in a way that supports knowledge sharing (Fraser et.al, 2000). Persons that think knowledge sharing has advantages are more positive towards knowledge sharing in their attitudes (Bock & Kim, 2002). In order to create awareness about what positive impact a person's knowledge can have to others is one way that may reduce barriers towards knowledge sharing according to Riege (2005). According to Fraser et.al (2000) the fact that all within the organization that used knowledge sharing showed that people that shared benefited of it and that positive effects on the team work were the main things that motivated knowledge sharing. The following section will present a few other barriers that may occur at the individual level.

Contacts & Relationships

This section discusses barriers related to relationships between people. There are a relationship between trust, which will be further discussed later on in chapter 3.3.4.3 trust. When establishing relationships through interaction one thing that between interaction and trust is mentioned as something that may be a success factor is to using a persons network (Levina, 2000.) A network is "communicate with and within a group" according to www.tyda.se (2012). Networks that may support the knowledge sharing have to consist of personal networks that the employees use in the everyday work (McDermott & O'Dell, 2001). In the study by McDermott and O'Dell (2001) wrote that the individuals might find people to help them or teach them things within their informal networks. Within these informal networks there already exists trust and a willingness to share knowledge but there must be a purpose and existing goal with the network in order to reach success (McDermott & O'Dell, 2001). The networks could also be used in order to create a knowledge sharing culture (McDermott & O'Dell, 2001). McDermott and O'Dell (2001) notes that supporting already existing networks can be done by giving them resources and making them legit this might have positive effects because they already have relationships and ways of working

that functions. According to Ellis (2001) it is important to establish access to the persons possessing the knowledge than just the knowledge. Other studies also mention the networks and according to studies from Toyota by Dyer and Nobeoka (2000) its important to motivate people to share, prevent free riders and decrease cost related to using different kinds of knowledge. A network with strong ties will also make it easier to find and share useful knowledge and increase probability of trust among the networks members (Dyer & Nobeoka, 2000). All of these factors related to contacts and relationship with other people that may decrease the possibility of existing barriers at the individual level.

Fear

There are also different fears that could prevent knowledge sharing and act as barriers such as fear of exploitation or fear of contamination. Fear of exploitation is the fear of sharing and not receive any knowledge in return (Barson et.al., 2000). The issue with free riders also consists of sharing but not receiving anything back from the person that act as a free rider (Dyer & Nobeoka, 2000). Cabrera and Cabrera (2002) describe free riders as "to enjoy resources without contributing to its provision". Because of the fact that knowledge is personal and only can be shared voluntary by the person that withhold the knowledge Dixon (2002) mentions that the sharing of the knowledge can be increased by value and showing appreciation for it. By establishing norms and rules within the networks mentioned earlier the issue with free riders can be prevented according to Dyer & Nobeoka (2000).

Fear of contamination is the fear of that the knowledge will be developed in e.g. another way than the way the individual prefer (Barson et.al., 2000). Affecting this may be the receiver's confidence in the provider's judgment (Dixon, 2002). The receiver wants to be able to trust that the knowledge provided is correct (Ellis, 2001). However, Fraser et.al (2000) notes in their study that there is little fear of sharing with co-workers, which makes the impact of this barrier limited but something that still exists.

Lack of context or related knowledge

If the receiver of the knowledge has a lack of knowledge related to a certain subject the knowledge concerned will be more difficult to absorb and might in that way create a barrier for knowledge sharing. The ability to absorb knowledge may according to Dixon (2002) affect "culture, language, technology, discipline and level of experience". Dixon also writes that "The receiver can only take effective action on what he or she can make sense of." In order to be able to make sense of someone else knowledge reasonable individuals has to ask questions. When the receiver of knowledge is confident in in the knowledge received that person must evaluate how it will fit into the context that he or she are in (Dixon, 2002).

In order to take the context into account Dixon (2002) mentions something called Peer Assist that means that others are invited to look at a specific problem. This allows the invited to use their tacit knowledge (Dixon, 2002). Tacit knowledge has also earlier in chapter 3.1.1.2 Tacit knowledge been mentioned as specific knowledge and complex knowledge. According to Dixon (2002) are conversations face-to-face more effective when transferring complex knowledge than e-mails or databases. Also Riege (2005) notes that differences in level of experience can be a barrier towards knowledge sharing.

When employees within an organization have different professional experiences and education barriers concerning cultures, goals and professional language could occur (Levina, 2000).

3.3.2 Organizational Level

As already mentioned there are three different levels of barriers towards knowledge sharing and this section will present what barriers that may occurs at the organizational level. There are several barriers that affect the organizational level such as organizational structure, costs, goals etc. One thing that is important to decrease the probability of knowledge sharing is to have a useful knowledge management system, it is important to know within what subjects the knowledge will be used (Barson et.al., 2000).

Another barrier is a physical distance that makes it impossible to communicate face-to-face which according to the Barson et.al. (2000) that is the most efficient way to do this. A barrier that might occur when people are at different locations is that contextual information might be lost (Levina, 2000), which is something that has been explained earlier in chapter 3.3.1.3. This occurs even if the technology allows knowledge to be shared over distances (Okunoye & Karsten, 2002).

According to Barson et.al. (2000) it is important for organizations to first to become aware of that and to overcome the knowledge sharing barriers found. McDermott and O'Dell wrote that let influential managers encourage knowledge sharing for the organization to implement knowledge sharing in the routines of peoples work. Also Okunoye and Karsten (2002) mention the importance of managers' leadership but for creating a knowledge sharing culture will be further discussed in chapter 3.3.4.2. It is also noted that adapting to the style and values of the current organization when adapting towards knowledge sharing (McDermott & O'Dell, 2001). Good systems and ways of working in combination with showing the advantages and to encourage knowledge sharing are vital (Fraser et.al, 2000). Ellis (2001) wrote about when a group gets a responsibility to share knowledge where the group shall have a few meetings were all of the members shall share knowledge they will develop new knowledge and share with each other. Cabrera and Cabrera (2002) wrote that group discussions may increase perception of group identity or commitment and it might also increase the contribution to the group. Fraser et.al (2000) recommends that the organization have a strategy for knowledge sharing. Networks as been mentioned earlier should according to Fraser et.al (2000) benefit from a knowledge sharing strategy. According to Carbrera and Cabrera (2002) is it important to get the employees to understand the importance of knowledge sharing. Training could help the employees to learn what would be useful and valuable knowledge to share with others. Other important factors that affect the knowledge sharing is to have motivated people, employees that share knowledge and to allow people to try working in new and different ways (Cabrera & Cabrera, 2002).

Organizational structure

This section present possible barriers related to an organizations structure. One barrier can be that organizations with hierarchical structure may messages change or become distorted when it is communicated through several persons and in order to avoid this, the best way is often to go directly to the original source of the message (Buckman, 2007). By talking to the person that possesses the knowledge directly the risk for misunderstandings can be decreased (Buckman, 2007). In relation to this everybody

shall also have access to anyone else that might be able to provide him or her with useful knowledge (Buckman, 2007).

Because of different status between people at different levels within an organization may create barriers that makes it difficult to get the knowledge heard or a resistance to listen at others (Levina, 2000). There has been believed that status and power is related to a lack of willingness to share knowledge (Fraser et.al, 2000). Also Riege (2005) mentions power and status at different positions within an organization as possible barriers. Despite this fact are there many persons that according to Fraser et.al (2000) consider sharing their knowledge anyway.

Costs

Another barrier is increased cost for collaborating organizations because of organizational differences such as priorities, motivation and styles (Barson et.al., 2000). To increase knowledge sharing can the things people experience as costs be decreased or the experienced benefits be increased (Cabrera & Cabrera, 2002). One way of decreasing the perceived cost for knowledge sharing can according to Dyer & Nobeoka (2000) be to create networks that contain a feeling of a shared identity.

When evaluating someone else knowledge the e.g. cost and time for it must be considered in order to see if it is worth to use. Time and support are necessary to be provided by the managers in order to the individuals to adapt others knowledge into their situation (Dixon, 2002). Also McDermott and O'Dell (2001) note the managers' importance for knowledge sharing and that the managers give their support clearly.

Reward

Rewards can be financial but also be things as personal satisfaction accomplished by being a part of a group (Hall, 2001). Cabrera and Cabrera (2002) are writing about financial and social rewards were its explained that social rewards might be very powerful but in order for them to be that they have to be public, rare, credible and be culturally meaningful. Ways to reward knowledge sharing can be feedback, showing appreciation and give recognition for the knowledge shared (Okunoye and Karsten, 2002). Ellis (2001) also notes the importance of using feedback within an organization. Even Cabrera and Cabrera (2002) noted the importance of feedback in knowledge sharing. Cabrera and Cabrera (2002) also noted that a group identity has positive effects on knowledge be creating a belonging and personal responsibility.

Fraser et.al (2000) found in a study that the willingness to share knowledge dropped when they went from sharing it for free to be offered a financial reward for their sharing. The same report also established that financial rewards had no large impact on the motivation in order to encourage knowledge sharing. Instead the study said that people wanted those who had interest and that they would gain through the organization they were in (Fraser et.al, 2000). Rewards might according to Bock and Kim (2002) have negative effects on knowledge sharing. According to McDermott and O'Dell (2001) none of the companies in their study found systems for reward and recognition to work exceptionally well for motivating the employees. However it was seen as a way to highlight that the organization finds it important (McDermott & O'Dell, 2001).

Goals

Organizations may avoid barriers by having goals that not are conflicting with other goals both at the organizational level but this also apply on the individual level

(Levina, 2000). McDermott and O'Dell (2001) noted that lack of connection between organization and the goals as something that can increase probability of creating barriers towards knowledge sharing. Ways of solving this can be done by including knowledge sharing within the business strategy, to share knowledge to other important operations within the organization and create routines that share knowledge on how the organization works to solve different specific problems. It is important to show a connection between knowledge sharing and the operations within the organization (McDermott & O'Dell, 2001). Riege (2005) also notes the importance of connecting the organizations work with knowledge management in to their strategy and goals.

3.3.3   Technology Level

Within this section barriers that are related to technology is presented and the main focus is at IT-systems and what barriers that they may contain. Known barriers concerning this is e.g. undeveloped IT-system (Hall, 2001) and inherited systems (Barson et.al., 2000).

The current knowledge management system within an organization can be underdeveloped and in order to solve this the organization has to come up with something. This because if the content in the system not is useful to the user they will not use the system and they will also not contribute to the system (Hall, 2001).

There can also be that systems have been inherited and may work as a barrier to knowledge management. There are difficult to manage different departments systems so they become connected to each other and work in a good way (Barson et.al., 2000).

All people within the organization must also be able to connect to the knowledge management system regardless of location or time (Buckman, 2007). The system must also be user-friendly according to Buckman (2007) it should be kept short and simple for the users. In this way all employees is able to contribute if they had something useful to share (Buckman, 2007).

When implementing e.g. new software the probability of success will increase if necessary support can be provided initially during the first weeks or months (Dixon, 2002). Organization that only implemented a data system has in most cases fails in some way because it is more suited for informational than for knowledge distribution (Fraser et.al, 2000). The system must also be easy to use and it shall be simple to realize how to use them (Hall, 2001). A useful system will contribute to motivating the users to use the system according to Hall (2001). Motivating factors to knowledge sharing within the system is e.g. trust and the ability to identify with those who can receive the knowledge (Hall, 2001).

According to same study as already mention there should be easy to find what is useful and also who had contributed with it to the system in order to make it possible to follow up the author or creator of the material in reality with personal contact. The shared identity might be achieved by having common goals with the other members of the group or organization (Hall, 2001). Hall (2001) notes the importance not only of input friendliness but also the importance of output friendliness that should be kept in mind. Even Cabrera and Cabrera (2002) mention the importance of a good design and user-friendly technology to increase the probability of knowledge sharing. It will also allow the user to use it more efficient and decrease the experienced cost of using it (Cabrera & Cabrera, 2002).

All previous barriers is important but Cabrera and Cabrera (2002) said, "technology is only one of the ingredients for successful knowledge exchange", which also should be remembered.

3.3.4 Barriers that exist at several levels

The barriers that earlier in this chapter have been presented are barriers that are located at one of the three different levels mentioned. This chapter will present barriers that can be found at several levels e.g. lack of resources, culture and trust.

3.3.4.1 Lack of resources

A knowledge sharing barrier that may affect all three different levels are resources. To have available resources is important to be able to operate the knowledge sharing and resources can be e.g. money, time, technology etc. (Barson et.al., 2000). In earlier studies people have answered that they would like to share knowledge but that they not have enough time for it (McDermott & O'Dell, 2001). There can be general lack of time that makes people miss others in need of certain knowledge (Riege, 2005). Too little time can also create barriers because of a shortage of interaction between the knowledge holder and the person in need of it (Riege, 2005). One way of decreasing what people is experiencing as a cost is to make sure that they have enough resources to share their knowledge (Cabrera & Cabrera, 2002).

3.3.4.2 Culture

McDermott and O'Dell (2001) mention the definition of culture as "shared values, beliefs and practices of the people within the organization". A knowledge sharing culture would then consist of voluntary and naturally sharing of ideas and insights (McDermott & O'Dell, 2001). Lack of supporting culture is also knowledge sharing barriers and can occur at both the individual and organizational level. However, it does affect the individual and organizational level (Barson et.al., 2000). The culture might be seen as an important aspect in terms of creating a more effective sharing of knowledge (McDermott & O'Dell, 2001).

When the organization is located in different countries may barriers also occur because of differences in languages and cultures within each country where employees operate (Levina, 2000). Also Buckman (2007) wrote about knowledge sharing barriers related to different cultures and languages. Riege (2005) mentioned also differences in culture and that it was related to languages.

Different organizations can also have different cultures and goals that might create knowledge sharing barriers (Levina, 2000). Similar barriers may also occur within an organization when people belong to different units within the organization and then the knowledge sharing barriers will concern different sub-cultures and sub-goals (Levina, 2000). The importance of culture is already mentioned and McDermott and O'Dell (2001) have found relations between culture and how business problems are solved, the tools and structure for knowledge sharing and reward and recognition works in relation to it. Because of this is it important to establish a culture with knowledge sharing in order to get people to share their knowledge (McDermott & O'Dell, 2001). Even if the organizations have technical systems it also needs supporting knowledge sharing culture (Okunoye and Karsten, 2002). An important aspect when creating a knowledge sharing culture within an organization is to the managers' commitment for it to develop in a positive way (Okunoye & Karsten, 2002). Also Cabrera and Cabrera (2002) mention the importance of a culture that support knowledge sharing and that supporting managers are important to knowledge

sharing. It is also noted that the employees need to be motivated and need structure and processes that support their work (Cabrera & Cabrera, 2002). There is however also noted that knowledge friendly culture is important that consists of openness, educations commitments, rewards when participating, supporting mangers as mentioned earlier and creating awareness of the advantages the knowledge sharing contributes with (Cabrera & Cabrera, 2002).

3.3.4.3 Trust

Other reasons that makes individuals create barriers by not sharing knowledge with others is that they not trust them e.g. think they will use the knowledge in a proper way or be able to keep the secret (Barson et.al., 2000). Trust is something necessary when sharing knowledge that individuals see as their (Barson et.al., 2000). In relationships are trust important in order to have an acceptance for mistakes within an organization. It is also important in order to create relationships in order to not create knowledge-sharing barriers of low trust among individuals (Levina, 2000). Individuals tend to not share without been given a reason or trust those he or she shares the knowledge with (Ellis, 2001). Misused knowledge e.g. that people have taken credit for someone else's knowledge can lead to low trust (Riege, 2005). Credibility of the source is also important in order to avoid the barrier caused lack of trust (Riege, 2005). According to Dixon (2002) can managers "facilitate the building of relationships that lead to more, and more effective, knowledge sharing.". Low trust may occur when lack of history or interaction between persons (Levina, 2000). Managers also need to trust that the information the receivers have are the most suitable for his or her situation (Dixon, 2002). Also Bock and Kim (2002) mentions trust as something important as a part of the social exchange theory but also mentions feelings of responsibility and appreciation as factors that affect the knowledge sharing.

Organizations can affect the barriers with low trust and reduce it by having structure (Levina, 2002). In order to create trusting relationships a climate among the people must be established (Buckman, 2007). Knowledge can only be shared if the one that possess it wants to share it and because that trust and openness is necessary (Okunoye and Karsten, 2002).

3.4 Summary of the theoretical chapter

This chapter started by establishing that experience and knowledge have similarities and can apply the same theory. Tacit and explicit knowledge is also briefly presented in this chapter. The experience feedback is viewed as a combination of both knowledge transferring and knowledge sharing. The knowledge sharing is as explained unintended, informal, multidirectional and have no specific purpose while the knowledge transferring is formal, unidirectional and have a clear purpose. However there are barriers towards experience feedback that is divided into the three levels: individual level, organizational level and technology level. Then there are some barriers that are a combination of these levels. The barriers that have the largest impact are barriers that are related to the individual or organizational level.

At the individual level barriers are for example contacts, relations, fear and lack of context. When it comes to the barrier lack of context is it explained as lack of knowledge within a certain area. Concerning the organizational level can barriers be organizational structure, goals, rewards and costs. The important thing here is to have awareness according to the theory. Concerning the technology level can barriers be

IT-systems and user-friendliness of the technology. Barriers that consists of more than one level is culture, lack of resources and trust. All of these barriers must be kept in mind in order to be aware of them in order to detect them and prevent them.

4 Empirical Studies

In this chapter, the results of the study are presented. The chapter start by presenting Trafikverket and give some background information. It will then explain what parts of the organization and what projects this study has chosen to look a bit closer at. The projects that have been given some additional attention will be presented briefly and after that the process, meetings and IT-systems that exists today will be presented. These things will later on be further developed by looking into previous research related to experience feedback within Trafikverket. It will later in this report be followed up by the results from the questionnaires and interviews.

4.1 About Trafikverket and the projects

Trafikverket has already been mentioned in chapter 1.1 but in order to understand how it works today it will be elaborated a bit more. Trafikverket is the Swedish Transport Administration and where established in 2010 through a merger between among others the old Railway Administration and Road Administration together with parts from other organizations governed by the Swedish government (Trafikverket, 2012a). It is responsible for all long-term development plans for traffic in the airspace, at sea and at roads and railways in Sweden. They also have responsibility for construction, operations and maintenance on all roads and railways that are owed by the Swedish government (Trafikverket, 2012c).

4.1.1 Organization

The organization consists of several divisions and within the organization of Trafikverket this study investigates scope of practice of the division of Major Projects within Trafikverket. Where it is located can be seen in Figure 1.1 in chapter 1.1. All project mangers employed within Trafikverket and the division of Major Projects in June received the questionnaire that where preformed in this study.

4.1.2 About the projects where the interviews where done

The projects followed in this study were, the BanaVäg West Project, the Marieholm Construction Project and the West Link project. BanaVäg West where that project where the most of the project managers worked and also the project this study followed most closely.

BanaVäg West Project

BanaVäg West is the project that this study has followed the most. It is an infrastructure project between Göteborg and Trollhättan where Trafikverket builds double track railway and a two-lane motorway in both directions. The routes affected by this project is the European highway 45 which will become a four-lane motorway and the Norway/Värnern route by railway that will become a double track as mentioned earlier. The localization of both these routes could be seen below in figure 4.1 (Trafikverket, 2012d). From this project were the program manager and four project managers interviewed for this study.
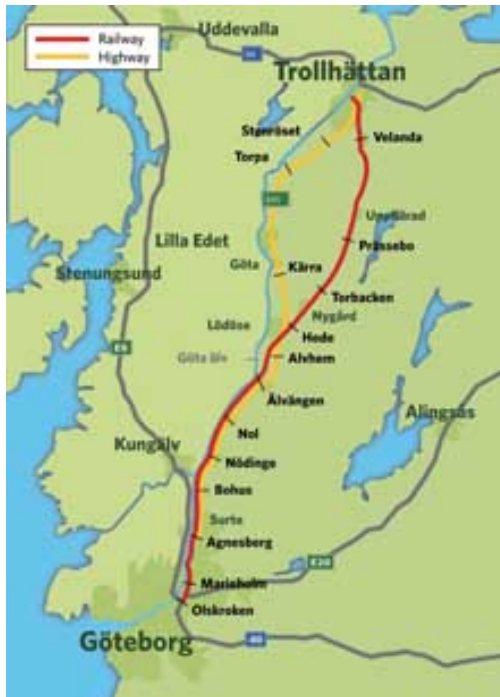
Figure 4.1 Map over the BanaVäg west project (Trafikverket, 2012d)

When the project started where Trafikverket not founded and the project were a collaboration project between the old Railway Administration and Road Administration. The project is worth 13.6 billion SEK by the monetary value in 2010 (Trafikverket, 2012d).

Marieholm Construction Project

The Marieholm Construction Project is a project that will connect central Göteborg to the island of Hisingen and the industries there and the port of Göteborg. The connections will be a road tunnel and a railway bridge, the project is estimated to 4,85 billion SEK in 2009 monetary value. How the connections will be located can be seen in figure 4.2 below (Trafikverket, 2013a). Participating from the Marieholm construction project where one project manager interviewed for this study.

Figure 4.2 Map over the Marieholm Construction project (Trafikverket, 2013a)

The West Link Project

The project is railway track that will go through the central part of Göteborg 8 km of double railway track and 6 km of this track will be a railway tunnel. Where the project will be located could be seen below in Figure 4.3. The project is calculated to be worth 20 billion SEK in 2009 monetary value (Trafikverket, 2013b). During this study were the program managers for this project interviewed.

Figure 4.3 Map over the West Link Project (Trafikverket, 2013b).

4.2   Existing way of working

Now when Trafikverket and the project that has been the main focus of this study has been further presented the way Trafikverket is working today will be explained. This following section will present the process, meetings and IT-systems that is used today that have been seen during observations, introduction interviews and results from previous studies.

