

Will AI revolutionize how knowledge is shared?

Enhancing knowledge sharing in construction through AI - A case study of Peab

Master's thesis in Design and Construction Project Management

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Cover: Repaired Knowledge life cycle for Design and Production managers centered
around Post-Project reviews.

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Abstract

Peabs' existing knowledge lifecycle starts with the employees creating new knowledge during the project, and the knowledge is shared in post-project reviews at the end of the project, however, the documentation from the meeting consisted of only short sentences and keywords. The reports from the post-project reviews are stored in locked project platforms and are not shared with the rest of the organisation, and the knowledge lifecycle is broken. The critical information the interviewees would like to access in the organisation is solutions that can be applied to a project when they have encountered an issue related to an activity, material, or technical solution that the interviewees have not worked with before. This thesis advises on how to conduct an effective post-project review to gather as much knowledge as possible from the teams. The thesis also recommends building an organisational knowledge database that the whole organisation can access and close the knowledge lifecycle. When the knowledge life cycle is whole, the thesis investigates how the life cycle can be made more efficient with AI. Three AI tools are recommended for the lifecycle: a transcription tool to intercept more valuable information from the post-project reviews, a summarization tool to create descriptive documentation of the transcription, and a GPT tool to store, search, and distribute the collected knowledge. The thesis also discussed the social aspects of the post-project reviews and the knowledge that cannot be collected and shared in the knowledge lifecycle.

Keywords: AI, Knowledge Management, ChatGPT, Knowledge Database, Company-specific GPT, Post-Project Review, Knowledge Life Cycle.

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Gustav Ekelund, Emelie Nordenmalm, Gothenburg, 2025

List of Terms

Below is the list of terms that have been used throughout this thesis, listed in alphabetical order:

BTL	An acronym for Bygg Tekniska Lösningar (Building Technical Solutions). A storage system for proven technical solutions that may be implemented in the Design or Production phases.
Dalux	A digital project management tool for tracking progress within a project. It handles documentation and serves as a platform for uploading meeting protocols.
Design	Refers to the phase of a construction project where technical and architectural plans are developed before the production phase begins.
GPT	Refers to Generative Pre-Trained Transformer, an AI model used for natural language generation.
Production	The phase of a construction project during which the actual construction work occurs.
Ärbas	A digital tool for keeping track of progress and documentation from projects.

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1

Introduction

This chapter presents the background for the problem that this Master's thesis is trying to address. The purpose, aim, and research question are presented. The limitations for the master's thesis are also included at the end of the chapter.

1.1 Background

In 2022, the construction industry was responsible for 37 percent of global energy and process-related CO₂ emissions and continues to rise, with 28 percent from operational emissions and the remaining 11 percent from materials and construction, often referred to as embodied carbon (UN, 2025). Considering 11 percent, which is more than one-tenth of global CO₂ emissions, there must be something that can be done about it.

In addition to this, around 5 percent of a project's total cost is attributed to direct costs of avoidable errors, which can rise to between 10 to 25 percent of the cost of a project if unmeasured and indirect costs are included (Get It Right Initiative, 2015). The report pointed out that the top three root causes for this are Inadequate planning, Late design changes, and poorly communicated design information. Simultaneously, as the spending in the project increases, the environmental impact intensifies as material is wasted.

Prencipe and Tell (2001) explain that there are issues with the learning abilities of project-based organizations and their ability to spread the knowledge to other projects within them. According to Stenholm et al. (2014), most projects have a strong focus on the iron triangle: cost, time, and quality; for a project to be successful, it needs to be cheaper than expected, take a shorter time than expected, and have a high quality with as few mistakes as possible. Stenholm et al. (2014) mention that the solution for making fewer mistakes is knowledge, but that knowledge management is not prioritized, and the fact that the consequence of lost knowledge is that mistakes and errors are frequently repeated.

These aspects of the industry: considerable environmental impact, a significant portion being attributed to avoidable mistakes, and these errors are often rooted in inadequate knowledge management practices, together build an image of the industry's challenges. Another aspect of industry to consider is that some projects are tax-funded, which means that the burden of the errors does not just fall on the

contractors; it is instead shouldered by the public. With every mistake wasting not just project budgets but also citizens' taxes on avoidable mistakes.

To try to solve this issue, Peab has initiated a pilot project within the organization with an AI trained on data from the database based on evaluation meetings for the project referred to as the Erfarenhets assistansten and will in the report be referred to as the Experience Assistant. That can produce answers for the user through the use of a chatbot function. Peab Sweden is currently in the initial phase of the project, where they are developing methods to gather data and insights regarding the implementation of it. In addition to the Experience Assistant, there are other AI tools available within the organization that are explored in the context of the study.

1.2 Purpose

The general purpose of this thesis is to create an understanding of the knowledge management life cycle within Peab and how AI can or cannot be implemented to make processes more efficient.

This thesis aims to assist Peab in how AI can be implemented to collect and improve the distribution of knowledge