4.2.1   The Process

The process of how the project within the division of major project works is according to the process that can be found on their intranet in a system called Projektportalen Investera often mentioned as PPI. This process looks like the process in figure 4.4 that are presented below. This process is for how to manage and govern investment projects within Trafikverket. Along with the phases planning the project, do the project and complete the project is also a follow up, report and adjust process that not have been looked further into during this study.
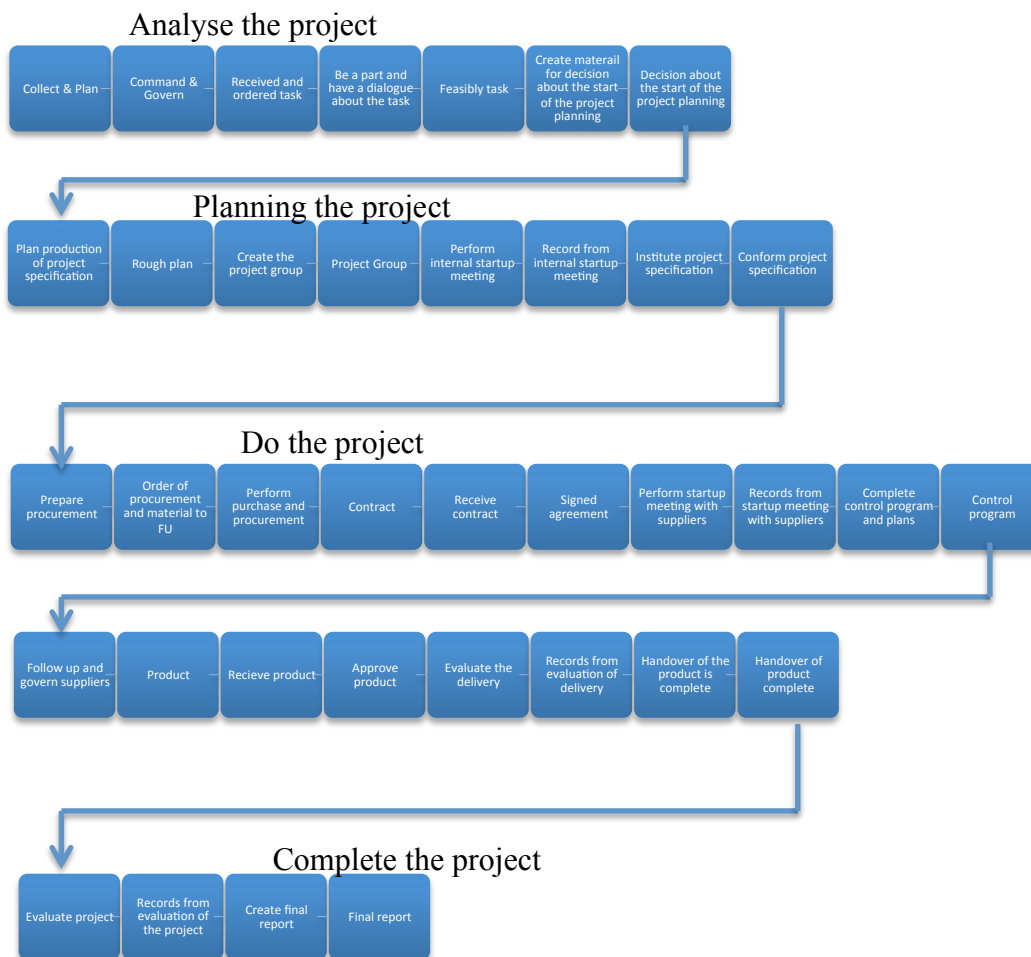
Figure 2.4 The process of a project based on information from PPI.

4.2.2 Meetings

Trough observations and by investigating some of the systems within Trafikverket has several meetings that are related to experience feedback been identified. During this study seven types of meetings as been identified. The identified meetings are:

- Start up meetings
- Construction meetings
- Technical meetings
- Project manager meetings
- Program manager meetings
- Experience feedback meetings
- Final meetings

During this study the opportunity has been given to participate in two different construction meetings. The relation to experiences during these meetings has been to slightly go into previous experiences but the most obvious work with experiences has been to plan experience feedback meetings. What can be seen during these moments when a experience feedback meeting is planed is that one project manager had almost

no demands on who would participate in these meetings while the other project manager pointed put individuals that should be present during this meeting.

4.2.3   IT-Systems

The questionnaire showed that there is many IT-systems used every day by the project managers within this study. In order to create a better picture of the most common and those that occurred to be the more relevant some questions concerning the IT-systems were asked during the interviews with the project managers in chapter 4.5 but they have to be a bit further introduced. During this study the systems: the Intranet, PPI and IDA have been looked into several times in order to see if they have been any updates or changes. What can be noticed is that PPI was discovered to been updated at the end of the summer and more templates and more detailed processes were then available to find within the system. The IT-systems is a matter that the report will return to later on and discuss further.

The Intranet

The intranet at Trafikverket provide the employees with news and updates from the organization and there is also links that guides the user to different systems that Trafikverket uses such as example PPI that also are base within the Intranet.

Projektportalen Investera (PPI)

Projektportalen Investera is often also called PPI by the project managers is the system were the process concerning how they should work and useful template can be found. The work process according to PPI for a project looks as the process that could be seen in figure 4.5.
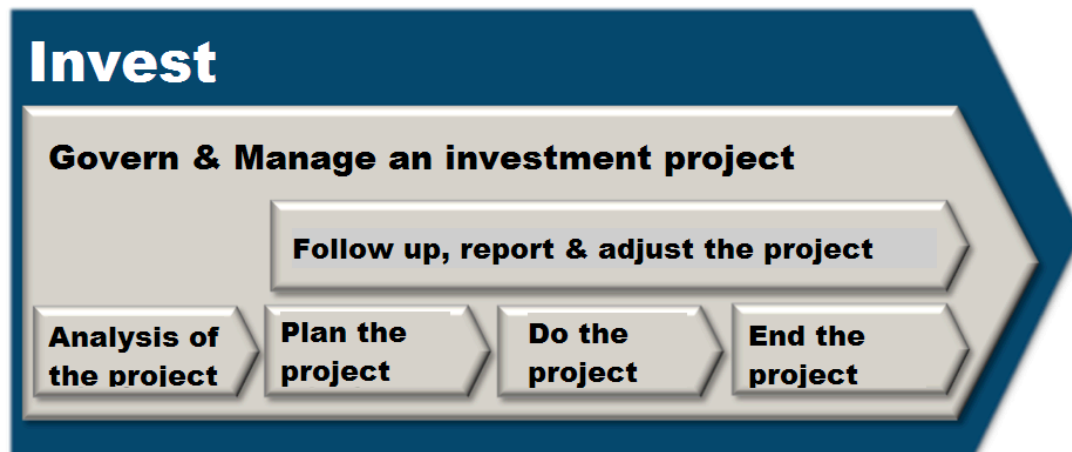
Figure 4.3 Overview picture of the process of a project on PPI.

4.2.3.1.1   IDA

IDA is the database system for storage of files for railway related projects and comes from the former railway administration. During the work with this report and the studies of Trafikverket it turned out that the former railway administration had a data system for experience feedback. This system had the name Erfarenhetsforum and were from back then a web site, today Erfarenhetsforum is a part of IDA. In Erfarenhetsforum documents related to experiences from railway project such as reports that especially focuses on experiences are located. In IDA several reports concerning experiences has been found during this study. Four authors has been found and of them has three participated in this study, who they are and the amount of

reports they submitted can be seen below in Table 4.1. The one that not has participated in this study is mentioned as the unknown project managers. The other three is program manager Bo Larsson, program manager Sara Distner and project manager Per-Inge Söderström all of these three will be occurring later on in this report in the chapters related to the results from the interviews.

Table 4.1. Amount of submitted experience reports to IDA

Name of the project managers	Amount of reports
Unknown project manager	1
Bo Larsson	1
Sara Distner	2
Per-Inge Söderström	4

What is interesting about Table 4.1 is that Per-Inge who has submitted most reports of all do not know where they are. When asked during the interviews if he knew what Erfarenhetsforum is he answered that he does not know of anything called Erfarenhetsforum. A view of how IDA looks like can be seen below in Figure 4.6.
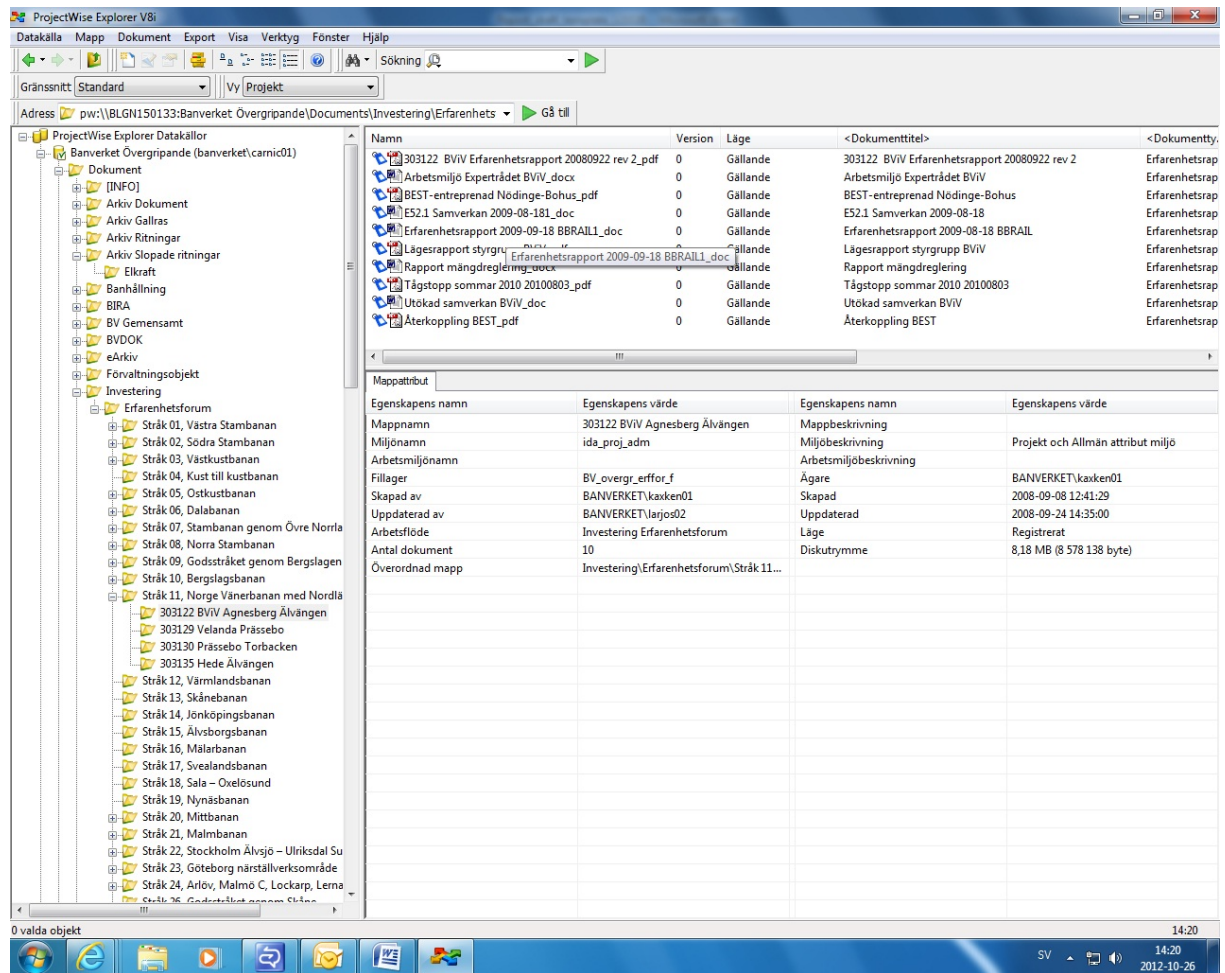
Figure 4.4 Picture of the IDA IT-system.

4.2.3.1.2 Chaos

Chaos is a similar system as IDA but for those who works with projects related to road and Chaos originally comes form the former road administration. It is a storage system as IDA for files related to projects but in this case related to road projects. In this study access to Chaos has not been applied for and because of that the details is rather unknown about it.

Documentation

There are several documents that have been found on the intranet that has been studied. These documents are templates and the templates involving a bullet point about feedback experience are:

- Internal startup meetings
- Startup meeting with supplier
- Projecting meeting
- Construction meeting
- Internal end meetings
- Final report

However have not any of the following meetings any bullet point related to experience feedback:

- Technology meetings
- End meeting for construction
- End meeting for projecting

All of these templates that are investigated belong to different phases of the project. There are not templates related to experience feedback with the analysis phase. In the planning phase the template for internal startup meetings involve experience feedback. The phase that includes most experience feedback related templates are the phase where the project is done, in this phase startup meetings with suppliers, construction meetings and projecting meetings is located. However there is also technology meetings, final meetings with construction and projecting here that not is included. In the last phase that is the completion phase there are template for internal end meetings and the final report. Even if there are template concerning experience feedback there is not mainly to summarize positive and negative experiences done during the project.

4.2.4 The Merger

In 2010 when Trafikverket was founded become Railway Administration, Road Administration, Rikstrafiken (The National Traffic), Rederinämnden (The Shipping Board) and parts Statens institut för kommunikationsanalys (The Governmental Institute of Communication Analysis) (Trafikverket, 2012a). Even if all those organizations or parts of these organization became a part of the newly established Trafikverket has the managers been careful to note that it not is a merger but a founding of a new organization according to a program manager.

4.3 Earlier studies of Trafikverket

A study of the experience feedback within Trafikverket is something that has been done before. As late as 2011 a report on experience feedback where handed over to Trafikverket. This report was written by a consultancy frim hired by Trafikverket with the assignment to investigate the current situation within the organization. For this work there were several guidelines such as that it would be a database tool suitable to process of all experience feedback work independent if it were in project or in other operations within Trafikverket. Other guidelines were that it should investigate both requirements and wishes. Aspects as application handiness and crawlability should be taken into consideration (Prolog, 2011).

The focus during the study in general was to identify how the experience feedback works today and how the employees would like it to work. All was required to end up in recommendations that use the strength of the system for experience feedback in Banverket (Prolog, 2011). The 2011 report ended up in three main recommendations that will occur later in in this sub-chapter. All of this has been used to establish a foundation for this study and to identify how the experience feedback works today and how the employees would like it to work.

4.3.1 Situation in 2011

The 2011 report that was based on 50 web-questionnaires and 20 interviews. Questionnaires answered from employees within the division of major projects were two employees and from the western region there was seven employees responding. Concerning the interviews from the report 2011 were four from the division of major projects and three were from the western region (Prolog, 2011).

In the report that where published in 2011 several questions where responded and some of they are similar to the questions asked in this study's questionnaire. One of the questions from 2011 where about the experience feedback within Trafikverket works, as can be seen below in figure 4.7 the results showed that the employees where rather negative towards how this worked. The empoyees also meant that the organisation had large potential to improve in their work with experince feedback (Prolog, 2011).

How do you think that the experience feedback at Trafikverket works today?
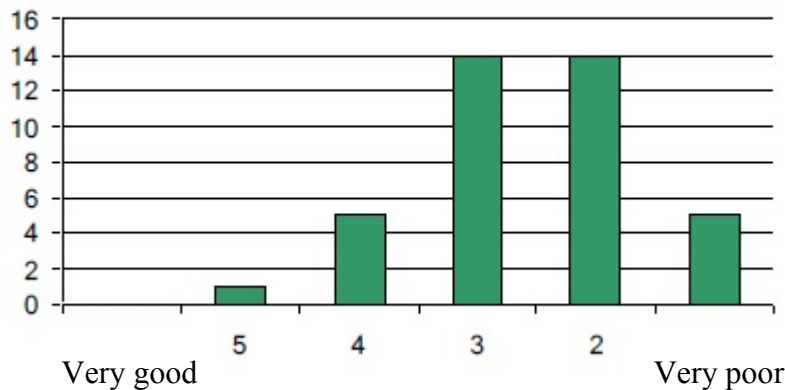
Figure 4.7. Todays experience feedback at Trafikverket (Prolog, 2011)

Another question from the 2011 questionnaire where about if the employees thought they had a need to embrace others experinces. The results from this questions showed that a majority of the respondents had a need for others experinces, which could be seen below in figure 4.8.

How large is your demand of receiving others experiences?
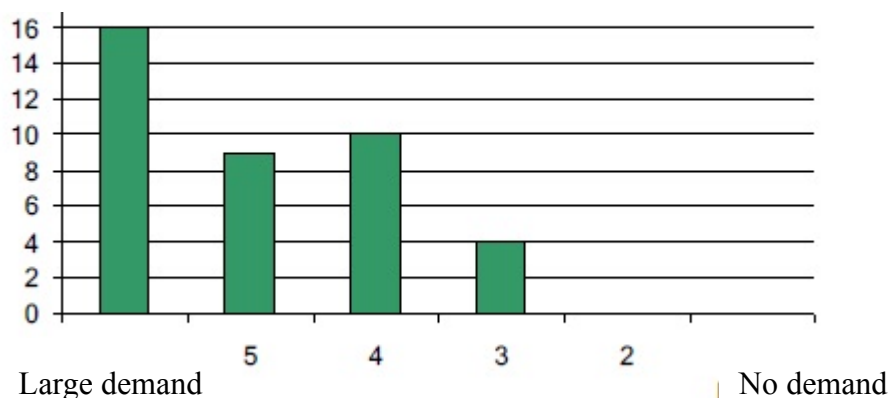
Figure 4.8. Demand of other experiences (Prolog, 2011).

After this results from two other question where published in the report from 2011 where the first question where concerning assimilate others experiences which can be seen below in figure 4.9 and the other about sharing experiences to others. The first question resulted in that many of the respondents did assimilate others experiences. The most common way of doing this were during spontaneous meetings at work but also in other ways such as data systems, workshops and written reports. Even if all

above mentioned methods where used some methods where liked to be used less and others more. Many of the methods that were used in 2011 where based on methods and routines that descended from the old Banverket or Vägverket but other solutions could also occur. The other solutions were often local and specific to a certain part of the organization. In general where the most common methods meetings and workshops, as can be seen in figure 4.9 and figure 4.10 below (Prolog, 2011).

Figure 4.9 About how people take care of others experiences (Prolog, 2011)

The question from that report that followed where as already have been mentioned about sharing experiences to others and how this where done. Even this question showed that the same methods that were used for assimilate other experiences where also used to share experiences. And the methods suggested where already used today but the employees would like to share in a different way for some of the methods that they do today, which can be seen below in figure 4.10.

Figure 4.10 About sharing experiences with others (Prolog, 2011).

Above in figure 4.9 and figure 4.10 the results of assimilation and sharing methods for experiences can be seen. However, those who not share or assimilate experiences said

they not did it because they where unaware of how they should do it and to who they would send their experiences. What the employees said when interview where also that they preferred database systems, meetings, workshops and study visits a head of written reports as methods to use (Prolog, 2011). There were different methods that where favourable to others, different parts of the organization preferred different methods. What can be seen from the interviews and questionnaire from 2011 were also that the employees thought the spontaneous meetings where good and important but where of the opinion that they should be supplemented by organized meeting, workshops or study visits. From this results the report published in 2011 established that there was a strong verbal experience feedback between th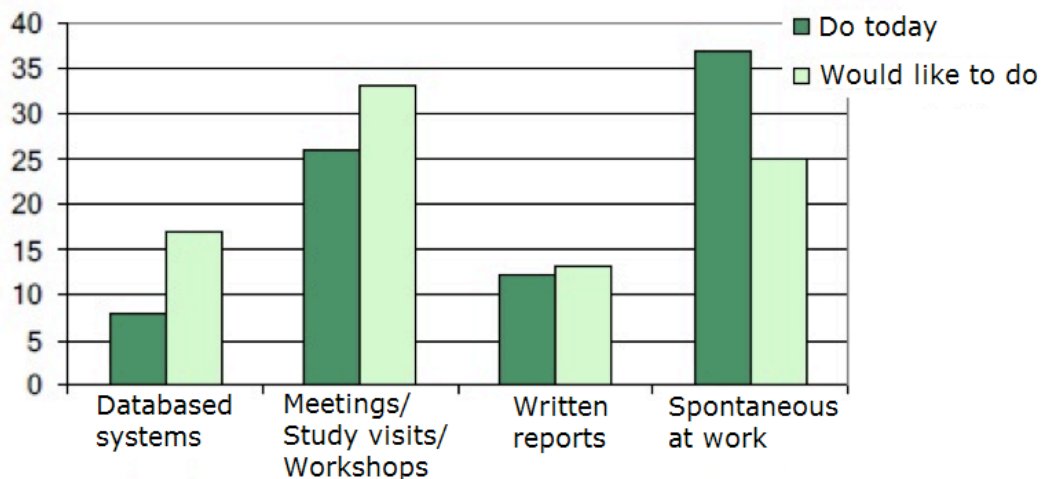e employees. The Verbal communication concerning experience feedback where seen as important but the issues with it where to find the right people and that it is something that fast gets old. There is a wish among the employees to have a meeting in the beginning of a project where experienced and useful persons that of some reason not can be involved in the next project attend. Positive effects that can be seen from this kind of meetings is more profitable deliveries and that it facilitates contact. The report from 2011 establishes that a feedback experience system is required to create contacts between people because of its importance to the employees within the organization. As mentioned above database systems where used in 2011 but to a low extent even in they existed. Even if databases and also archives existed the larges problems where low quality and ability to search within them. Those documents that existed within the databases and archives where also not appealing to the reader. This because the final reports where often done because it was a must and the writer of this document neglected what they where going to be used for. There were documents with high quality but these were limited. The report established that the feedback experience documents required authors that reflected over their own behaviour in the projects and embraced those experiences. What also where established by the report from 2011 were that important experiences had to be able to be deduced in terms of time, person who wrote it and place. Other than this the experiences had to be simple to access and to assimilate. After the results on sharing and assimilation methods where presented in the report from 2011 above a question on what parameters that where important if a new system would be designed. The results from this question is presented below in figure 4.11 and shows that the two most important aspects are that it is easy to search and easy to add information to the system (Prolog, 2011).
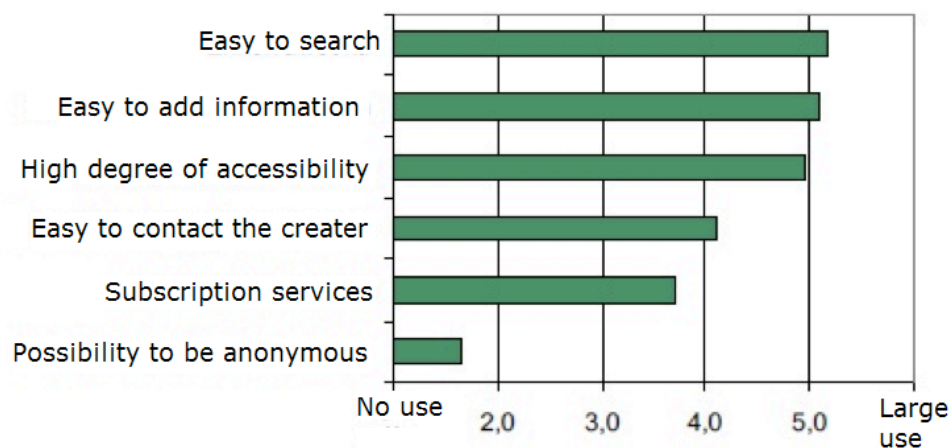

Figure 4.11 Important design parameters when designing a new system (Prolog, 2011).

The last question of interest that were presented in the results of the report that where published in 2011 where about what the employees thought they may gain from experiences in certain situations and these result can be seen below in figure 4.12. The activities where the employees thought they may gain most where in matters as potential traps and solving problems. Both interviews and the questionnaire shows that the areas that are seen as most useful to have others experiences in are operations methods, technical solutions and potential situations that might go wrong. In order to find problems and solutions the employees would like to have time to continuously note their experiences during their work (Prolog, 2011).
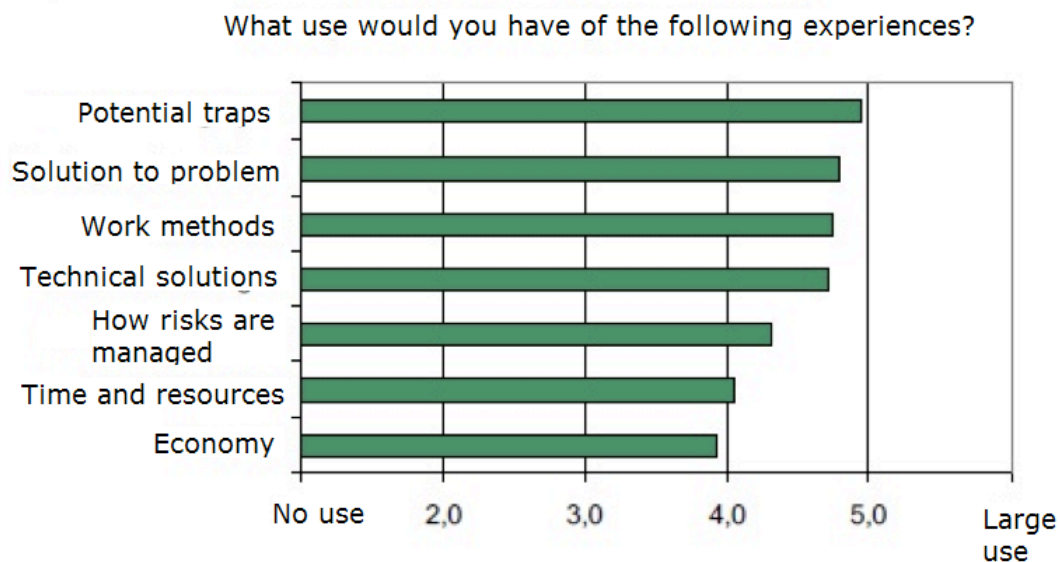
Figure 4.12 Use of the suggested experiences (Prolog, 2011)

4.3.2   The recommendations from 2011

The report that where published in 2011 had three recommendations that where identified and also highlighter that there should be a simple and systematic work with sharing experiences and tools to handle all data. The three recommendations presented from Prolog (2011) were:

1. Complement existing personal profiles
2. New database tool for experiences
3. Search engine

The first recommendation on complementing the existing personal profiles highlights a need for making this system a part of the everyday activities for the employees. The report from 2011 recommends that the employees themselves should be responsible for keeping their profiles up to date and that the updates of the profiles only requires updates in one system. The purpose with this is to solve the issue on finding the right person. Employees might because of that easier find who possesses the expertise in what area (Prolog, 2011).

The second recommendation is to create a new database tool for experiences that according the 2011 report should be user-friendly, simple to access and have an interactive design. The perception presented in the report is that this may be fulfilled by a web 2.0 solution that allows the user to control their information and to

contribute to the database tool. The system should according to the 2011 report consist of a shorter notice or a longer one but the shorter is to be preferred. These notices should be linked to the creator and marked with time and date for creation. The notices should be able to be graded by the readers' perception of how useful it is, comment on the content and be able to easy find a link to the creator. To invest in a new tool is a comprehensive job. To succeed with a certain investment it is of special importance that there is determination and a long-term investment (Prolog, 2011).

The third recommendation is to have a search engine that is able to search in all systems from one single place and present the hits in an easy and simple way to embrace. The search engine is in the report from 2011 resented as the most important tool for the employees in their work with facilitating experiences (Prolog, 2011).

Along with this recommendation were also some issues raised such as resistance to behavioural change during the early phases of implementation. Investment of a new system or tool to facilitate experiences is also an expensive and comprehensive assignment that requires both a long-term perspective and determination. The report published in 2011 predicts also a decline of commitment and interest in the new system after the first positive effects of it implementation. In this phase the long term perspective and determination is even more important to be able to overcome the first issues and obstacles (Prolog, 2011).

After presented all information on the situation within the organization and the issues related with the implementation the report says that there are positive effects of a system that facilities experiences. First it created a potential of being more effective but it requires systematic work with experience feedback. There are also motivational factors of sharing experiences among the employees that give them satisfaction in helping someone with something the other person does not know but they do. The last but still very important reason give in the report from 2011 is that working with facilitating and sharing experiences increases the attraction of working at Trafikverket (Prolog, 2011).

4.4   Questionnaire Results

This subchapter will present the results from the questionnaire and be structured by the subjects time, sharing experiences, receiving experiences and organizational support. Early on in this project a questionnaire where created in order to get some indications on what might be interesting to look closer at further on in the study. This questionnaire where sent out to 58 projects managers within the division of major projects at Trafikverket. The respondents were considered as a whole unit but were also divided into the three categories: road, railroad and both road and railroad which will be mentioned as both or road and railroad in this section about the questionnaire results. From the responding participants where 61 % of the participants working with roads, 28 % working with railroad and 11% worked with both of the earlier mentioned alternatives as can be seen in figure 4.13 below. Variations between responses by the working area such as road, railroad and both road and railroad where considered. When the questionnaire where created several aspects mention in chapter 2.2.2. were considered.
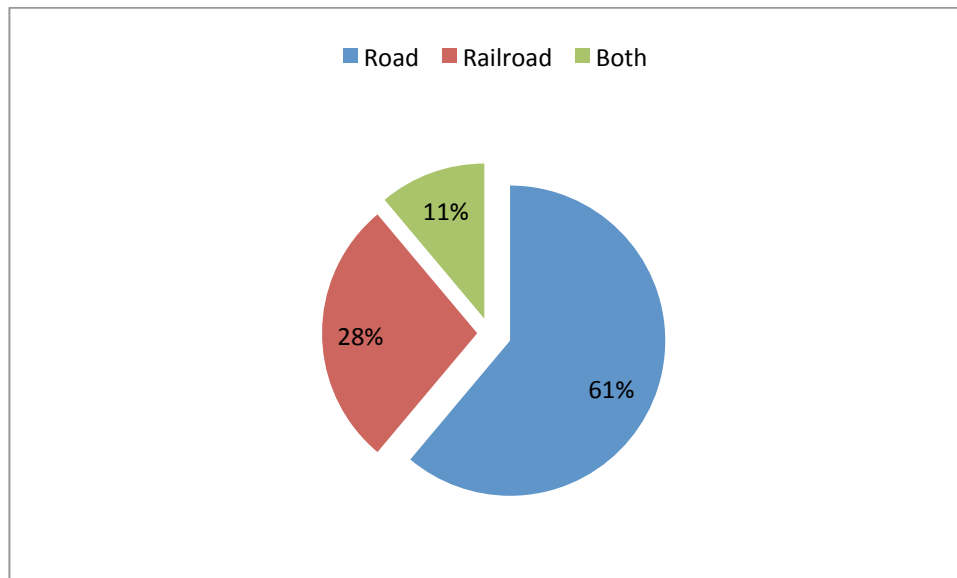
Figure 4.13 What the distribution of respondents from each category is (question 1).

4.4.1 Time

The questionnaire had three questions concerning different aspects of time in relation to experience feedback. One of the questions asked the project managers if they would like to have more or less time for sharing and receiving experiences. The question included also the answering alternatives satisfied with the current situation and no opinion. 70 % of the respondents answered that they would like more time, 28 % answered that they were pleased with the current situation and 2 % had no opinion in this matter as can be seen below in table 4.2. This means that not one of the participants answered that they would prefer to have less time for this kind of activities.

Table 4.2 Statistics over the answers if the projects managers want more or less time (Question 10).

Time	Total
More time	70 %
Same amount of time as now	28 %
Less time	0 %
No opinion	2 %

These results raised questions about how much time that the participants actually devote to this kind of activities. In order to get to know this the questionnaire divided the time for this kind of activities into how much time the participants spent on sharing experiences and how much time they spent on receiving experiences during an average workday. The most common interval of time spent on sharing experiences is 1-10 minutes which is followed closely by 11-30 minutes as seen in table 4.3.

When the results were divided in to the three different categories the categories road and railroad both had the time interval on 1-10 minutes as the most common interval. 50 % of those who worked with roads were within this interval and 60 % among those who worked with railroad were in this interval. Concerning the second most common

interval some differences occurred. Among those who worked with roads the second most common interval were 11-30 minutes. While the second most common interval among those who worked with railroad where within the intervals of 11-30 minutes and 30-60 minutes as can be seen in table 4.3 below.

Table 4.3 Distribution of time for sharing experiences (Question 5).

Time	Road	Railroad	Both	Total
1-10 min	50 %	60 %	25 %	50 %
11-30 min	41 %	20 %	50 %	33 %
30-60 min	5 %	20 %	25 %	11 %
1-2 hours	0 %	0 %	0 %	0 %
2-4 hours	9 %	0 %	0 %	6 %
More than 4 hours	0 %	0 %	0 %	0 %

The total results concerning how much time that is spent on receiving other experiences e.g. someone explaining their experiences, receiving e-mail with experience etc. is similar to those about sharing experiences. Even here the interval of 1-10 minutes where the most common closely followed by the interval 11-30 minutes, see table 4.4 below. When separating the project managers into the categories, 59 % of those who works with roads spent 1-10 minutes at receiving experiences, which is the dominating number among those. However, among those who work with railroads 40 % spend 1-10 minutes and 40 % spent 11-30 minutes on the same thing, watch table 4.4 below. Specific conclusions that may be drawn from these results are difficult but by the results from the questionnaires was that 86 % of the respondents spent between 1-30 minutes at receiving experiences. And the most common interval among those who works with roads is 1-10. While the most common interval among those who worked with railroads is 1-10 minutes and 11-30 minutes.

Table 4.4 Distribution of time for receiving experiences (question 8).

Time	Road	Railroad	Both	Total
1-10 min	59 %	40 %	25 %	47 %
11-30 min	32 %	40 %	50 %	39 %
30-60 min	5 %	2 0%	25 %	11 %
1-2 hours	0 %	0 %	0 %	0 %
2-4 hours	5 %	0 %	0 %	3 %

More than 4 hours	0 %	0 %	0 %	0 %

4.4.2 Sharing Experiences

The questionnaire had two comprehensive questions about sharing experiences. First question was about how the experiences are shared today. While the second question was about how the respondents would like to share their experiences. That can be seen by reviewing the results which are displayed in figure 4.14 below is that different verbal forms is the most common methods used. The project managers prefer to share experiences though meetings, conversations during lunch and coffee breaks and conversations with co-workers. These three methods are used by all respondents once a month or even more often. Although, there is one written method that is close to these results but used out of all other 6 % of the respondents and that is sharing experiences through e-mails as can be seen in figure 4.15 below. In fact all project managers in the category road and both road and railroad are sharing experiences by e-mail. It is only in the category railroad where 20% of those project managers do not share experiences at all by e-mail. In fact e-mail is used 1 once every month by 60 % of those who works with roads, 40% of those who works with railroad and 50 % of those who works with both. Methods that are used but rather unusual are SMS, MMS, Communicator, databases and intranet. Other methods that have been given as answering alternatives but that not are used at all are sound recordings and video, all this also seen below in figure 4.14.
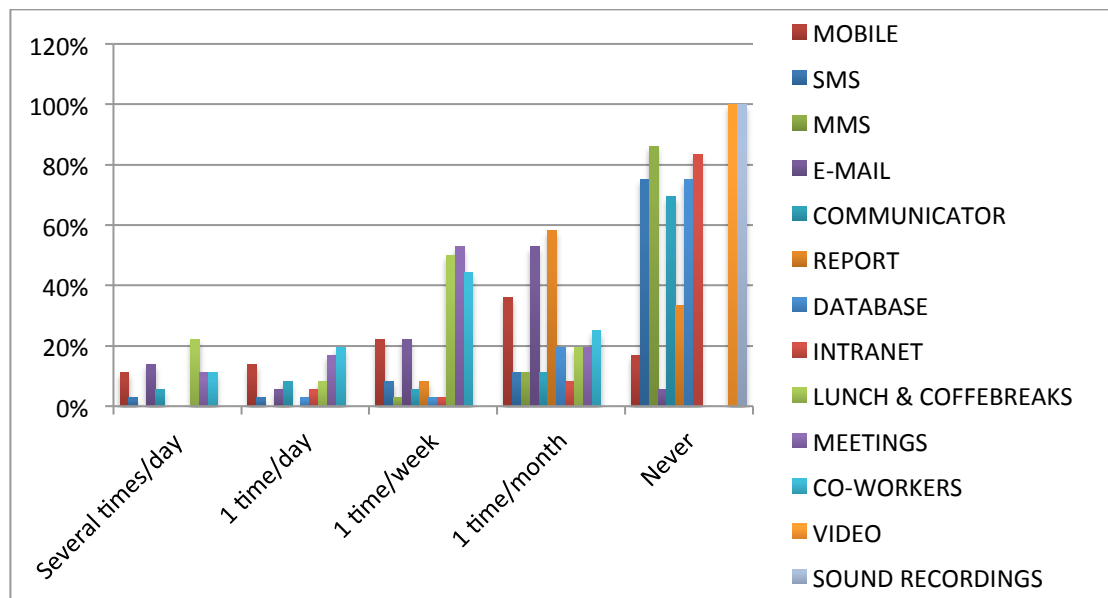
Figure 4.14 How questions are shared today.
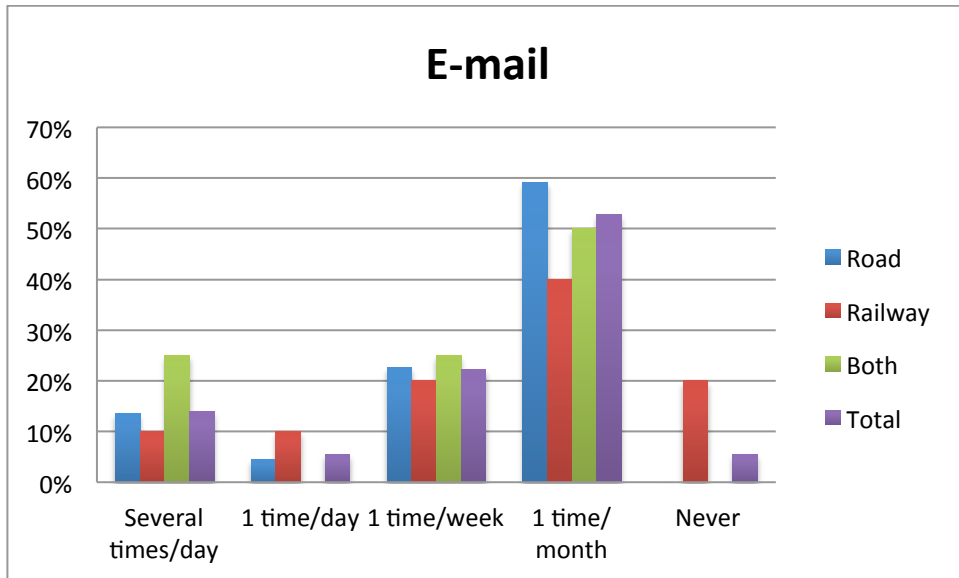
Figure 4.15 The use of e-mail for sharing experiences today.

In order to see in what ways the respondents would like to share experiences a question concerning this were asked in order to see what the project managers preferred. The results from this question can be seen below in figure 4.16.

What can be seen from this results where that both SMS and MMS where methods that the majority of the respondents preferred to not use at all. Over 70 % in all categories wish to never use these methods as can be seen in figure 4.17 and figure 4.18.

There are other methods that the projects mangers rather prefer to use. According to survey results already presented in the figure 4.14 above and earlier mentioned in this section by conversations with co-workers, during meeting and during lunch and coffee breaks. What the results about how the project managers wish to share experiences are presented below in figure 4.16 were these methods that are those methods the project managers wish to use in the future.

To share experiences by video and sound recordings is nowadays something that not exists among the project managers. However, 11 % of the project managers wish to share experiences by video and 6 % of the project managers wish to share experiences by sound recordings.
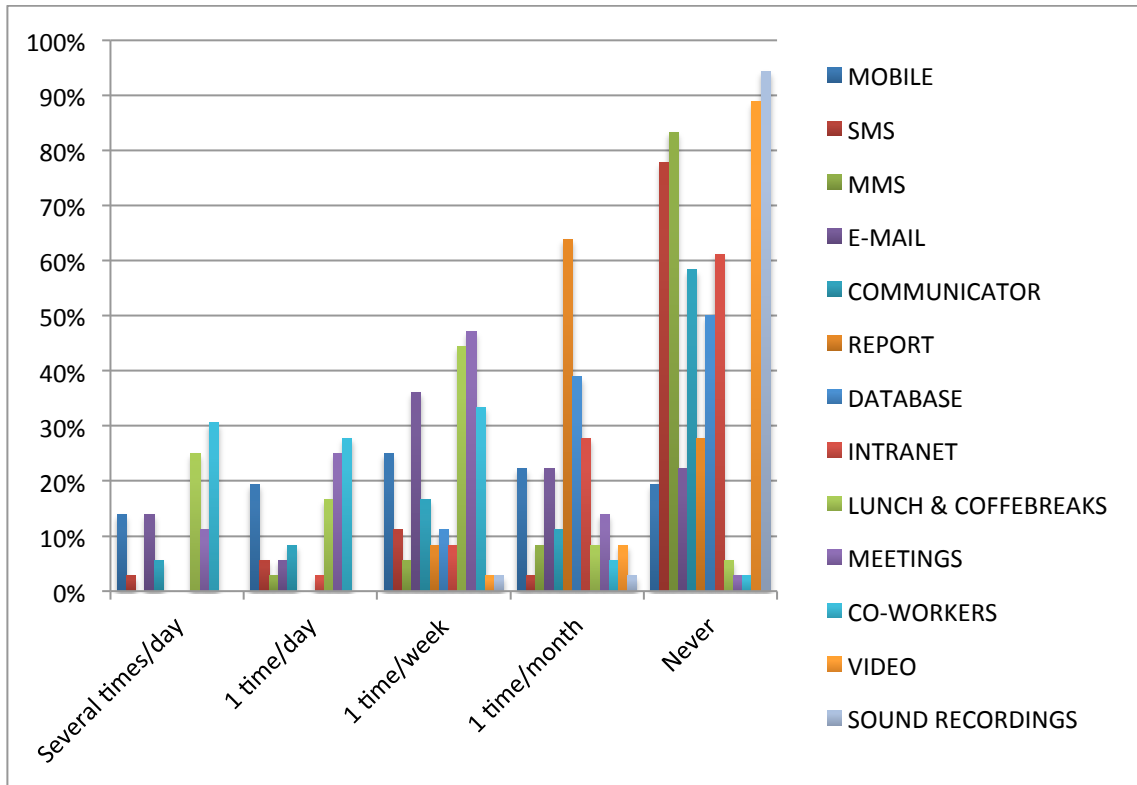
Figure 4.16 Preferred methods by the project managers.
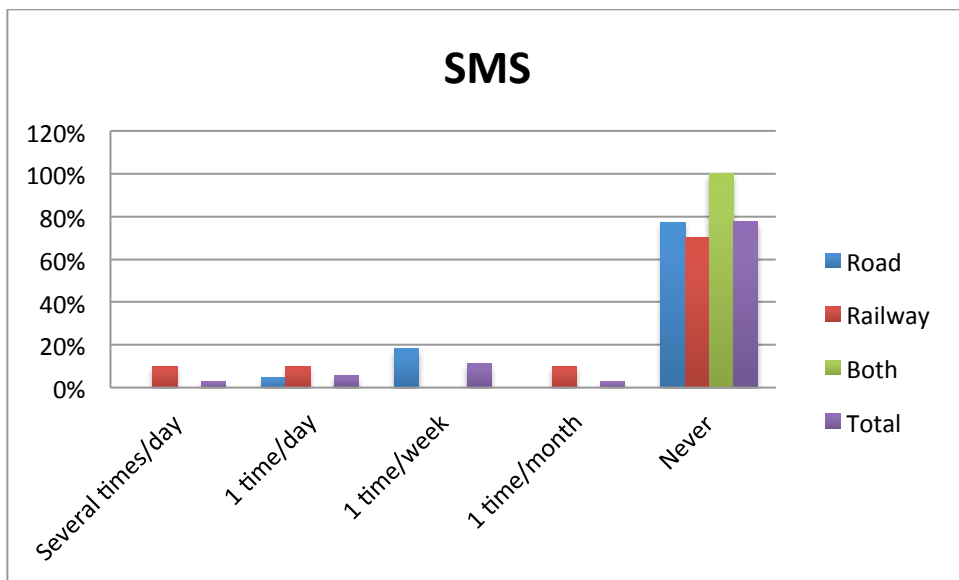
Figure 4.17 How project managers prefer to use SMS.
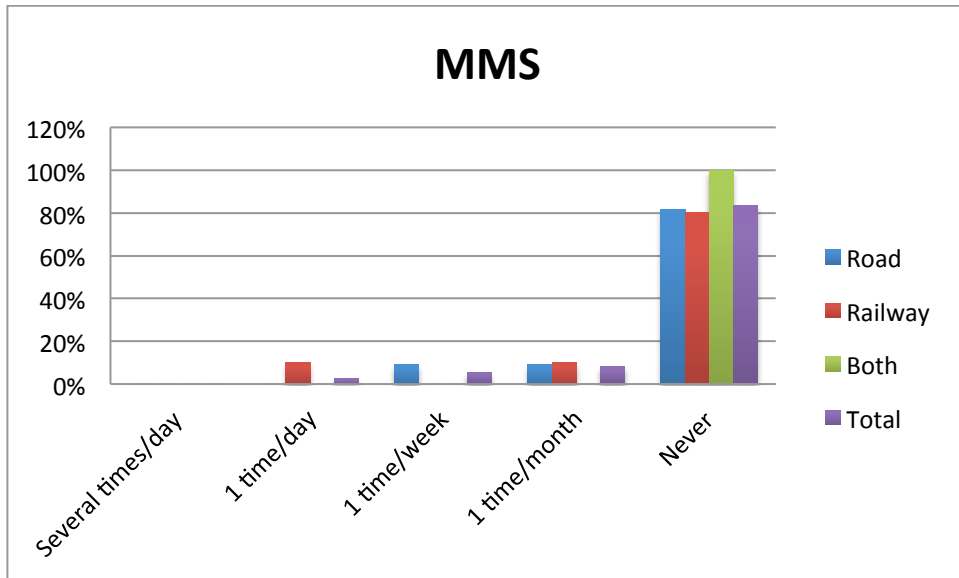
Figure 4.18 How project managers prefer to use MMS.

Receiving Experiences

When reviewing the numbers concerning the time aspect those who works railroads tend to spend less time at sharing experiences while those who works with roads tends to spend less time on receiving experienced.

The previous section presented the results on how experiences are shared, but to receive experiences is something other and because of the two questions have been asked about this in the questionnaire. The first of these two questions concerned how the experiences are received today and the second question is how the project managers would like to receive experiences.

The first question about how the project managers work today is presented in figure 4.19 below. There are three methods that are dominating because of the single reason that almost all respondents use them. These methods are receiving experiences through conversations with co-workers, meeting and lunch and coffee breaks. In total these conversations with co-workers are used by 94 % the respondents and the exact same amount of respondents is receiving experiences through verbal communication during lunch and coffee breaks. While 97 % of the respondents are receive experiences during meetings. The most common method used for this is e-mail that is used by 86 % of the project managers for this purpose while reports are only used by 67 % of the project managers for the same purpose.

Methods that not are used less than 75 % today are SMS, MMS, databases, video and sound recordings. Even if video is used by 17 % and sound recordings is used by 3 % according to the results below in figure 4.19.
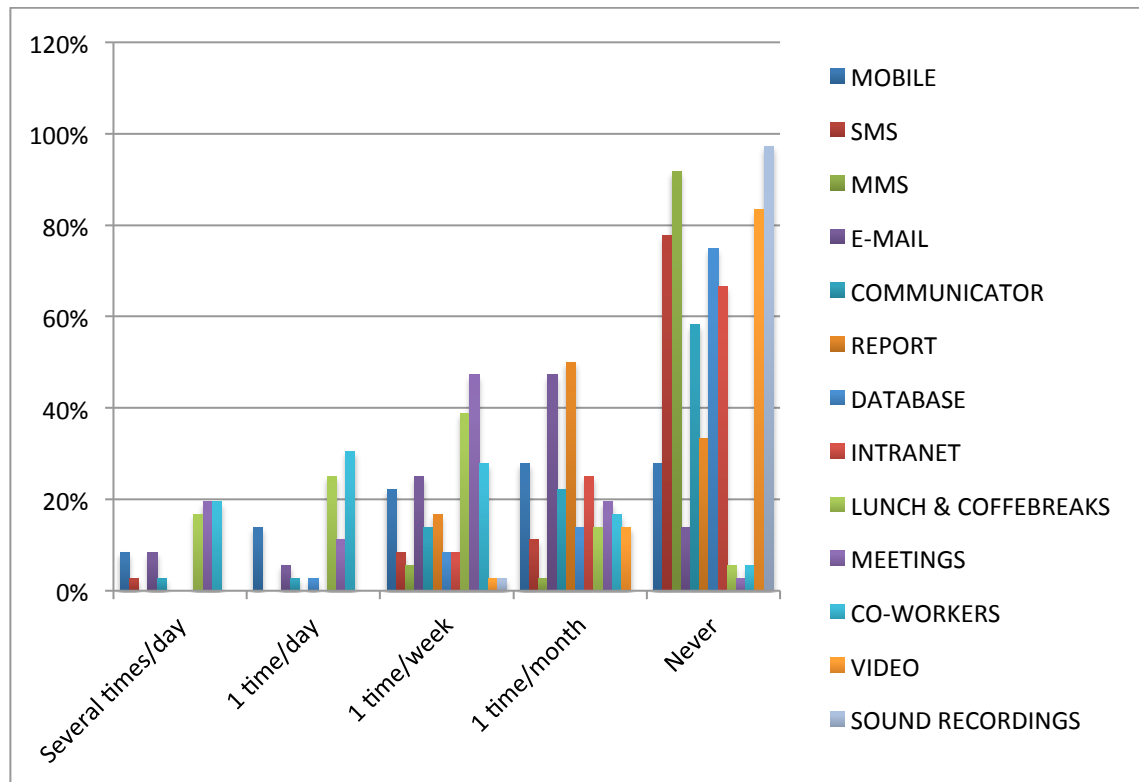
Figure 4.20 Methods for receiving other project managers' experiences today (question 7).

The results on how the project managers receive experiences are presenter above and in order to know how they would like to receive experiences such a question where also asked within the questionnaire. The results from that question showed that 94 % of the respondents would like to receive experiences through conversations with co-workers and lunch and coffee breaks. The results show also that 100 % of the project managers wish to receive experiences at meetings. The most wished written method were reports, which 83 % of the project managers would like to use. The second most wished method were e-mail, which 75 %of the respondents would like to use to receiving experiences.

Methods that the project managers show lower interest in using that previously mentioned are SMS and MMS. 75 % of the project managers' answers that they not want to use SMS at all. While 78 % answers that they not wish to use MMS at all.

Sound recordings and videos are methods that today exist according to the results concerning ways to receive experiences but not as one of the most frequent once (see figure 4.20). However, are both these methods wished to be used for receiving experiences, for video by 31 % and for sound recordings 14 % of the respondents wish to use this method. All the results presented above from this question can be seen below in figure 4.20.
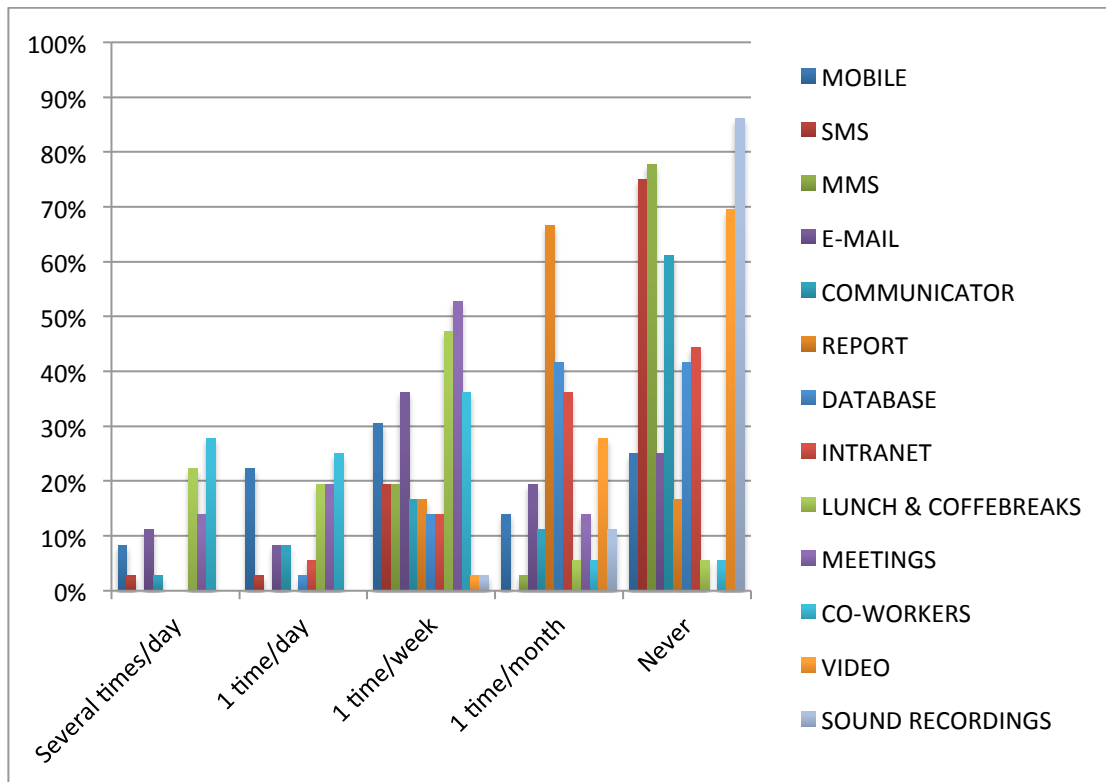
Figure 4.20 How the project managers would like to receive experiences (question 9).

Organizational Support

In order to find out what the perception of the organizational support concerning the work with sharing and absorbing experiences such as support from the project managers' executives, Trafikverket as organization managers etc. As seen a majority, 60 % of the respondents perceive the organizational support in earlier mentioned ways between 1-3 at the give scale which is below the limit for what is considered as good as can be seen in figure 4.21 below.
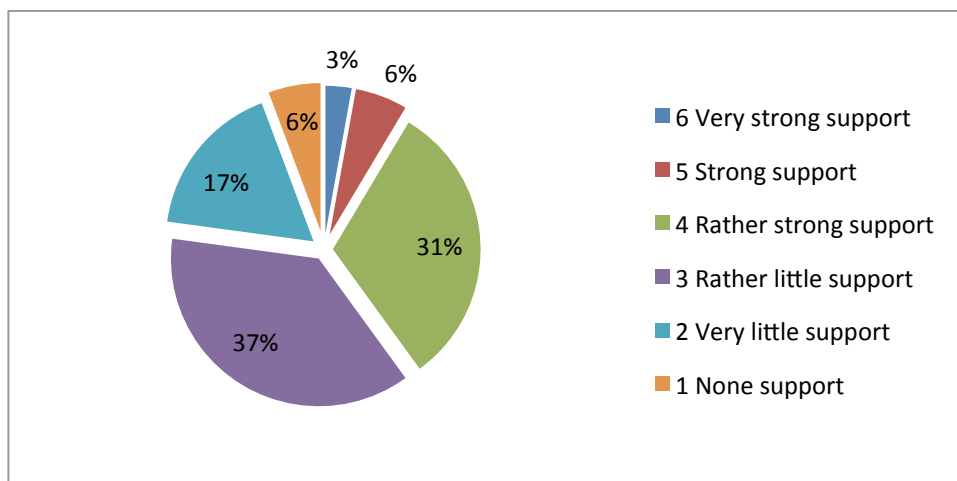
Figure 4.21 Question 3 amount of organizational support perceived by participants

When dividing the answers into the categories used in this chapter there can be seen that road is the only category where the degree of support is perceived as none at all.

The perceived support within all groups other than in the category working with road and railroad are around acceptable results as can be seen below in table 4.5.

Table 4.5 Question 3, support from the organization

Degree of support	Road	Railroad	Both
6 Very strong support	5%	0%	0%
5 Strong support	5%	10%	0%
4 Rather strong support	36%	40%	0%
3 Rather little support	32%	30%	75%
2 Very little support	14%	20%	25%
1 None support	9%	0%	0%

Also in relation to how the organization works, one of the survey questions where concerning what systems or software that were used on a daily basis by the project managers. What can be seen from this result is that 28 different systems or software are how often they are used on a daily basis as table 4.22 below show, the most common system to use daily is Chaos. However, Chaos is only used by the category road and both road and railroad, never used daily by those who only works with railroad. In a similar way the system IDA operates, it is used by those who works with railroad and both but not by those who works with roads. The only system that is used by quite many users daily and by quite many users in all categories is the intranet that is used by 19 out of 36 respondents which gives us a rate at 53 %.
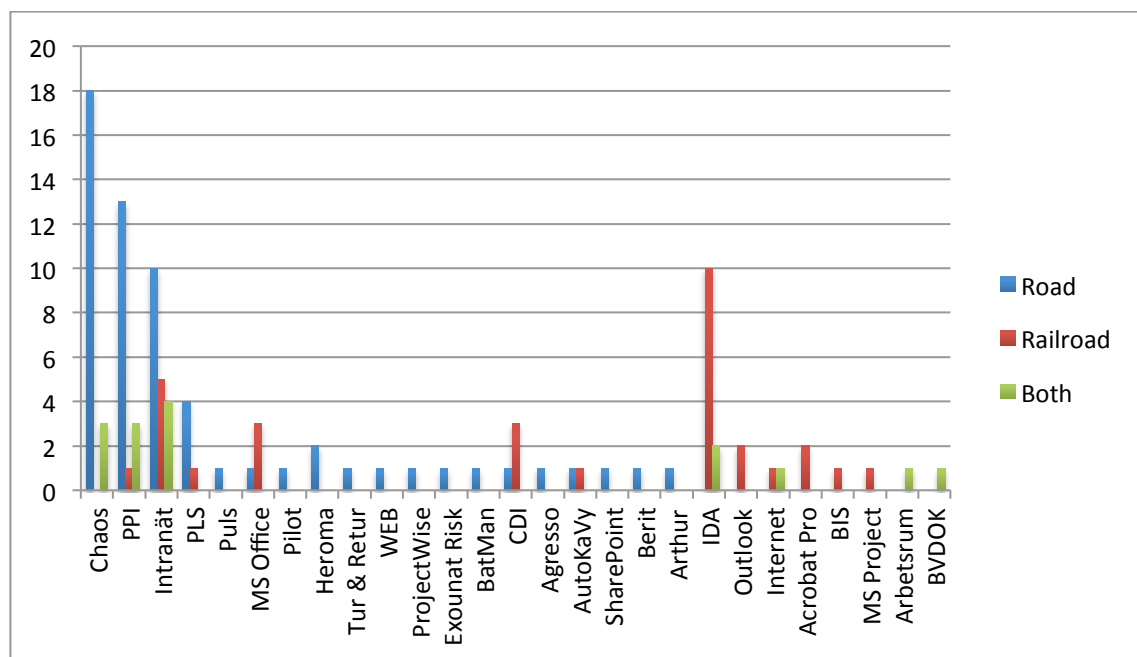
Figure 4.22 Question 2, Software/Systems used in daily work

Now the results of the perceived organizational support and what systems that are used on a daily basis have been presented but in order to find out where the project managers are looking for old experiences from earlier projects. Because of this one of the questions within the survey concerned this matter the overall results can be seen below in the table 4.6. The result in this matter from the questionnaire states that 29 out of 36 participants search for experiences from earlier projects by talking to other persons. This gives a percentage of 81 %, which is a number none of the other alternatives comes close to. This gives an clear indication that conversations is the method that is used most and this occur in all categories as well to a high extent.

Table 4.6 Question 11, where the project managers search for experiences from earlier projects.

Methods	Road	Railroad	Both	Total
Personal contact/by word	19	7	3	29
Arbetsrum	0	0	1	1
IDA	0	2	1	3
Chaos	7	0	1	8
Operating system (Verksamhetssystem)	0	0	1	1
PPI	2	0	1	3
Meetings	1	1	1	3
Similar legal disputes		1	0	1
Reports	1	3	1	5
Webpages	3	3	1	7
Industry meetings	0	1	0	1
Intranet	6	3	1	10
Utforskaren	1	0	0	1
Google	1	1	0	2
Mail	2	0	0	2
Own	1	0	0	1
Projektportalen	1	0	0	1

The table above shows what methods to access experiences today but in order to find out how the accessibility where one survey question concerned this topic. In this question the project managers where asked how they perceived the accessibility of experiences from old projects. And as can be seen in the figure 4.23 below the general perception is that the accessibility is below acceptable at the moment.

Degree of accessibility

Legend:
- 6 Very good
- 5 Good
- 4 Pretty good
- 3 Pretty bad
- 2 Bad
- 1 None
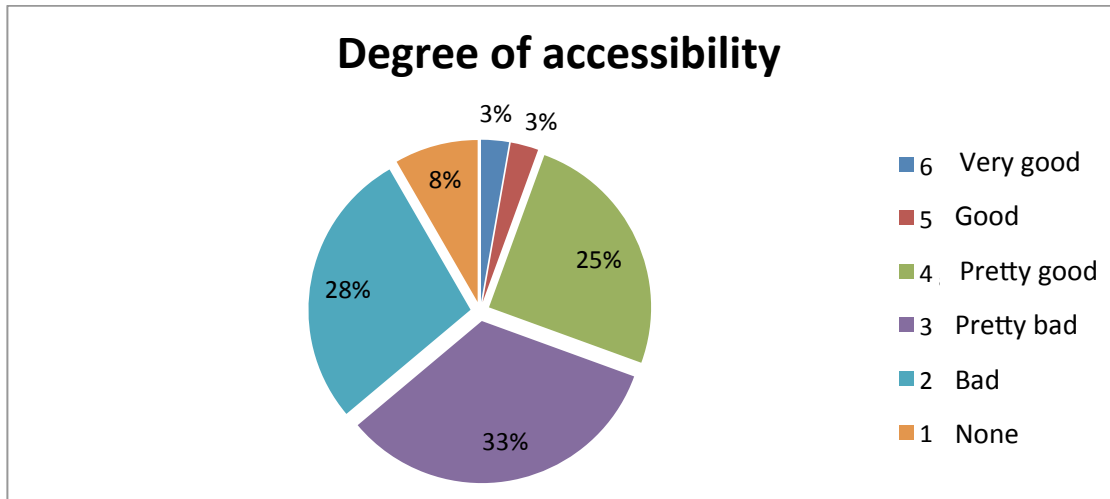
Figure 4.23 Accessibility to experiences from earlier projects (Question 12).

Answers of how the access to earlier experiences is perceived and what methods that were used are answered. The questionnaire then asked how the project managers wanted to find experiences from earlier projects. Answers from these questions are to be found below in table 4.7. What can be seen is that meetings are the most wanted way of finding experiences from earlier projects. Meetings are followed by databases and reports. However, in this question the respondents have gotten the opportunity to answer in written what they wish for and comments as:

- "Would appreciate to get access to read to other projects in IDA"
- "Access to contact persons from earlier projects"
- "A newsfeed at the intranet where you could ask questions"
- "Gathered database, experience feedback meetings from other projects, better contact lists, explanations to what others within Trafikverket works with"
- "A network for project managers with meetings 1-2 times/year"
- "Homepages that describes the projects and with contact information that would help me further"
- "One system that gathers documents and contact information concerning the purpose of experience feedback"

Table 4.7 Methods that project managers want to use to find experiences from earlier projects (Question 13).

Methods	Road	Railroad	Both	Total
Database	5	3	2	10
Homepages	4	2	0	6
Meetings	10	3	1	14
Erfarenhetsbas	1	0	0	1
Conversations	2	0	0	2
Short summaries	1	0	1	2
Contact register	5	1	2	8
Reports	7	2	1	10

Intranet	1	1	1	3
Better search engine	1	0	0	1
Arbetsrum	1	0	0	1
Presentations	0	1	0	1
IDA	0	1	0	1

4.4.3 Final comments on the questionnaire results

What can be seen by reviewing some of the survey questions is that the project managers prefer to find and share experiences through verbal methods such as meetings, conversations during breaks and talking to co-workers. When it comes to support from the organization the total result can be concluded as okay from this survey but with indications towards a slightly more negative view.

The access to experiences from earlier performed projects has also indications towards a negative comprehension among the employees that are stronger than the question concerning the organizational support. In this case the negative indications are so substantial that the interpretation is that the access to this kind of material is considered as poor. When searching for others experiences the employees turn to methods as verbal contact in approximately 81 % of the cases and in the second most common way is searching the intranet in approximately 28 % of the cases the respondents.

4.5 Interviews

During this study several interviews were held with project managers and program managers. These interviews were about their professional background and view and also about the current situation concerning experience feedback and what might be improved. These last discussions were related to contacts, mentorship, the work process, workshops & seminars, meetings, structure & support the IT-systems, time and the merger between the former Rail Administration and the former Road Administration. A summary of all these interviews is located within the appendix A1 of this report.

4.6 Summary of the empirical chapter

 The empirical chapter presents Trafikverkets organization and explains its background and that it was created during a merger between the former Road Administration and the former Railway Administration. It also explains the three major projects that have been investigated a bit closer and especially the BanaVäg West project. The current situation concerning experience feedback is investigated as its found that seven types of meetings includes something concerning this and six types of documents have some kind of connection to the work with experience feedback. Results form an earlier study of these thing within Trafikverkets is also presented were it is found that the experience feedback was poor, and that it was a large demand for other experiences together with other results. The earlier study also made three recommendations for improvements in the future. In this chapter are also the result from the questionnaire present the answers on questions concerning time, organizational support, what IT-systems that are used and accessibility to experiences

from other projects. The chapter also presents results form interviews with both project managers and program managers.

5 Findings

This chapter discuss the experience feedback and its barriers within Trafikverket. In order to discuss the knowledge sharing have I chosen to divide it in a similar structure as the other chapters of the report in order to make it easier to follow. The empirical material is organized following the topics identified within the chapter.

5.1 Backgrounds

The participants in this study have to a large extent a background as professional project managers and most of then has been educated at universities of technology, which gives them a similar educational background. According to chapter 3.3 differences could become barriers. In this study it does not seem to become a barrier. There are also other barriers related to the individual project managers that may create barriers such as age, gender and earlier experiences. Any barrier because of gender has not been studied but it is not something that has been perceived as an issue during this study. Barriers of age have also neither created any larger perception of creating barriers. The interest for knowledge sharing has been rather equal but those who are younger might be perceived as a bit more interest in gathering experiences from other than those who have been working with this for a longer time. This might not be seen as any surprise in my opinion but more of a healthy sign as a hunger for learning from more experienced. When it comes to different experiences the impression is that all involved have different experiences. That this has created any barriers is not totally clear. Different roles such as previous employments among consultants or contractor can not directly be seen and neither experience from different industries. However, I have took a closer look a the differences concerning those who have a background in the former Road Administration and those who has been working within the former Railway administration but this will be discussed later in chapter 5.16. Language and culture is also something that in chapter 3.2.1 has been mentioned as something that may become barriers but because of the fact that all of the interviewed has been working in Sweden and the organization only exists in Sweden both the Swedish language and culture would not be perceived as barriers is my opinion. If language of work an terms related to technology and etc. also create barriers but because of similar educational background and all interviewees having the same background as project managers neither this kind of language would be considered as a barrier.

5.2 Views of the participants in this study

The view of all interviews differed, in some aspects they were rather similar and in other they were not. Professional background and experiences has an obvious importance both because it may create barriers but also in creating a view on knowledge sharing.

Four of the interviewed were of the opinion that feedback experience involved learning from mistakes and avoiding making them more than once, but also to find opportunities for improving their work. I would say that this is the basic view on the work with experiences within especially the project BanaVäg west, because there is little information about those outside this project that have provided any more information to this study. However, three of the interviewees said that experience feedback is something that is difficult because it is complex and difficult to transfer to others. Related to knowledge sharing as something that is complex and difficult to transfer has chapter 3.3.1.3 Individual knowledge sharing described why lack of

context might make experience difficult to absorb for the receiver. In fact lack of context may accord the theory from that chapter work as a knowledge sharing barrier. There are obviously some indications that barrier are present in the investigated organization. Theory suggests that culture; language, technology, discipline and level of experience may affect this.

Another project manager from BanaVäg west had the view that it was about bring along experience between projects. The same project manager also said that when working with feedback experiences that it tend to be to general. If feedback experience is to general it might be a risk for a barrier called lack of context that is mentioned in chapter 3.3.1. This barrier may create issues for others to be able to receive the knowledge shared if there is a lack o context.

Two other of the project managers had the view that to show how much money a certain method can make the project managers earn or save would be a good idea. If this suggestions or ideas would be put into a context of theory there is in chapter 3.3.1 said that e.g. time and money are factors that individual takes into consideration when deciding if a method is worth using. If a certain way of working might save money compared to something else it would most likely be an appropriate way to express it in money and time. Because of the fact that this way of working seems to be supported by both project managers within Trafikverket and in theory makes it an especially interesting area of opportunities for improvement in my opinion. Time is also a factor that will be further discussed in chapter 5.15.

The view on how experience feedback works today is according to two of the project managers that people ask too late. They ask when then mistakes already had occurred and they are of the opinion that the mistakes might be found earlier. One way that is mention by a project manager is to transfer knowledge and experiences through mentorship and when looking into chapter 3.3.1 increased interaction have positive effects on eliminating knowledge sharing barriers. There is also in such a way that mentorships can in my opinion not only be a way of increasing interaction between people but also a way to provide context by sharing experiences in work related situations. According to the theory in earlier mentioned chapter these things may help to overcome the knowledge sharing barrier lack or context. Another project managers view were that discussions are important to keep the experiences alive and that this also will increase interaction and give opportunities to ask questions and really learn more about the situations that the experiences occurred in.

All barriers or none existing barriers presented so far is related to the individuals. Both program managers have the view that the individuals are important when it comes to knowledge sharing, which also is supported by theory in the chapter 3.3 that said that a majority of the barriers are related to individuals. One of the program managers said that it is very much up to the personal responsibility for knowledge sharing and he is supported by one of the project managers that also agree upon the importance of the personal responsibility for knowledge sharing. The project manager that said that it should be a personal responsibility and except that he also said that he thinks that it should be in the job description that the project managers should share experiences. But the project manager also said that, as a manager you have to point in what direction your employees should work. This is a discussion that will reoccur later in chapter 5.5. The same project manager also expressed a need for clearer goals when he talked about his view on knowledge sharing which also will be discussed later in the chapter 5.12.

During the interviews when I created myself a picture of the project managers and program managers view there were only one project manager that clearly stated that the intranet were unfriendly to use. During the later parts of the interviews there became rather clear that almost all interviewed had complains at the intranet but that issue is something I will return to later on in chapter 5.13. However this indicated that there were barriers that were related to the issues mentioned in chapter 3.3.3.

Until now all barriers presented in this chapter has been either concerning individual or technology related knowledge sharing barriers. There are however also issues that affects several levels. One such issue is culture that affect both organizational and the individual level. During the parts were I investigated the interviewees views of one program manager and one project mangers noted the importance of a culture that were accepting towards making mistakes. According to the theory in chapter 3.3.4.1 knowledge sharing is a supporting culture and a culture that makes people share knowledge by their own free will important. I think that culture is important and by having a culture that accepts that members of an organization make mistakes also creates an environment were the members dare to share also things that might be considered as mistakes.

5.3   Contacts & Networks

At least two of the project mangers stated that they contact persons that have done a certain activity earlier in order to get to know how they did as a way of working with experiences. One project manager also noted that those contacts might be located both inside and outside the own organization. Another project manager notes that the relationships between people are important in order to get good information and experience feedback and is by me seen as being in line with what is stated earlier about that interactions are supporting knowledge sharing and decrease the risk of a knowledge sharing barrier at least within that area. The interaction is seen, as a kind of exchange between one person and another e.g. with co-workers is according to the project manager Mikael Larsson often informal. He also notes that much of the experiences often are shared informally. When discussing about how experiences are exchange the project manager Erik Lööv said that most of it is by mouth-to-mouth communication. He also notes that as a rather young project managers he rely on other experiences and have contact with others concerning experiences once a week, which must be seen as a interaction with others. Erik Lööv also explains that there is different contact with others in different stages or phases of a project. During the planning and documentation phases is there a possibility to look at older documents and to contact construction managers and project managers to discuss experiences. These phases are also more structured according to him than the construction phase where it is more about the need of finding solutions fast. One way of meeting new contacts that can become a part of the personal network is workshops and seminars. The own network is according to project manager Mikael Larsson important. In fact Mikael rely almost to 100 % at his own network. He also stated that by now he often knows whom to contact when needing certain knowledge or experiences. Also the project manager Lydia Lehtonen uses her network and said that she uses her wide network in order to find issues and to find solutions. The importance of contacts seems rather obvious because of interaction and trust that is earlier mentioned. However, there is also so that Lydia's comment on contacts outside of the own organization indicated that the knowledge sharing barrier concerning internal resistance that is mentioned in chapter 3.3.1 not seem to be a big issue. There is also so that networks are a way according to chapter 3.3.1.1 to create relationships and the

knowledge sharing may be affected positively. Within the already existing informal networks there knowledge already is shared there is already exist a purpose and goal for their sharing that have positive influence on the knowledge sharing an decreases the risk of knowledge sharing barriers. Networks that exist already have the energy and support and these can become legit networks for knowledge sharing by providing them with necessary resources. The difficult part in this case would in my perception be to locate the informal networks. Informal networks will probably be networks consisting of people that already interact and have working and trusting relationships that we already have established have positive effects at the knowledge sharing. However it is important according to the theory in chapter 3.3.1 to prevent free riders in new established networks and to motivate people to share within these networks. If this work is successful and strong ties within the network is established there probability of trust will increase. In chapter 3.3.2 networks is also mentioned as some thing that might create a feeling of shared belonging and a responsibility to share. All this makes networks to something that according to me seems as a good idea to use but not only by creating new once but also to use those that already exist.

5.4   Diversity & Mentorship

Two of the project managers mention the importance of having a mix of older and more experienced people and younger people that might be more innovative and hungrier. Project manager Mikael Larsson notes that it is difficult to transfer 40 years of experience from and older experienced co-worker to someone else. He explains that he has an older and very experienced co-worker that he use to go to when he have something he want to ask or need a contact. He explains that if this colleague has a contact in his network that knows or otherwise he knows someone that knows the answer.

Project manager Stein Kleiven mentioned that in his project there had been a consultant that had a younger assistant that learned from him. He notes that if a kind of mentorship should work the more experienced needs to give the one learning space and opportunity to do so. There is also a required that the one that are learning takes initiative and the opportunity to grow as well. Learning this way is because of this dependent upon the individuals involved. Mikael Larsson notes that there is a risk the older and more experience not manage to absorb. This is the reason to why younger people and their view of things is important, sometimes it can be good with younger people reminding the older and more experienced that the world has changes since 1970.

According to theory this is important and it is a way of interacting and as earlier mentioned can it be an efficient way or learning know-how from a older and more experienced to a younger and less experienced person while the setting of the surroundings of the issue or methods provide context. This may create trust in the judgement of the mentor but also decrease the risk of a knowledge sharing barrier and as mentioned before have interaction positive effect on knowledge sharing.

5.5   The Processes

The process that is used for working within Trafikverket is already explained in chapter 4 and there is experience feedback within it even if there is most bullet points consisting of minor instructions that to me seem to be too little for really have this subject in focus. The bullet points seem very general. The project managers describes it as people are asking how other has done when they already have failed instead of

before or when it is to late, which means that they can avoided it if they just asked earlier. Why people not aske earlier is unknown and have not been studied but guesses can be that they are affected by organizational culture, low trust that makes people resistant of asking other or that people are resistance of telling them for example even if there seem to be a rather good will to share experience. This has however been showed that it not is applicable in all situations. Except these suggestions of underlying factor there may be others and it is a topic that can be interesting to investigate further.

This resulted to the answer about access to experiences from previous projects showed that 69 % considered the access as bad or as none access at all. Because of this they were further studied during interviews. This may be related to the fact that none of the project managers know were they can find the documents concerning experiences they written if they have written any, this seem be an issue. If the project or program managers not have written any they do not know either were to find their experiences. Per-Inge Söderström is according to what I found in IDA in chapter 4 the most active project manager but he does not know where his documents end up. As I already mentioned here they end up in IDA but to explain this issue further. One of the project managers talked about experience feedback meetings in the end of the project and she thinks that the records from these meetings end up with the program manager but she does not know. Another project managers says that he want working methods for experience feedback and some kind of framework for how to work with this and guidelines for where to store the experiences. He has written documents concerning experience feedback but the only one he knew where they are located are those that he published as books the other once does he not know. He also explained that if something shall be published it is much up to the own ability to make it happened. One of the younger project managers does not know how he should handle experience feedback reports and said that those he has read are more as historical reports. He suggests that the project manager writes it and then send it to his or her manager in order to get it approved, when approved it shall be stored and when a new project starts the project managers looks for old similar experiences. Another project manager has not only a suggestion he has already developed a process that he to some extent implemented is the perception. This process that he uses has already been explained in appendix A1. This project manager already today is working with this process during at least the first two stages. This is a process that already is used by him that seem to be a way of working that works up to the part where it shall be communicated further. These reports have been found in IDA as already mentioned but he does not know that they are there.

Ways that exist today for gather experiences are final reports were as mention in chapter 4 is experience feedback bullet points. One of the program managers said that he only had read one of these reports and that is the one he are reading right now that are published as a book, which he thinks is more definite and perceive as easier to absorb. I think that this depends on the package and that some more effort is put into making a book for the reader than the regular report might be. Program manager Sara Distner is into a similar track when she said that the material produced about experiences can not be heavy and difficult because if it is that way no one will use it. She is thinking more of a kind of white book for the experiences for the project that she is program manager for that includes positive and negative experiences from that project. She however notes that they might work more continuously with experience feedback, because during the production the focus is at production. What can be seen

from this is that even the program managers seem to not exactly know how to work with gathering and storage of experience feedback.

This seems to be an obvious issue with lack of communication concerning this matters of the author not knows where his or her reports ends up. I would say that this should be the first issue to address concerning experience feedback in Trafikverket. I hope this report will be the first step towards that. The reports produced by project managers that work with railway end up in IDA and in something called "Erfarenhetsforum".

Issues with the existing experience feedback I think might be related to several things but one project manger describes it as "must-do-work". Another one describes the suggestions box for improvements and explains that it is rewarded by a scratching-lottery-ticket and he does not seem to think that is a good idea and he also adds that they might not even understand what you are suggesting. This suggestion box could by my perception be seen as a way to reach improvements. However it has limitations according to the theoretical framework and chapter 3.1.1.1 that is explained as something that is easy to put down in text. The other kind of knowledge that are the tacit knowledge is difficult to put down in text, this should indicate that the knowledge or suggestions are mainly the explicit knowledge. Explicit knowledge is simple knowledge that is easy to explain while the tacit knowledge in chapter 3.1.1.2 is describes as practical and skills and know-how. According to me should practical skills and know-how be useful for a project manager and with the suggestion box this is missed. However shall be clarified that how this suggestion box works and the amount of suggestions it receive is not further studied. One project managers is also in chapter 4.4.2.2 are careful to note that experience feedback occur in templates and documents and that these are developing and these might be seen as explicit knowledge. It can because of this be seen that the explicit knowledge sharing might be working there is however uncertain how the tacit knowledge sharing is working through this method.

When looking at the process in general there is however project manager saying that the status of experience feedback is low and need to be raised and that the organization must find success factors. One explanation from a project manager is that no one asks for the experiences. This is not in line with other project managers that stated that they turn to others for support and to solve new issues in chapter 5.11 that we will return to later. Even if there is facts or statements opposing each other is it difficult to say if anything of these are more right or wrong than the other. This might be very context dependent or it may depend on relationships between people and these people involved in these statements might have different interpretations or not having a relationship with each others were they share or ask each other. One suggestion to raise the status of experience feedback is to locate a Gant after each activity to reserve time because if it has a Gant and time are reserved it costs money and then it will get status said the project managers suggesting this. Another project managers also discuss reserving time for experience feedback but in that case she suggested that the managers should reserve time for this activity in the end of each project for all involved project managers. So what can be seen is that two project managers discuss the fact of raise the status to experience feedback and the same two project managers talks about reserving time but in two a bit different ways. According to chapter 3.3 is it important to have necessary resources for knowledge sharing and in this case time. Time will be further discussed later in chapter 5.15 but already now the importance of time is seen.

Despite these comments two of the same project managers said that knowledge sharing existed and that the ambition was there. One of them even said that he thought that it worked and motivated this by explaining that templates were updated and specialists did bring their experiences into projects. A program manager said that when people gradually move from one project to another they bring along their experiences and knowledge also into the next project they participate in. The project manager that said that the ambition was there but she thought that the communication were dubious. One of the project managers explains that he thought they had experiences feedback but not had the system for it. So here we have results saying that there is lack of access to experiences and that there is weak control, goals and prioritizing of the work related to capturing experiences. During the interviews with one of the program managers she said that there existed a clear need from the project managers to gather experiences, which pretty much confirms that the project managers finds this important but that there are clear opportunities for improvements.

One way of reserving time can be that the program managers reserve time for all the project he or she is responsible for, which is something one project manager in fact said would be appreciated. In fact one of the program managers said that he thought that it was a part of his job to create conditions for experience feedback but he also noted that each person has an individual responsibility concerning this. The same program manager explain that he thought that the taken responsibility were normal distributed as he expressed it. In chapter 3.3.1 the importance of managers and that they must provide time and support for knowledge sharing. The program managers said that they encourage experience feedback by showing that study visits are approved and by creating an environment that make people within the organization to be open minded and on their own try to absorb others experiences. The program managers were talking about feedback experience through dialogue and by mouth-to-mouth communication related to the individuals. Communication by face-to-face is according to chapter 3.3.1 effective for transferring complex knowledge and complex knowledge is in chapter 3.1.1.2 mentioned as complex.

About the managers work one project manager said that there is a rather low interest from the management and that they tend to go to specialist before they discuss issues with the project managers. Another project manager also said that it is important that the manager run the operations towards a goal concerning experience feedback and that this goal should have a focus. This project manager also stated that when people are at work they need someone as a manager to show in what direction they should work and that this responsibility is something all managers must handle. Goals have in theory been established as something important in chapter 3.3.2 were the importance of common goals are expressed and that knowledge sharing goals related to the business strategy is important. Within Trafikverket I see a general need for clarified goals for knowledge sharing and experience feedback. As earlier mentioned by one of the project managers an area of focus for the experience feedback should be good according to him. According to both him and another project manager should the organization focus at areas were the organizations perceive they are bleeding and that must be fixed. It can however also be to build up experience that will be useful in projects that already are planned to be built in the future. Another way presented for creating experience and knowledge for future projects is to put a professional in the next stage of a project than he or she typically work in to give this person a wider context as influence knowledge sharing positive as mentioned and chapter 3.3.1, this method currently is used in one of the projects according to one of the program

managers. This seams to be a very good way to gain new knowledge and experience in my opinion. Two project managers has suggested that contracts and documentations are areas that they think would be relevant to focus at because it can have a large impact on both time and money. One of these project managers also said that he think the effort to fix these areas would be rather small. As understood a purpose of working with experience feedback would be to save or gain time and money and two of the project managers thinks that expressing experiences in economical terms about what to gain by using these would be a good and concrete way giving a reason to why they should be used. I think this seams as a suitable way not only to motivate but also to create an understanding of why it is important. When one of the project managers that suggest that the gain should be shown in terms of money is asked how long time it will take he answered that it would take maximum 16 hours and ads that it would not take that long time if the project manager work in a structured way.

Other issues of working that are raised during this study is that as mentioned by a program manager that there are long circles when something is done it can take several years until next time. This might be a problem but also a reason to why experience feedback is important. By having a working experience feedback the experience one person does may be used by the next person that have to do it and then than person can use that knowledge and experience and when its done it might be improved so the next one have a updated version of the experience. So even if there are long cycles between each time doing something if the person that shall do it looks into the latest experience it will be an updated or developed version of what he or she done earlier, which can improve advantages compared with last time it was done. Another program manager raised another issue concerning that it is within the human nature to not share mistakes that could add a risk by explain experience but leave out mistakes and then you easily may walk into a similar "trap". By viewing the theoretical framework it can be seen that establish good relationships and trust to create a culture were people can share and have a dialogue were it is possible to ask when something seems to be difficult or a situation where it appear to be a risk of doing mistakes.

5.6   Workshops & Seminars

Mention briefly by program manager Bo Larsson in appendix A1 there are seminars and workshops that different projects within the department of major projects invite to. Project manager Stein Kleiven also disused this and explained that this might work as experience feedback meetings in his opinion. During these seminars and workshops there are discussions about good and less good experiences. These occasions can also provide an opportunity to make new contacts that may become a part of the personal network. To this the same theory as applied in chapter 5.3 is relevant. Making new contacts will have positive impact on knowledge sharing since people tend to be more willing to share with people they know or have a relationship to. This may also create trust that also decreases the risk of knowledge sharing barriers within this area.

5.7   Meetings

As mention both in appendix A1 there are several types of meetings that are related to experience feedback. All of these meetings are not having the purpose of only discussing experiences but according to Erik Lööv experiences maybe exchanged when they meet even if outside specified experience feedback meetings or other

forms for similar activities. This way of working should according to chapter 3.3.1 create interaction that decreases the probability of creating barriers for knowledge sharing.

Meetings that however are mentioned where experience feedback occur is technology meetings, start-up meetings, final meetings, construction meetings, project managers meetings, program manager meetings and experience feedback meeting. The experience feedback meetings is something that are mentioned by several of the project managers. Mikael Larsson and Lydia Lehtonen mentions it as something that is done in the end of a project or a collaboration were what is perceived as positive and what are perceived as negative experiences are discussed.

Mikael Larsson also notes that often the negative experiences are in focus but he notes that it is also important to see the positive things and see it as confirmation on what is working. Stein Kleiven also discuss experience feedback meetings but in a way that I perceive a bit differently than the way Lydia and Mikael discuss it. This can be seen as a way to create interactions that have positive effects on knowledge sharing according to chapter 3.3.1. It may also be an opportunity to present organizational goals concerning knowledge sharing or to highlight the importance of it according to chapter 3.3.2. This might also be an opportunity to give credit to those who have been working extra hard with experience feedback work as it is a rare occasion and it may be perceived as a rewards. This would be a reward of recognition and not of money that may influence the knowledge sharing in a positive direction according to chapter 3.3.2. Experience feedback meetings can also be a combination of study visits and presentations about advantages and disadvantages with working in certain ways according to Stein Kleiven. He also said that people want to tell what they have done.

Stein Kleiven also mentions that there are different networks for experience feedback as e.g. the program manager's meetings or the technology meetings. These program managers meetings are also something that are mention by Sara Distner and Bo Larsson that attends these meetings. One thing that Sara highlights as something that is good for experience feedback is that the way these meetings are planned and that it has changed a bit since she started. This towards the positive in her opinion, these meetings are now scheduled from lunch to lunch, which give people that attend more time to get to know each other and create possibilities for different projects to discuss according to Sara. This seems to be in line with the theory in chapter 3.3.1 that says that interaction increase trust and makes it easier to share experiences. The program managers meetings are one of the meetings that Stein Kleiven mentioned; the other one are technology meetings. These occur every other week according to Erik and is also a kind of meetings were positive and negative experience within the technology area are discussed.

In fact the program manager Bo Larsson created a forum for project managers to discuss without the program manager when he were the program manager form BanaVäg west. Sara said that she perceived these meetings had the purpose of experience feedback from the beginning but that they shifted focus into more contracts and juridical issues related to construction. Also Erik mentioned these project managers meetings as a forum for discussing good and less good experiences. He also said that from the beginning these meetings occurred once a month but that they now occur four times a year. Mikael Larsson also mentions these meetings and said that he thinks they are a good idea but that they might have been working better. He said that for these meetings to work it is important that people share and that it not always is that way. He says that people not want to expose them selves but does not

think that this is because of fear. He also adds that that it is easier to share with people you like and know. This is supported by theory as already been mentioned that trust is a foundation of sharing and my perception is that it is why Mikael thinks it is easier to share with people he like and know well. This is probably also what might be behind that people hold back and not want to expose themselves. There are definitely people holding back information is my perception of what Mikael said in appendix A1 about the project managers interview results and the sub chapter meetings. He also stated that there were people that had their agendas and not wanted others to pass. This may when relating to the theory definitely be seen as self-interest in my opinion where those who holds back gain more by holding back than they earn by sharing. Even if Mikael Larsson is clear when he says that he not think it is related to fear there is still a possibility that it may be related to fear of free-riders that take advantage of the shared experiences without contributing. However there is also research saying that there are little fear of sharing with co-workers in general. This support Mikael's statement about that it probably not is any fear behind these reasons. Trust have been mentioned before and is still a factor that may affecting this that seem to be something that makes knowledge sharing more difficult.

Feedback experiences can also be discussed during seminars arranged by the different projects. These seminars can however be difficult to prioritize along with certain stages of the own projects.

Two of the project managers talked about own solutions related to meetings. One of these is Mikael Larsson that when he face problems or issues invite to a meeting where he let several persons take a look at the problem or issue. He said that it is important to let several people look at the issue or problem before solving it. My interpretation of why he does this is to try to find as many possible opportunities of solutions as possible. During these meetings he explain that they had brainstorming and discussions in order to try to solve it. He said that there is a possibility that the technology for solving a problem has developed and it have become solutions to a lower cost but to the same quality. This method is mentioned in the theory chapter 3.3.1 as peer assist, which means that you invite people to look into a specific problem in a specific context. This gives the persons invited an opportunity to put them selves in the context of the issue, which decrease the risk of knowledge sharing barriers because of lack of context. This seems to be a method the maybe should be worth trying in a larger extent if it already not are applied in more cases than Mikael's case.

Another project manager that runs meetings in a bit different way is Per-Inge Söderström. He is the most active of all project managers in producing experience reposts, which can be seen in chapter 4.2.3. These reports is the result from meetings that he have regularly where he gather a group of people that all poses a area of expertise and discuss approximately ten bullet point. The result end later up as already mentioned in a document and those who find this result interesting can contact someone within the group if they want to know more. This seams as a good idea not only because they occur regularly but also because those who are experts can be chosen by the project manager and then he can or will probably use people that he trust and that are able to have good interactions with and are willing to open up and share knowledge. This way of working also makes the individual in a way protected from exposing he or her self because the result is a result of what the group produced and not he or she as an individual. The theory in chapter 3.3.1 also supports this way of working. It is a bit as creating an own network for knowledge sharing. The same

theory chapter also said that it may be advantages in using existing networks and this might be such a network in my opinion.

It was suggested during the interviews that there should be planned activities in the end of the projects were experiences were gathered and documents with this knowledge were created and stored somewhere. One of the project managers expressed that she miss having meetings about a certain area with discussions where exchange of experiences can occur. She pointed out that within the former Road Administration there are meetings like that as she found useful. This might be a good idea but these types of gatherings must still be dependent on trust and social interaction so people actually share their experiences and not holds back in those situations.

This chapter has by two project managers given a picture of people holding back their sharing of experiences as in earlier chapters there has been stated that there is a willingness to share. This might be a bit confusing and there are probably an indicator that shows that there is a need for interactions and to build even more trust among co-workers so they feel confortable sharing experiences. There can also be caused by self-interest and if that is the case the reasons that make people hold back can be that they gain more by holding back than if they shared, what this might be must be found and also removed. Something here is definitely working as a barrier even if the barriers are difficult to locate.

5.8   Fear

Lydia Lehtonen did also think that it might be because of fear of exposing their own mistakes, which according to her seems to be normal to not wanting to expose own mistakes. In chapter 3.3 concerning the individual level there are mentioned that there can be a fear of sharing because the person sharing perceive a risk of jeopardize their or others jobs.

5.9   Lack of context

There were another issue as well discovers during the interviews and this concerned that fact that most knowledge sharing was mouth-to-mouth communication. Because of this fact a question were asked to all interviews what can make people write more. Lydia Lehtonen said that simpler experiences can be stored in writing but when staring to store more complex experiences they can easily become rather comprehensive and also time consuming. Complex experiences can be experiences involving several areas of e.g. technical areas as well as juridical areas. The complex experiences may also be rather difficult to explain to someone that not has been involved in the project. Matters of complex experiences might as already mention in chapter 5.2 be related to lack of context and that is what I think will be necessary for explaining these kind of experiences. In order to overcome the barrier of lack of context in complex situations face-to-face conversations are improving the knowledge sharing is stated in chapter 3.3.1. She however also said that pictures and illustrations might be helpful to explain complex situations and then illustrated this by drawing an picture of how the organizations in her project has developed and I instantly understood clearly what she meant by this example. It is clear that during complex situations not only is it helpful to have a face-to-face conversation with the person describing the situation or experience they can also easily use other tools or means such as drawing pictures right there and then directly.

5.10 Rewards

However there were also comments during these interviews from a project manager that said that it should be fun to go to work knowing that someone takes care of your experiences. This comments can be seen as the knowledge of someone else using you knowledge may give a reward in terms of personal satisfaction that is mention in chapter 3.3.2. The personal satisfaction can come from of being able to help someone else and driving the organization forward. There can also be seen as recognition when another person decides that you experience is so valuable that it is worth using.

5.11 Structure & Support

During the questionnaire a question concerning the support were asked and received results that are presented in chapter 4.5.8 and can be seen graphical in figure 4.21. What can be seen was that the support were seen as little or none by 60 % of the project managers even if the most answers were rather strong support or rather little support. This was the reason for me to have questions concerning support also during the interviews. During the interviews in appendix A1 about the project managers interview results Erik Lööv stated that the support at the individual level were good according to him. Program managers Bo Larsson said that he also perceive the support as good from other program managers and e.g. lawyers, which in my opinion also can be seen as individual level of support even if occurring at a higher level within the organization. According to both these two I would make the interpretation that the support is good at the individual level. Concerning the individuals Erik Lööv also said that there is a willingness to share within the organization. The willingness to share at the individual level is also something that program manager Sara Distner spoke of in appendix A1. She said that people in general wanted to share but noted that there were some exceptions.

The interview results so far say the opposite to the questionnaire, which is interesting. However, was the question concerning support in the questionnaire wider that just focusing at the individuals, it also involved managers and organizational support. Related to the organizational and the managers Erik Lööv said that there was no structure for the work with experiences and that the support from the system that supports this work. Erik Lööv is not alone to think that the system not supports this work. Bo Larsson also said that there is no working system for this and he even said that the system must be more systematic concerning these things. Bo Larsson also said that he not knew anything about direction and agendas concerning these questions. Also Sara Distner is into the same kind of thing when noted that the program managers need to know what is expected from them and that Trafikverket needs to be clear on what they expect concerning not only the report but also in terms of how experiences should be distributed to others and the ways they can access it. In my opinion this seems to be about especially program managers not having any directives for how this work would be handled.

The perceived willingness to share will I return to again later in chapter 5.7. However, there are issues concerning the systems and I seem to recognize some issuers with lack of goals for knowledge sharing from theory chapter 3.3.2. Goals are according to the theory an important part both for connecting operations and knowledge sharing and to have goals connected to the organizations business strategy. Lack of connection between knowledge sharing goals and business strategy has shown to be something that often is reason to why knowledge sharing fails according to the theory.

As seen experience feedback exists but only by a single headline in templates and not so much more according to what I have seen during this study. This might be a indication that the goals would be clearer if not because of the reasons that theory says that it is a common reason to why knowledge sharing fails so because of the fact that the program managers should be able to know how this subject should be handled. In my opinion it must be difficult for the project managers know how they should work with knowledge sharing and experience feedback if not the program managers knows how they should work and what directives they should give. I personally think that a good way would be to set goals to work from that creates a framework for were it at least can be developed from. It should then be more than just words in a template. I think clear goals would give a framework for how the managers can support the work concerning knowledge sharing, which is mentioned as something very important in chapter 3.3.2. This framework that I mention should exactly as Sara Distner suggested say not only suggest what should be in the report but also were the reports can be found and were they should send the reports to get them into the system and can be found by both the author but also by others. All of this work must according to Sara Distner start within the system PPI that we will return to later.

5.12 Goals

Findings from the interviews were project managers saying that there was no focus at experience feedback; the control and direction of it were considered weak and the time to work with feedback experiences were not prioritized. One of the project managers also said that there were no clear goals with the experience feedback. Two of them added to this that they would like to see what can be gained through experiences that can be found in experience reports in terms of money. Relating this to the theory there is a need for clearer goals, which is mentioned as something important in chapter 3.3.2.

5.13 IT-Systems

During the questionnaire study results showed that there were many systems that were used every day within Trafikverket. In fact it as 27 systems that were mentioned to be used every day by 36 answering project mangers as can be seen in figure 4.22 in chapter 4.4.

There are a few things that are presented by the project managers as issues related to systems. One project manager said that the system is often extensive both in terms of how they are built up and to keep updated. The same project manager said that even if information is relevant at the moment how up-to-date is the information in the system 6 month later and is it still the same contacts and experiences that are relevant. Another project manager said that there have been attempts to implement systems for experiences but that those systems not have received enough maintenance. His solution on this problem is to assign a person or a group of people responsible for the work with this system. The same project manager also noted that it is important to provide resources for such assignment and work with such a system. The other project manager also said that there must be people responsible for update the system, which may be seen as a sort of maintenance by me. He also said that if there should be people working with this it requires that resources must be provided. The same project managers is into that a system as Wikipedia might be something but he also notes that Wikipedia is build to a large extent of facts and experiences is more of a grey zone where it not only is facts but also can be own thoughts or opinions. He also said that

one way of getting people to share experiences in written more requires that the experience system must establish among the users that the experiences within the system is up-to-date.

Lydia Lehtonen also mentioned that the simpler experiences can be stored in the management system and the theory in chapter 3.1.1.1 states that explicit knowledge that is knowledge that can easily be put down in written can be stored in documents and databases.

Another issues mentioned by Erik Lööv during the interviews was that it is difficult to find what knowledge that were useful for him as a project manager. This is something that I consider to be related to the technical systems.

Erfarenhetsforum that earlier in chapter 4.2.3 is found in IDA is not something that Per-Inge Söderström not have heard of before, which show lack of knowledge sharing. He also said that information about experience systems not were well communicated. It seems obvious that the communication not is working very good when there in chapter 4.2.3.2.1 is established that Per-Inge experience reports are located in IDA but that he not knows it. In this case the lack of communication may be in terms of lack of knowledge sharing. The reason behind this may be related to the fact that the current systems not are user-friendly or that the users not thinks that the systems provide content that are useful for them as mention in chapter 3.3.3. To not know in what system the records is located is not known by just Per-Inge, the interview with two other project manager also showed that those neither knew of what to do with these records and were they ended up this is something that only supports what already been presented by Per-Inge's statements.

According to one of the program managers the work with experience feedback must start within PPI. This may be reasonable because of the fact that it easier for the user to use the current system and user-friendliness is already something that has been established as important. Also one of the project managers said that the systems used for experiences must be quick and simple. According to another project managers is PPI something that is rather new and still is developing. This may indicate that PPI is underdeveloped because it needs to be developed. Chapter 3.3.3 explain that underdeveloped technology systems may act as a knowledge sharing barrier.

When then looking at where PPI is found there is seen that PPI can be found at the Intranet that seem to have similar problems with being underdeveloped. Both program managers have mentioned the search engine at the intranet as something that not works very well even if one of them explains that the Intranet is under development. The search engine has as been seen in chapter 4.3 about the earlier studies within Trafikverket been seen as a problem earlier also and something that is a barrier to knowledge sharing. Also two of the project managers describe the search engine as something that not is working. PPI is also the system that the employee finds information about the process. One of the project managers said that the process is described with basically one thing. As seen in appendix A1and the section about the IT systems there is noted that the process of how the work process should work has developed since after the summer. This is once again indicating an underdeveloped IT-system that may become a knowledge sharing barrier.

What can be seen during this study is that the project manager as suggesting systems that they think should be quick and easy to use and this may be translated into a need of an IT-system with higher user-friendliness. Comments from a program manager about that it were easier to find a contact in the former Railway Administration

indicates this. A Project manager also spoke of the wish of finding contact information in these systems but also had suggestions on experience reports in the system containing maximum one page with contacts as mention but that also stated why it should be used and what the economical impact may be from working in that way, which also may provide higher user-friendliness. There are some possible solutions that are presented by other project managers. One of these other project managers is Erik Lööv that talks positive about a system working similar to a chat in a company that he had worked in earlier that creates a possibility for people to not only ask question but also to help others and answering on these questions. This is not only a way to create trust and to establishing relationships as mention in chapter 3.3.1 but also supports knowledge sharing by being a user-friendly system for sharing knowledge. In the way described of the project manager the system worked by putting people in contact with each other that needed to exchange experiences and knowledge.

5.14 Trust

Earlier in the chapter about barriers of fear has been discussed and even if there has been some discussion of fear the theory established that it was uncommon among co-worker. I however, think that even if there is a possibility of being related to that it can also be, which in my opinion seems more likely about being about an unwillingness to show lack of skills or to showing other personal weaknesses.

Lydia Lehtonen has also said that people are careful about what they write because they do not know how this material will be used and that this also may be related to why there is more verbal knowledge sharing. There can also be some experiences as such about people that have been replaces and she explained that that is something that never can be put down in written.

Lydia Lehtonen perceives that people not only are holding back concerning the written but that it also can be noticed in the verbal sharing. This might be a sign of lack of trust according to the theory in chapter 3.3.1. Trust is according to this chapter something that is vital in order to get people to share and sharing of knowledge may only occur if the individual are willing to share voluntary. Trust is also the foundation of creating relationships. Trust is according to this to be seen as a foundation of relationships, knowledge sharing and acceptance for mistakes. This once again relates to creating context by having dialogue that is important. By having dialogue trust and relationships are also created. There might seem to be a need to increase the trust among the members within the organization but it can also be about increasing interaction and creating relationships.

5.15 Time

During the questionnaire several questions concerning time were asked and one of those were about if the project managers wanted more time for working with experience feedback. As chapter 4.4.1 already have presented some of the project manager were satisfied with the current situation but a majority wanted more time. None of the project managers wanted less time and all these results did that the questions about time were obvious questions during the interview. The theory in chapter 3.3 has also provided evidence saying that in order for knowledge sharing to work the need of resources such as time is important. Time is also seen as an important factor that is important when an individual evaluate the costs of someone

else knowledge and if it is worth using as mention in chapter 3.3.1 individual knowledge sharing.

One of the project managers explain that she today reserve time in the end of the project for a feedback meeting were people meet and discuss these things verbally. She said that the reason that these meetings are located in the end of the project is that people then can reflect on what have been done. In appendix A1 there is also mention that another project manager have similar feedback experiences meetings in the end of the projects were he meets his e.g. contractors, this has already been discussed in the chapter 5.7. However, the same project mangers that said that she reserved time in the end of the project for this also expressed a wish for the program manager to do the same thing. According to this project manage there is often personnel leaving the project organization for new project before the entire project is finished and she thinks that it would be positive for the capturing and storage of the experiences to this before all leave is my perception. She also mention workshops and seminars as good ideas for examples on how the organization can reserve time to work with experiences and in this way show that there is focus at working with sharing, receiving and capturing experiences.

Most of the project managers say however that time is not the problem for finding time to work with experience feedback but that it rather is about prioritizing. One of them said that he thinks that half a day each month is something he think the project mangers may find and use for working with experiences. He also noted that he think that it is easier to find time during a running project and with several project mangers involved, it also gives them a base for what to talk about. The same project managers explains the answers from the questionnaire by saying that he thinks it is more about a wish to have more time than they have now. Another project managers is also into the idea that it is about prioritizing but says that it is up to each individual to find time for this. He also said that in some situations they do not have any time and think that the project managers would have more time for most things. This is interesting statements and one project manager expresses his view on this by saying that if they not take time for working with experiences they harm themselves.

Even the program managers were faced with the results from the questionnaire and asked about what they thought affected this. Bo Larsson said that he did not think it was a problem because of time but because of prioritizing. However he also noted that it may be connected to the fact that most people prefers to start working and does not sit down to think when they are stressed.

These results can in my opinion seem to point in the direction of low prioritize for the work with experiences and how to share, receive and to capture them. Time for this seem to be something that the project managers want more of and in some way the managers must support this work by providing them with time for this. However is just to be provided time probably not a solution as long as the project managers not prioritizes this question. The focus must also be increased on questions as this and it is important that this is done according to me. Clearer goals, rewards and other already mention methods might also be able to increase the focus at the work regarding experiences.

5.16 Merger

Trafikverket was founded in 2010 as mention in chapter 1.1 and consist of several organizations that have merged and become Trafikverket. According to one of the

program managers the management has stated that it is not a merger but to be seen as the founding of a new organization. According to this study the project managers said that this does not matter in general and that there not are any differences at the individual level as mentioned in appendix A1 about the merger. Also the program manager says similar things such as that the merger has worked well in general and that there are no differences in systems or culture as earlier mention in appendix A1.

Even if these comments seem to express that the merger or founding of Trafikverket worked well terms as in general and at the individual level is mentioned. These are terms that may hint of underlying meanings and project and program managers that not saying what they really think about this matter. Interesting is also that project managers also on questions about differences between former Road Administration and the former Railway Administration say things such as the former Railway Administration were more strict concerning the handover process. In addition to this comment the same project manager also said that the former Railway Administrations more strict handover process has given them more experiences feedback. Also other comments seams interesting such as another project managers that said that within the former Road Administration they had policies about that all project managers should be employed by them. The same project manager also expresses that she misses the space for having discussion and regular work meetings were the topic of experience feedback is discussed. There seem to be a heritage from the former organizations that today have merged into Trafikverket. According to chapter 3.3.4.2 a knowledge sharing culture consists of shared practices of this within the organizations according to me stricter handover processes and worked more with experience feedback at work meetings are practice. This makes the former Road Administration and the former Railway Administration differ in their cultures. This might not be large differences but they exists and I think that it is important to be aware of differences in order to create a new culture within an organization that consists of at least two different "old" cultures. It seems to me as they try to ignore this fact by saying that this is a newly founded organization and not a merger. According to chapter 3.3.2 can differences namely create knowledge sharing barriers. This gives these facts and discussion importance and something that in fact affect the knowledge sharing within Trafikverket. Research have shown that culture affect how problems in an organization are solved, the tools, the structure and how reward and recognition works as also this is mentioned in the earlier mentioned in chapter 3.3.2.

However, one of the project managers said that the culture has not matured yet but it starts to shape. The same project manager said that the culture within Trafikverket is not clear today. Another project manager said that it has to be kept in mind that Trafikverket is just two years old and that that the organization not is fixed yet. The same project manager said that because of this experience feedback has not been a prioritized topic right now. These are all important things to consider and one of the program managers said that the creation of Trafikverket has not affected BanaVäg west in terms of delays or such things even if it might been some frustration regarding some things. The same program manager said that there are differences between building road and railway, which not were totally understood when Trafikverket were founded. All these things in combination may affect the knowledge sharing within Trafikverket. What has to be kept in mind is that different cultures affect the knowledge sharing and there can be understood that everything not is perfect form the beginning. But seen in chapter 4 is that experience feedback seems to be on the way of becoming more in focus within Trafikverket. One of the project managers noted

that the openness was wider within the former Road Administration before the merger where the project manager then belonged to. This might not be the most important things but the important thing is as mentioned before that there are cultural differences and that in order to get a knowledge sharing culture within Trafikverket this must be considered and openness is an important factor in creating an culture that have positive effects on knowledge sharing as mention in chapter 3.3.2.

5.17   Final comments on the findings

This chapter connect possible barriers found in this study first to explicit and tacit knowledge and then to knowledge transferring and knowledge sharing. Figure 5.1 below show what kind of knowledge that may be affect different barriers. In some cases mightl the barriers be related to both tacit and explicit knowledge.
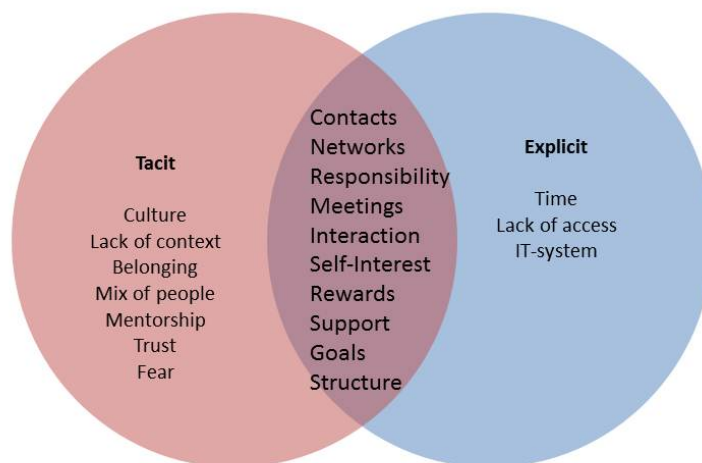
Figure 5.1 Barriers relation to tacit and explicit knowledge.

Figure 5.2 below show what barriers that may be related to the knowledge transferring and the knowledge sharing. Some barriers may however be related to both of them. The barriers located within the knowledge transferring circle needs some kind of formal actions in at least one direction in order to avoid them. Those barriers that are located within the knowledge sharing circle need actions and work that are more in an informal forum and need several actors to work actively with trying to solve the issues that might create barriers. The barriers that are located within both circle needs also the actions and work necessary from both knowledge transferring and knowledge sharing perspectives.

Figure 5.2 What kind of knowledge that affects the different barriers that might be possible.

6   Conclusion

The present study has enabled me to identify some of the issues encountered at Trafikverket related to experience feedback. Looking at knowledge transferring, knowledge sharing and tacit and explicit knowledge have enabled me to identify barriers that Trafikverket needs to overcome in order to optimize their experience feedback process.

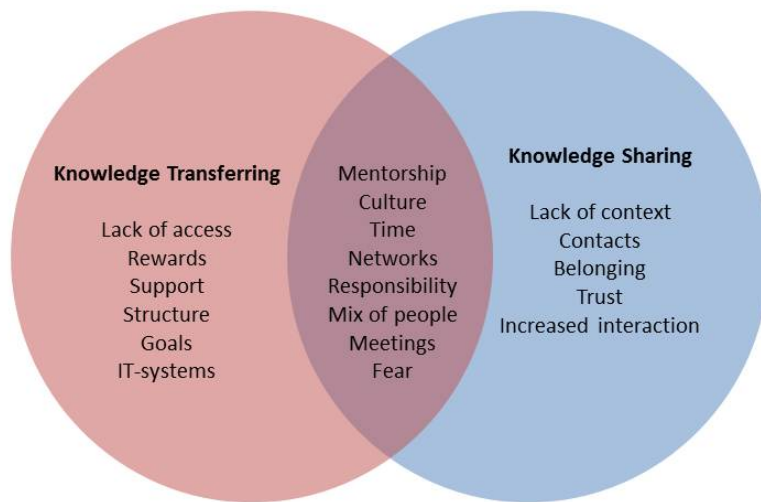At the individual level of experience feedback there is a large extent of verbal communication that involves meetings and conversations that are the methods used. This is something that according to theory has a positive impact on the experience feedback. However, people seem to hold back on sharing in some situations and this might create barriers because lack of established positive relationships or lack of trust. Because of the fact that it can be related to both trust and relationships this area would be something that should be investigated further in order to draw any clear conclusions.

At the organizational level there are indications by the project managers combined with the theory that barriers might be created because of lack of clear goals, guidelines and support from the organization. Because of that it seems to be an area that might not only put focus on experience feedback but also something that can make it easier to work with.

The technology level has been mentioned in earlier reports and it seems to be under development but it still requires improvement. One of the absolute most important improvements at the technology level is to improve the intranet where the main focus should be to make it more user-friendly and to improve the search engine. Storage of experiences and contact information must also be simpler but the most important related to this aspect is that everyone must know how and where it should be stored and how and where it can be accessed, everyone must know how this works.

There are combined levels that may affect the experience feedback and create barriers towards this. One of them is trust that may be low among some individuals and this can create barriers toward experience feedback. Even if it is said that it is good in general it can still become a barrier, which has to be remembered. Another level is the culture that not has settled yet and still is under development, which has to be kept in mind of those who manage experience feedback. The reason that the culture not have settled is related to the merger in 2010 and this have to be considered and taken into consideration because it can otherwise become a barrier. Concerning the merger it indicates that there are some things that not fully works between the two different work areas, this is also an area of interest to investigate further in order to find out what impact the merger had on Trafikverket and its culture. There are also one issue that been frequently mentioned in this report and that is time. Concerning time the main issue is that it not is prioritized. There are however some indications that this might be related to the lack of goals and guidelines concerning the experience feedback.

Overall there is experience feedback within Trafikverket but it has a large potential to improve. If the organization are serious with their experience feedback and really want to work with it and to improve they have to focus more at this work and establish how they shall work with it in a simple way that really show improvements that are visible for the project managers in this case.

The reflection on my own process is that the process of this study has worked well but there have been some challenges and things that I might have done differently if I did them today. The first stage where to get to know the organization through interviews, study visits and to be located within the organization and this worked very well in order to get a general picture of the organization. The planning of this thesis was carefully planned but due to longer vacations within the organization the interviews stage took longer time than expected. If I hade done the study today I would have planned more time for the interviews and simultaneously I would also have started to write more of the theory chapter earlier on. The processing of the interviews took also longer time than expected. For the result of the research I think the amount of interviews are good but concerning the time I might had done less interviews if I had done it today. If evaluating the questionnaire it worked out well but if done today the questions would be more clearly stated and a bit less comprehensive. To summarize the process it went according to plan with slight delays in it because of unforeseen situations.

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Appendix A1 – Interviews

In this appendix a summary of the interviews with the project managers and program managers can be found.

Project Managers Interview Results

During this study has five interviews with five different project managers from two different large projects where held. This chapter presents their views, opinions and was of working with feedback experience today.

Backgrounds of the project managers

In this chapter the reader till get a picture of what backgrounds the interviewed project managers have.

Per-Inge Söderström has 33 years of experience from working with railway within the National Rail Administration and has before his current position as a project manager within the BanaVäg west project had several management positions.

Mikael Larsson is a civil engineer that has a background as a structural engineer and project manager. He has worked both for public and private organizations. He started out at the National Rail Administration and then entered Trafikverket during the merger of the National Road Administration and National Railway Administration.

Stein Kleiven is educated university engineer and has a professional background from different management positions both within the former National Road Administration and within a consultancy company. Today he is a project manager for the Marieholm construction project.

Lydia Lehtonen is a civil engineer and has worked in the National Road Administration before it became Trafikverket but she has also worked in other industries than construction. She has long work experience as a project manager but had also had other management positions.

Erik Lööv is educated civil engineer and has experience from both structural engineering and project management. He has earlier work both for a consultancy firm and for one of Sweden's largest contractor. He has been working in the National Road Administration before it merged with National Rail Administration and became Trafikverket which is his current employer where he are project manager road projects.

The project managers view

If the last chapter explained the project managers backgrounds will this chapter explain how they view experience feedback.

Per-Inge Söderströms said that experience feedback is a way to earn money, not to do the same thing twice and to develop the industry. He also thinks that mentorship is an important part of capturing and transferring experiences and said that mentorship could be able to transfer traditions, processes and routines that in some way could help to develop the industry. He also said "We have to be more clear on how to act when it comes to our way of working with experiences because there are both money and time gain from this work". He continued to explain that when he works with production methods that are adapted to local conditions most people think that it is just locally adapted while Per-Inge stated that these methods might be locally adapted

to maybe 25-30 % but the 70 % that is left could be applied on the entire Swedish railway system and that is something that Per-Inge where convinced in.

When asked about how see at his role and what he think is his task in relation to experience is he said that it is one of his largest responsibilities to get to know and learn from experiences and that he takes this task very serious. Personally Per-Inge feels that he has a responsibility to do this work without anybody told him that he should do it. He said that he thought that it is basic and should be included in the job description when someone works as a project manager and should report to his or her manager at least once a year and report what things that are possible to improve. At least once a year but two times every year would be to preferred according to Per-Inge.

Mikael Larsson's view of experience feedback he explained as bringing along the experiences from one project to the next, which is the important thing with experience feedback according to him. He also points out that it is difficult to transmit those experiences to others. He thought that the mistake many people does is that these things are viewed in general terms. When Mikael spoke of the current intranet he said that he not saw it as 100 % user friendly. He thinks that the area about experience feedback is very important but a difficult area to get working.

Stein Kleiven finds experience feedback to be very important and as a way to looking back in the mirror and find knowledge about how things has been done earlier.

Lydia Lehtonen thinks that feedback experience is to see what whet good and what to improve and thinks that the main focus should be on the things that could be improved. "It is important that the culture within the company and organization where you could share your experiences because it is them you want to get hold of" according to Lydia. She also said that the culture have to be accepting when telling what went less good in a project. Lydia also said that it is important that there are documents and that they are gathered but f someone not talks about them other would not search actively after the experiences. She thinks that the verbal sharing is important to keep the interest alive. She added that experiences could be complicated and said "multifaceted ways of looking at the problems makes dialog important".

Experience feedback for Erik Lööv is to get good solutions and share them and not to repeat mistakes. The reason of why experience should be shared according to Erik Lööv is "so others not shall have to walk into the same trap or use the same masterstroke that we did". With good solutions he aims at the solutions seen from a client perspective e.g. find ways of become more effective, achieve lower prices to the same quality as earlier. He also said that a lot is about the how the contracts are written and how they structure the documents because there are areas where much money could be gained with a small effort.

Contacts & Networks

This chapter will present the situation according to the project managers concerning contacts and networks.

Mikael Larson where also asked about if there was any formal process of experience feedback, but thinks it more of an informal process. He said that the own network is important. When asked about how the exchange between co-workers Mikael said that very much is within informal forums, formal forums exists but very much is informal. Experiences are often informal according to Mikael.

Mouth-to-mouth is the most common way that Erik Lööv receives and share others experiences. He also says that it might depend on the fact that is young in this role and had not done these things so many times so he has to rely on others. He estimates that this contact occur once a week. He also explains that there are differences between the planning and documentation phase where they could look at old documents and be in contact with construction managers and project managers. He also said that that phase is more structured than the production phase. He explains that in the construction phase there is an increased need of finding solutions fast

Erik Lööv mentioned earlier in this section on the current situation that he used persons that have experience from doing something earlier that he shall do. Stein Kleiven also talks about using people that have done things earlier. He said in the Marieholm construction project they had been in contact with in essence 80 years old men that where involved in the construction of Tingstadstunneln. Stein said that the projects had some seminars, workshops and gathers and invite to what you can call experience feedback meetings where the project talks about what went good and what went bad and is an opportunity to create new contacts to the participants networks. According to Stein relations between people is important to get good information and feedback. He gives and example on how they did in the case with Tingstadstunneln and said that by finding someone that knew someone else the found the persons that where involved in that project. Mikael Larson said that gradually the personal network is build up and what he meant by that where that you knew who to contact to find the necessary information. Mikael also said that he relay almost to 100% on contacts in his network around him. On the question if that is enough he answers that is the way it works. He said, "What you do on your own that has any substantial value".

If Lydia Lehtonen is put in a situation with a new issue she said that she use her rather wide contact network, but more to discuss in order to find the best solution. She also said, "I use to think about who might have done something similar before and then I make a call". She then explains that these contacts could be located both within the organization and outside of it.

Diversity & Mentorship

This chapter will present the situation about diversity and mentorships within Trafikverket.

Stein Kleiven said that this is one way they managing experiences but are also about having a mix between older very experiences and innovative people. Then he adds that he thought that listening at what have been done earlier is important. Then he does not think that it must be done in the same way but that you gain knowledge to develop it even more then they do it. Within this conversation Stein also mentions that one of the consultants that is experiences has a younger assistant that learn from the older consultant. When asked if he thought this is a good way of working Stein said that it depends on the persons. He developed it by saying "It is not easy to live in the shadow by a large tree, it requires that space and opportunities for this young person to take initiative and grow". Even Mikael Larsson discussed the topic of mixing people in a project. Mikael's personal experience on how to learn from experiences within an organization is that mixing experiences though having younger people as well as older people with experience within the organization. According to Mikael it creates an advantage by having construction managers that are old and experienced and new young hungry with new angles of incidences. He notes that it takes time to become experienced, "What I mean is that it could become risk if you

when you get older not manage to absorb new information or can work in new ways".
He find that it is hard to get them who have 40-50 years of experiences transferred,
right now one of his closest co-worker will retire after this project and he have worked
with this over 40 years to other. He says that he will miss him because he is one of
those that got a lot of experience and he could ask things. Mikael said about his
closest co-worker "If I ask him he got someone in his contact network that either
knows them or now someone else that know." He then adds that after this project his
close co-worker will retire and then the co-workers experiences will be lost. It is
important to have these old men's experiences according to Mikael. He also said that
it is equally important to get the younger people and their experiences as another way
of view things. The project where Mikael works they got construction mangers that
are between 30 and 60 years old and it feels as a good mix of people. He then said that
the thought that it could have some benefits. Then he said, "I think it could be useful
for the younger to get the older and the older gets to know that the world not might be
as it was in 1970".

The Process

The current situation is presented in this section below and shows how the situation
looks in Trafikverket today. The project managers handle the work with managing
experiences in different ways, which will be presented in these next parts of the
report. When discussing how the experience feedback works today Per-Inge said that
people often ask too late, when they have already failed with there for example
connections. First after that they ask how we did in BanaVäg west project that
succeeded with all our 12 connections he said. He also notes that within the area of
work in relation to railway work technology areas such as signal and data is moving
rapidly forward and because of that there is important according to Per-Inge to
transfer how others work with these areas.

Erik Lööv also talks about how he does when facing problems. When problems occur
it is often about contacting someone know how to handle the issue or use to be able to
handle the issue according to him. Erik said "instead of us finding a solution I see the
experience feedback as get in contact with someone that had done it recently". But he
notes that the experience feedback then already is too late because the issue has
already occurred. Even if it already occurred his points out that there is saving to do
"by not need to rediscover the wheel when someone else has done it". Instead he
explains that you get to know how they have done. If these kinds of issues of
problems where brought up earlier better other could avoid facing that problem.

Today Erik perceives the experience work as a bit of a must-do-work but ads and says
that he realize the importance of it. He also said that within the construction phase
there are more important questions. He notes that if put a bite egoistic there could be
"I need help now to solve my problems so I share and help others later". However he
notes that he wants to help others but that the focus not is there right now. Erik Lööv
also said that "Trafikverket have experience feedback but do not have a good system
for it". He however noted that "experiences are absorbed and you update templates
and the specialist bring along experiences and update solutions so we go forward".
After he explained that both purchaser and specialist are involved in many different
projects and brings their experiences into them this system also did that new contacts
where established. If this not hade worked "we had done the same mistakes over and
over again" said Erik and notes that that they do not do the same mistakes over and
over again. However, Erik Lööv point out that there is a learning within the

organizations and that it is a systematic way of working with experiences feedback because of the fact that they are learning but that they miss a system for feedback experiences.

Per-Inge Söderström said that today experiences are at the same level as quality assurance and the suggestion box and unfortunately he do not perceive that they have high status today. About the work with suggestions Per-Inge said "Suggestions work, you get a scratching lottery ticket, how sexy is that? That is no fun. You leave a suggestion for that is you rewarded with a scratching lottery ticket and they does not understand what you meant". According to Per-Inge there is a need to raise the status and find success factors. Per-Inge suggested that it should be as a Gant in each project, it should be a Gant as it is for the safety inspection or inspection in a similar way should experience feedback be located as a Gant after the planned hours because then there are hours planned for this activity and then it costs money and it will get a status. Per-Inge also said during the interviews that he does not see an interest for working with experiences. He said that the interest exists but it is weak. But he also notes that the interest exists which can be seen by the existence of different sites. However, Per-Inge said that there is much talk and little action within this area.

"Everybody says it is very important and that we should work with it but it has a low status because no one requests it", said Lydia. About the experience feedback work today she thinks that low status is a good wording to explains it and that its is rather low interest from the management. She also added that because of this there is no direct focus on the experience feedback and there is so much other things that they could focus on instead. Lydia also explained that in the way they work today they discuss the operations but they do not discuss any specific issues.

However, what Lydia could see as barriers "it would be if there not were any interest" she said. However, she also has observed that the management prefers going to specialist first with issues than going to her. Lydia Lehtonen said that she could see an ambition for the work with experience feedback but is dubious towards how it is communicated. She thinks that the projects gather a lot of valuable experiences but wonder how they the co-workers could access them and in what way.

On a question related to why project managers not tend to want to write about experience feedback Lydia Lehtonen mentioned that she thinks that people are careful when they write because they do not know how the text will be used and because of the conversation is better according to Lydia. When asked if she perceive that people not write all she answers that that is her perception. Lydia also said that sometime key persons are replaced and that is something that never could be put down in written. Lydia Lehtonen was also asked about if there was any way to increase the written experience feedback she answered that it is possible en simple simpler experiences but thinks that it is difficult in the more complex that involve several areas of technology or technology combined with juridical matters. She also explains that she thinks that it could be rather complex to describe things clear so a person that not had been involved at all could understand totally and without raising some new questions. She also adds that sometimes pictures and illustration sometimes might be helpful to sit down and have a dialogue. She that it is might be difficult to explain complex situations in written and if it would be in documents the risk is that they are very comprehensive and time consuming and the simpler she think could be found within the management system. But she also thinks there exist some fear of exposing peoples own mistakes, but she that is something she find as human. She thinks that people might hold back even in the verbal experience feedback.

When later asked about where in the organization Lydia sends her experiences she answers that it does not exist within the organization and said that in her view no one is demanding the experiences. She explains that there is large experience feedback meetings in the end of the project and she thinks those records are delivered to the manager or the head of the project. She stores her experiences in PPI because she learned that it is important but she does not know if it is required to store experiences. However, she thinks that it is the ambition within Trafikverket. She also said "if this where a profit-driven company it had been really important it might even be the most important to learn from your mistakes".

Suggestions from the project managers

Per-Inge Söderström also said that he does not see any barriers and thinks it is more about interest and to create more interest around the topic and do this by create understanding why it should exist and is important. Per-Inge said, "I think that is so damn simple that if you told people that there are time and money to earn by doing this way they would do it".

Per-Inge points out that it is important to show in concrete facts such as money and time what the advantages from an experience would be in the reality. He meant that the consequences must be seen in money and time so it is possible to see and understand. This because according to Per-Inge concrete experiences. He also said that there should be a long term perspective in these things so for ten years ago the board should have said okay within ten years we will have major railway projects in the western region so let's focus on railway production an gather experiences within that field now and those who are responsible for that have to inform us about those experiences. He said if they do not say this is how much money we earn because of this and explain this part in concrete facts in numbers, no one is interested. Per-Inge said that the managers should run operations towards the goals and the leader shall work so the goals are fulfilled. He also thought that the managers must set the goals and that the management must set an area to focus on e.g. this year we shall focus on safety and next year's focus will be economy. They must attack those areas where we think the company is bleeding. He also noted that when people are at work someone have to point out these things, and then it is up to project managers, site managers to point in what direction the mangers tells them. The manager has to be clear and say that this is our goal with the work with capturing, transferring and sharing experience according to Per-Inge. He also said that there should not be a lot of bunkum, there should be aimed experience feedback that says this year we work with these issues. According to Per-Inge what is desired in this case is to cut costs and time of the operations. All mentioned by him is that all this aims at the production.

When Erik Lööv is asked about what could increase the written experience feedback he answers that he thinks that it should be described in money because then they could see how much they save and how much more expensive things have become. He also suggested it as a way to be presented the impact for the reader in a suitable way according.

Today Erik Lööv experiences the reports that he explains as more of historical stories and not substantial topics measured in money, as he would like to see it and If it where measured in money it would also be easier to sort them because it would be better to aim at those areas where most money could be saved first according to Erik. He notes however that there will be some issues depending on the size of the project. In order to solve this issue he suggests some kind of comparative figure as e.g. price

per kilogram. During this discussion he also mentions that the reports that he had read they has been sent to him by others. Erik is also asked about the structure of how experiences should be sent and he said "Write experiences, leave them to you manager who approves them and then they go into some kind of storage and when a projects starts I should look through similar experiences". He said that the similar experiences should be found in this storage then. Erik also explained that he thinks that the way contracts are written and documents are structure is areas where they should improve because there is much money to earn on something that requires a rather small effort.

Stein Kleiven also had suggestions about what could be different concerning Trafikverkets work with experiences. Stein said that he thought that concerning the management system he thought that it could be a better support. He thought that the way the management system expressed itself and presented working methods about experience feedback. He thought that it could be developed without perplex it. When asked the question about how to get people to work with experience feedback in written more Stein answered that one way is to order people but that is not a way he believes in. Not if another project does not need it he said. Stein also said that it should exist some framework for how the work with experiences should work officially. He also notes that guidelines for where to store experiences, when someone wants to publish it is much up to their own ability to get it published.

Lydia would like to get an e-mail direct from a co-worker if they not had the possibility to meet if they co-worker got an experience on something if she works with a similar and urgent matter just to get her attention fast. She would like to see that time are reserved for experience feedback. In the end of a project she would like to see that project managers reserve a day where every one of the involved project mangers presents one, two or three interesting experiences and share with other and get a dialogue. Lydia said that one alternative could be if there as a template from Trafikverket about what they would like to focus at. She suggested that one thing that then might be more focus at should be contractual matters because of the reason that it has a large impact on time and money.

Lydia thinks that an open culture that encouraged to share and where the employees see it as strength to capture experiences is something she thinks would be very good. "Often do you have a problem and then would you like someone to discuss the problem with but in the end is it I that shall solve the problem" said Lydia. She then says that if there was a forum it might be place where problems could be discussed. Lydia thinks that the management must have an active role to keep it alive. She thinks that they must show interest and reserve time and to follow up this work in order to get it to become alive. Lydia said, "The management might say, wow this is interesting this is something that we must look over. This is a big hole, here are we bleeding we have defects in our documents; this hole is something we must fix. This is something we have to get into our templates".

Per-Inge Söderströms process

Per-Inge Söderström works a bit different than other project managers interview and he as an own process that he uses for working with experiences as will be described in this section.

Per-Inge said that he has been looking for a process but have not found anything that someone dares to stand for. So he works with an own process, which is divided, into three stages. The first stage is the spontaneous experiences transferring which occurs

during the daily experiences that are shared among co-worker when they talk during e.g. coffee, lunch and stops by someone else's office to talk. The second stage is the planned experience transferring that occurs e.g. by such meetings that Per-Inge explained he has with a group of co-workers. The third and last stage is the communicative experiences where the results presented I economical terms and consequences are presented into the organization and reported to the direction so they could spread the experience and the consequences according to Per-Inge. He said that he exchange experiences spontaneously with co-workers every day. But he think there should be an experiences meeting two times every year, at least one where one day is spent at experiences. Spontaneous experience is when you stop by someone and tell him or her that and get to know something here and something there. Planned experience is gathering experiences by these experience meetings that he mentioned. Communicative experience is when the responsible project manager first shall communicate it into the organization and then sell it to the board, that this is important. This so the board could send this out in the organization so it could be implemented. Per-Inge finds that the communicative stage is a weakness and that many people talks about reports but where does these ends up after the managers has read them? I sent my reports to the head of the project and after that Per-Inge does not know where it went. He is asked if he ever had sent a report that said that the costs where this much he answered that he never had done that. He where then ask if he ever got any response and he answered that he never got any response that said I see what you have written here, what is the cost for that. That is where the time from the Gant comes in. He where then asked how much effort it would take and he answers that it not would take that much time his estimation is one to two days which means maximum 16 hours. According to Per-Inge the work with experiences does not take very much time if you only are structured.

Workshops & Seminars

Stein Kleiven said that the projects has some seminars, workshops and gathers where they invited to what could be called a experience feedback meeting where the project could talk about what went good, what went bad and it is also an opportunity to create new contacts to the participants personal contact network. Stein where also asked about if the finds that there are people holding back within these meetings and his answer where that he does not think that there is a problem within his current project. However, he adds that other department might not be that organized when it comes to feedback experience meetings. He also notes that these things go in circles and when looking back he would give it a good grade. He also said that right now and looking back a bit there has been a period of doldrums but that he thinks that it probably will come a more active period concerning this work again.

Meetings

This chapter will present the project managers opinion on meetings within Trafikverket. Related to this topic Erik Lööv adds that it also occurs when meeting anyway in other contexts then it could be handled.

Mikael said that in the beginning of each project he had a meeting with the contractor or consultant. During the construction there are construction meetings and en the end of each project he had a meeting concerning experiences. Construction meetings is held by Lydia also and she thinks that some information concerning experiences could be found in the records from the construction meetings if someone would cope o go through these record. Both Mikael and Lydia has also experience feedback meetings

in the end of each project. Mikael explains that in his meetings that usually last for a day where the participants go through what went good and what went less good. He also said that there often is focus on what went less good but notes that is also important see what have worked out in order to get confirmation on that those things works.

Stein Kleiven also talks about experience feedback meetings as he find as one of the systematic ways of working with this topic within Trafikverket. However, he describes the feedback experience meetings as study visits combined with presentations of advantages and disadvantages, how the project handled change, collaborations, procurements and technical solutions. Stein explained also that there are different forums and a network such as for example there is a network for the heads of the projects within the division of major projects. He gives also another example on the technology network where different technology areas have meetings and discus technical issues. Stein also find Trafikverksdagarna as an event that could be categorized as feedback experience, which is a gathering where one region at the time gather and listening at different presentations about different projects and what is going on within the organization.

Stein mentioned different forums and meetings for experience feedback in the earlier section. There are also forums within some projects. By viewing the BanaVäg in west project in general there are some forums where the organization really tried to work experience feedback by having reoccurring project management meetings according to Mikael. But he also said that these meetings could have worked better that what they have done. However, he thinks that the idea not is wrong that you informally or officially where different project managers meet to exchange experiences and to take up different problems only to raise the issue to create a consciousness about it. Mikael thought that it is easier when we have project managers because then we know what to exchange experiences about. When having those meetings he thinks it is important that persons are open and dare to share. It is not always it will be this way depending on different reasons according to Mikael. He also said that it might be this way because people do not want to expose themselves of different reasons but Mikael does not think that it is because of fear. On the question if it is caution he answers that it depends on what persons that are there and how people like each others, it is easier to exchange experiences between people that know each other. When asked of he perceive that people hold back in order to not expose themselves Mikael answered that it is not unusual at all. When asked if there is many or few that hold back the answers is that it depends on the context and it depends on how, there is many agendas he explained and then added that there is people that see to their own best and there are those who not want to let others pass.

Erik Lööv also mentioned these project management meetings and explained that they from the beginning occurred once a month but that they today are four times every year instead. He said that it is a forum to discuss what went good and what went less good. Erik where as several other project managers asked about if opened up and spoke about their experiences. Erik's answered that he thinks it depends and said that he thought it where individual but that experienced in general an openness at these meetings. Stein Kleiven where had a similar opinion that Erik had and said that the thought people wanted to tell what they had done and how t was. Erik Lööv also mentioned another type of meetings, which are the technology meetings. These occur every other week and are also a forum to discuss experiences but related to technical solutions and share what went good and what went less good according to Erik. When

on the topic of technology he also mentioned that there where one person within the entire project BanaVäg west that had an overview on the technology. He also said that there where a similar person for the contracts.

Suggestions

Lydia could miss the meetings where they had example a lawyer and suggest that the project managers might have a meeting as they did in the National Road Administration as a seminar but gather perhaps gather all active projects within the division of major projects on something as this. In order to get experiences Lydia also thinks that there should be planned activities in the end of each project to gather experiences and creates documents that are stored somewhere. She thinks that they should have it in documents but discussions are necessary to keep it alive.

Per-Inge Söderströms meetings

Per-Inge Söderström mentioned as the only of the interviews that he have specific feedback experience meetings several time during the project. He states that he has had four or five meetings that have resulted in documents with experiences and that he is one of few project managers that really works with this within the BanaVäg west project. When asked to develop on how he worked with these meetings he said that he tried to start with ten areas to gather experiences on. He explained that the ten areas that they work on during the meetings are areas they decided on. These areas where areas that he was interested in gathering experiences on, he said that there probably existed templates and processes but that he not had found any or been updated so he chose to use his own. Attending these meetings is his own group within railway; a group that consists of six to ten persons with front edge competences as he self explains it and that are skilled in their area. The areas mentioned by Per-Inge where railway track, electricity, signal, data and tele. During these meetings they thought through the project to see differences and things closely related to that and what they succeeded with said Per-Inge. He also said that during these meetings today there are six participants every meeting that discusses the approximately ten bullet points. Every participants in these meetings got two minutes on each point to write something positive and negative about it and these are then collected and put together by Per-Inge into areas that were positive and areas that could be improved on each point. Per-Inge writes short comments on what have been good and what could be improved and do not think the manager needs to know more and if the manager reflects and wonder something he or she could ask more about it to get it explained. He also said that they must focus on some bullet points that seem relevant for the operations. And if someone finds this interesting and would like to know more, that person shall be able to contact the team that made these documents such as the participants, the project manger or the head of the project to get to know more. The agenda for these meetings are based on templates found by Per-Inge Söderström but he did not know if they were local, regional or central template.

Mikael Larssons meetings

Mikael Larsson also talked about another kind of meetings that he had when problems occurred. He could during certain working moments call for a meeting both once and twice in order to discuss and plan these things. When facing problems, brainstorming and have discussions to solve them. A lot of experience comes up during these meetings, which also is a form of experience feedback according to Mikael. He spoke of a working moment within the project and said that they knew about a technology but it turned out that the technology had become more effective and could produce an

equally good product to a lower cost. He said that many persons involved that listened and then someone came up with this. Then he said that they viewed the problem in a wide forum. Then he notes that it might still be another person that they might have missed, someone that could have suggested an even better solution.   Project management is very much about being perceptive and about having a contact network and be focused to get experiences from as many persons as possible and to not get stuck within a small area of solutions according to him. Mikael ads that it is important that many individuals that could view the problem before you solve it. He also states that they want to access a wide base with much knowledge.

Structure & Support

Erik were also asked about if there is any structured ways of working within Trafikverket today and he answers this question by saying "No, you have to create those on your own". Per-Inge Söderström also said, "The control and direction of this work is weak, there is weak goals with the experience feedback. It is not clear what it leads to and then we are back to this with streamlining so we gain time and money. You should feel that I should be fun to go to work because someone takes care of your experiences".

When asked about the focus today when writing a report is on the receiver Erik Lööv Erik where also asked about the support for the work with experience feedback within the organization and his answer where that in the individual level he perceived it as good and said that people where willing to share but he thought that the support from a system perspective where defect. Erik is also adding to the discussion about support that he perceives the managers support as positive.

IT-Systems

Lydia thinks that they got the documents and a lot of experiences within themselves but lack the forum to communicate it. Today Lydia thinks that the information system is a good way to capture project mistakes, it can be things that are unclear. She also said that if the construction management discovers something they should make a note in the diary or the information system that is saved in PPI.

Stein Kleiven said that there hade been attempts to create systems for example data for calculations but that the maintenance not where the best at all times and things that that system has been closed down. When asked if he thought it were the lack of maintenance he answered that he could experience that it had to do with that and said that there must be someone that are assigned the responsibility and that are given the opportunity, time and money which not had been the case at all times. He also explains within their management system called PPI and if people want they could look into others projects and do some detective work if people want to. He is the asked if he uses the intranet Stein answered that he uses it but then said that Google is better. He then adds that he thinks that the intranet is rather good and there is some news, news on management level, who quits and who starts and some flashes. Stein also explained that the process could be found in PPI and then he said "it vary very much about how informed different project managers are at such".

Today Per-Inge had not found any systems from transferring experiences and capturing them. He said that it is possible that it exists but he does not know about any. Per-Inge said that he not had seen any of these systems or that they are poorly communicated. He would like to have a button at the intranet that takes you to experiences where you can search and find it easy. A system for experience should be

quick and very easy and give you a price or time it cannot be a lot of long reports. He says that it must be quick and short experiences.

When Per-Inge is asked about where the experiences are stored today he answered that he does not know. When asked if he know what "erfarenhetsforum" is he said that he not knew what this where and that he does not know it at all. During the interview he also said that might not had read enough to find where the experiences are stored.

Mikael Larson on the other hand said that the systems that are built up and so on are very extensive systems to build up and to keep updated. Then he states that if a database is built with experts within different areas in it, could be very good right now but if someone returns to the system within one year or six month is it then still the right person that you can find in it. Then he notes that he might be a bit old fashion, then he said that if you consider new systems there is new systems that works without any organize especially much, I think at systems as Wikipedia that are rather unorganized more or less. Even if he not know exactly how it would work. According to him the problem with experiences is that it is quite a bit of personal opinions. Mikael points out that Wikipedia is to a rather large extent based on facts while experiences are more of a grey zone. On the question if he thinks that it might be possible to get people to share their experiences in writing. He answers that conditions for this have to be created. He also said that you have to create trust in that such system should work where there is an organization that keeps such written information updated which means that you have to provide resources to organize and work with it continuously. Then he added, "Reality disappears faster than we keep up with it. Some experiences are not up-to-date anymore and you could forget them". The he notes, "how does the world be in 2027, probably not as it is in 2012".

Mikael Larsson is also asked about where protocols from experience related meetings ends up he answers that they send them to all involved and after that they have not come up with how to do with them. He said "There is no structured way with in Trafikverket of how to do with these things". He also thinks about how experiences could be transmitted to someone that not has been involved in the project and points out that this is difficult to do.

Concerning how material from earlier projects as stored Stein Kleiven said he had written a little book with working methods and experiences and what that had been successful. When asked about where to find it he answered "Yes, that is a good question. Honestly I do not really know". In another early project Stein had written a publication that could be found in Trafikverkets library. Followed by this discussion he was asked how long these publications are he said that there were 20-30 pages.

Erik Lööv also spoke about using the intranet and considers himself to use it more than average. He uses it to support functions such as guidelines for invoices, help for account distribution and travel and meeting support. He says that it is also possible to find the working process but that the description of the building process is approximately one activity and then some templates connected to that activity but is rather fuzzy. Because of this he said that it could be developed but that he thinks that there are benefits with the intranet. However, could the search engine work in a better way than it does today according to Erik. He was also talking about a system that where used during his time at Sweco that worked as a chat on the intranet where the employees asked questions about something the where facing and where those who saw it could answer. He said "and suddenly bang, bang, bang, there where three who

had done it earlier and then you had persons direct that you could contact". He explains that in that system the ten latest questions could be seen at the bottom at the first page of the intranet. He explains it is a bit similar to the webpage Flashback. According to Erik he thought the system that they had at Sweco worked very good. He also said that the system at Sweco where mostly used by the younger but if they saw questions that they knew an older co-worker could answer they could help these two to get in contact and get the older involved in that way.

When Lydia Lehtonen is asked about where records from experience feedback meetings end up she said, "I do not know, I do really not know". She also said that it should be a responsibility and if an experience is made to document it and write something about it in the diary. Lydia also thinks that it should be a surface or a file where experiences are gathered as the projects already do with notes from different meetings, random controls and quality records. The structure she is talking about is today located within PPI. Lydia does not think that documents with this could be standardized because there is so many person and disciplines involved. But when all this should be tied together in the end she thinks that a template for this might be useful. During this interview Lydia also said that during a project much is within you but after some years it might be forgotten and if there then is gathered experiences with a clear structure this might me an advantage.

Lydia also explains that in the system PPI you could find the organizations working methods and it is where all templates also are stored according to Lydia. The working methods in PPI are used for the entire Trafikverket. She also add that PPI is something rather new within the organization where the decision to use it where taken as late as last year or it might even be this year Lydia said. Some projects have been running since long before it where implemented and the projects had not implemented the system during a running project. PPI is accessed though the intranet Lydia explained. She said that she uses the intranet to keep herself updated on people starting and leaving the organization together with news on accidents within the organization. In some parts of the project PPI has not been used at all and in others it is welled used according to Lydia. Within the management system PPI she also showed that there are demands from the management to leave experiences and learning form the project and also suggestions at improvements during the final meeting where these should be handed over. Lydia also said that PPI is also called project portal and according to Lydia is PPI still under development.

Suggestions from the project managers

When asked about what he would like to see en terms of system for experiences Per-Inge Söderström answered as earlier mentioned in the section about systems a system that where quick and easy. He also said, "I am not interested in reading 20 pages, I want one page with contact information and that says how much money I will earn and why I should do it". He notes that it should be kept with short with short links such he describes a link to a company, a technology manager with a name and phone number so you could call him to get the experience. He thinks that concrete experiences that are direct could fast be implemented in the operations with clearly stated consequences in numbers would be helpful.

Erik Lööv experienced that it was difficult to know whom in the organization that hade the same experiences as him and that it was and issue. He also said "It is not only difficult to find documents concerning experiences but also difficult to find what is interesting for me". Trafikverket is a bit too large for the work to reach the entire

organization according to Erik. He then adds that the orientation within the organization is a bit wide and because of that need to find suitable limitations for this work.

Time

Per-Inge explained a picture where two men dragged a cart each and one of them had a round wheel and the other one had a square wheel. The man with the square wheel are working so hard that the sweat shoots out from him and the man with the round wheel says look here if you look here, it will make it easier for you but the man with the square wheel just answers that he not has time because he must reach his goal. Per-Inge said that it is the same thing when we not have time to transfer experiences between each other we harms ourselves in one way. He said, "I think it is professional misconduct to not give yourself time to share your experiences". After that he said "You are paid to be at work and if you make important experiences and keep them to yourself it is professional misconduct".

When a question concerning the fact that the project managers would like to have more time and if it is because they not take themselves more time Mikael Larsson answers that he thinks there is a wish to want more experiences than they have. When asked if it is possible to find to e.g. one hour each month or if that required cutting back on something else Mikael answers that it is a matter of prioritize as he finds it. He thinks that a project manger could take half a day a month or one day each month to do something as that. It is easier to do when there is a running project here that have 10-15 project mangers that could gather once every fourth week and they can do that and have a base that are equal for all of them.

Stein Kleiven where asked about why he thinks a majority of the project managers would like to have more time he answers that they do not have any time in some situations and said that they would like to have more time the most things. He then ads that experience feedback and a lot of other things is very much about priorities. He then also said "it is very much to your own ability to find time". A question about priorities is asked Stein answered that in structured forms it goes in circles.

The barrier that Erik Lööv perceives is time and when asked if there is too little time he said, "It is not about more time but about prioritizing".

As the other project managers Lydia Lehtonen discussed the subject time and she said that now it is up to each project manager to work with experience feedback after best capability. But she does not find that they are taking themselves time for the work with experiences today. Because if that she thinks that time has to be reserved if the organization wants to focus on the work with experience feedback. She mentions examples as seminars and workshops as ways of doing this. She would welcome if the head of the project would during the project decided that in the end of the project they will sit down and discus experiences. Today she thinks that is common that after the project is done people leave the project organization for new organizations before they had the opportunity to sit down and talk experiences, Lydia thinks that I would be a major advantage if they had time to do that. These meetings should be in the end of the projects because that is when they had been able to reflect on what have been done according to Lydia. She also adds that these meetings should be verbal and not only done in documents. Concerning to time she reserves time en her own projects for experience feedback.

Merger

When Stein Kleiven where asked about what differences he experiences between the National Road Administration and the National Rail Administration he answers that the cultures are different but generally speaking it does not matter.

When Erik Lööv is asked about if there where any differences between employees that earlier had worked on the National Rail Administration and those who had worked on the National Road Administration he said that it not was any differences on the individual level but that the National Rail Administration where better and more strict with the handover process. He thought than those facts had done that the National Rail Administration done more feedback experience because of that.

Mikael said that he find that at the moment the topic is not prioritized. After that he noted that it should be kept in mind that Trafikverket is just two years old and that the focus is on totally different and to get them to function. He then said, "large parts of the organization within Trafikverket are not fixed yet".

Lydia Lehtonen said that in the old National Road Administration they had the policy that all project managers would be employed personnel. She also explained that in the National Road Administration there existed regular workplace meeting where experiences where an experiences where a standing topic in the agenda where the participants could share experiences. She misses the space given for these discussions. She does not find that they allot time for this today. She explains that during these workplace meetings 10-20 project managers could attend and alternated who shared their experiences with the co-workers. During some of these meetings for example and experience lawyer specialized in construction where invited and there was a discussion about examples from reality about these cases that the participants contributed with according to Lydia. She explains these meetings as an experience exchange with an expert within the specific area. She thinks that there is much money that could be earned within the constructions.

Lydia said that Trafikverkets culture not had matured yet but it started to take its shape. During her time at the National Road Administration, before the merger there was a wider openness. Today the culture within Trafikverket is not that clear according o Lydia. She notes also that there had been some changers of who had been the head of the project that they work with right today and because of that will see if the new head of the project will gather to a opportunity to exchange experiences.

Programme Managers Interview Results

The project managers where interviewed and in order to get a better understanding of the situation within the organization also the program managers were interviewed. Two program managers were interview Sara Distner and Bo Larsson.

Background of the Program Managers

The managers interviewed where Sara Distner head of the BanaVäg west project since the end of last year and the former head of the BanaVäg west project Bo Larsson that now are head of the west link project.

Both are graduated engineers within the area of civil engineering and are experiences project managers. Sara Distner has earlier worked as a project manager within the telecommunications industry before she started in the construction industry at the former National Road Administration in 2003 as a project manager at the BanaVäg

west project. Bo Larsson has a slightly different background; he has earlier worked at consultancy firms both within the aerospace –industry but also in the construction industry before he started at the former National Rail Administration in 2001 as a project manager at the BanaVäg west project. He became the head of the BanaVäg west project in 2010 when Trafikverket where founded and got the job as head of the west link project in the end of the year 2011.

The Program Managers Views

For Sara Distner feedback experience is to not making the same mistakes twice and to pass on the good examples. She also said "it is very difficult" explaining experience feedback. This while Bo Larsson views experience feedback as allowing each other and the organization to do mistakes but said that it is poor experience feedback if the same mistakes are done over and over again. He also said that is incredibly difficult to find a system for experience feedback and that experience and experience feedback often is related to individuals that move between different organizations and assignments. Because of that Bo Larsson thinks that individuals that hold experiences and in some way transfer or shares it in new organizations the best way of doing. Sara Distner is of the opinion that the organization could build huge systems but in the end it comes down to the personal exchange. She also said that she thinks that much is connected to the individual and personal meetings and dialogue.

The Process

According to Bo Larsson has Trafikverket probably done everything earlier and finds it because of that important to find those experiences. However does he also say that he does not perceive that they have the right system for working with experiences today. He also notes that experience is often related to individuals and exchanged by the mouth-to-mouth communication. Sara Distner said that experience feedback is much about dialogue because it is there they learn in some large meeting.

Bo Larsson as a manager said that he try to create an organization that has an environment and were people are open minded and that by their own try to absorb experiences. In the start of an project when the project organization is created there could be tendency to be proud of the work done and believe that other experiences not is important according to Bo Larsson. He however, notes that in order to prevent this he try to get the organization to understand that things probably has been done earlier and get people to find out how they were handled then. He thinks that the head of a project must create conditions for experience feedback to exist. But he also notes the importance of each individual's personal responsibility to find the right information and experiences. When asked about of the individuals' takes responsibility he answers that some of them does it good others less good but in general it will be normal distributed. One way encourage experience feedback is to show that it is approved to make study visits according to Bo Larsson. His perception about openness to admit mistakes it that is within the human nature to not want to talk about mistakes that has to be kept in mind. Within his current project he thinks that they created and environment where they make it work and not created any trouble. However Bo Larsson is of the opinion that on a national level of the division of major projects could work more with experiences but also adds that it is difficult to get into the every day work and that it might be more prioritized.

As already mentioned Bo Larsson talks about creating an environment that encourage sharing within the organization but also the human nature to not talk about a mistakes

that a persons have done. He follows up this by saying that the managers must be able to discover these mistakes. He also notes that a risk with people that not talks about their mistakes is that when they tell someone else about how they worked in a project, they leave out the problems and mistakes, which mean that this person also will make the same mistakes. Sara Distner point out another issue which includes long cycles, she said "experiences I have done creating system documenters, when will I create system documents next time? It might be 7 to 8 years until then and that is a problem". Because of these things Sara Distner thinks that it is important as a manager to be clear and ask when the project gathering experiences and if someone should build in e.g. they should ask someone that has done it earlier. Bo Larsson also has a example how to increase experience among the persons involved in a project e.g. in the West Link Project a purchaser has been put in apposition in the stage after her ordinary job is done, in order to watch and learn what her work gets for consequences in the next stage of the project. Bo Larsson also ads that he has not demands on the project managers but try to get them to realize that experience feedback is good and that they could use experiences and that it is good to be open minded when working with these things.

Bo explains that he never read a final report from a project excepts the book with experiences from the City tunnel. The fact that he never read a final report could no one else but him self is to blame for that he said. Bo thinks that a printed documents as a book is more definite and easier to absorb but again he notes that it is very individual. He things that it is important to end up in a final report but also to sit down and discuss it.

Bo Larsson himself works by not making the same mistakes several times and try to pass on to e.g. Sara Distner. He also said "as a manager or leader to try share experiences through daily conversations is a part of the role as a manager in some way". Bo Larsson get others experiences trough the individual level via contacts and not by reading experience reports. He says that it occur automatically during contact with other managers that have similar positions as him with in the department of major projects by trying to capture some parts of projects and activities. Sara Distner talks about another way that she uses except the contact with managers in similar positions, she also use the last pages in her notebooks to write down her experiences.

Sara Distner said that she got several comments from the project managers within her project about that they must gather the experiences in some way. She notes that this is not something that she could do on her own; it is something they have to do together. She said that how they will do with the experiences from the BanaVäg west project but decide on how they will do during the autumn and that every project manager summarize their part of the project. She mentioned that Per-Inge Söderström has been very clear and interviewed his own group so she could pass on those experiences. Sara is of the opinion that it cannot be difficult and heavy work because if it is that way it will never be used. She thinks that it should be a bit simpler that the work some people do with writing books. It is important to not make it to heavy and massive because then no one will read it. Her spontaneous though is concerning the final document is that these should be summarize experiences when asked. Sara Distner talks about creating some kind of white book that will consist of what they had learned and positive and negative experiences from the project. She also notes that they might worked with experience continuously but that right now the production is the main focus and that they not been able to work with experiences. Except that the personal within the project starts to gradually started working in another project and

then that project not only get the persons but also the experiences those persons hold Sara states.

Meetings

Trafikverket as organization and the department of major projects work with experience feedback in several ways such as arranging seminars and during management meetings according to Bo Larsson. The seminars is something that last for a day but can be difficult to prioritize during certain stages of the own project according to Bo Larsson. On the management meetings for the head of each major project within the division of major projects were Sara Distner is the head of the major project BanaVäg west and Bo Larsson for the West Link project attends. The meetings are nowadays is from lunch day one until lunch the next day which Sara Distner finds as a better way to have these meetings that just over one day. She explains that there is more time to get to know the people working in the same position as she has which creates a better personal contact between these persons and give the opportunity to discuss between different projects.

Within the project BanaVäg west Bo Larsson started up a forum where the project managers could meet and discuss without the head of the project but just the project managers were his thought. He thought that they took place every other month and from what he had heard they worked. Sara Distner also mentions these meetings and thinks that the ideas with them from the beginning were to discuss experiences. She however, notes that these meetings have changed focus towards experience feedback in a specified area that became juridical issues concerning the construction of the different parts of the project.

Structure and support

When asked about the support Bo Larsson said that he perceive the he get support both from other manager that is head of a project and by e.g. lawyers in the every day work. Sara Distner is also asked about the support and answers that in general is people willing to share at all levels even if there are some exceptions but she notes that those exceptions are related to individual persons.

When Bo Larsson is asked about directions and agendas he answers that they probably exist but there is nothing he knows of. He does not think that it really is any system that works today and ads that work could be more systematic. He also said that the only system that he thinks will work is if the individuals' takes responsibility to find information trough their contact networks. It is the simplest and the best way according to Bo Larsson for working with these things.

Sara Distner said that last time she looked closer in the management system, which was last spring there were no requirements on the head of the projects concerning these things. She ads that Trafikverket must be very clear on saying that in their investments plans there should be expected these things and not only the report but it also must contain how the material concerning experiences shall be distributed and how it could be accessed I very important. She also wants not know what is expected by the head of a project concerning the work with experiences. Sara Distner said that this work must start in the management system.

IT-System

Sara refers to a system the former National Rail Administration used and where experiences could be written into and also noted that within that system it were easier

to find contact information. She however also notes that the work with experience is much about contacts and dialogue. Sara Distner said that the part in the management system for investments had in February and March nothing but now after the summer things start to show up. She said that she thinks that everyone must report in the same way but what content that report should contain is up to each and every one. According to Sara the work with experience feedback must start in the management system. Sara mentions a system that has been used within the former National Rail Administration and said that in that system some useful things could be found that were god and that it also were connected to persons. She also said information related to the work with experiences must be located within the management system. She also mentioned the intranet and said "Everyone knows that there not is possible to search in so I got used Google instead and were directly referred to our own extern webpage". Bo Larsson also mentions an older system that where a databases where experience reports where sent in. Today the intranet is according to Bo Larsson not easy to handle and the way the search engine does not work that good but they are working at develop it he said.

Time

Bo Larsson thinks that the lack of time in the questionnaire could depend on an eager to start and to not sit down when they are stressed but that they prefer to get to work. To get time is only to prioritize it other than that there are no problems.

The Merger

Sara Distner said that she thinks it has worked well in general and Bo Larsson said that there are no differences in terms of systems or culture and if there are differences they are related to individual persons. Sara Distner also explained that many think that it is not a big difference at building railway and road but there are a big difference and she thinks that when Trafikverket where founded that was not fully realized among everyone. Sara mentioned that the founding if Trafikverket has not slowed down the BanaVäg west project but could probably created some frustration out in production concerning some things.

Other

Sara Distner also mentioned that see could not see any differences in loyalty between consultants that work for Trafikverket and those who are employed directly by Trafikverket. She also notes that sometimes it sounds as consultants disappear from the "Surface of earth" according to Sara but she notes that they ion fact still exists which not can be forgotten.

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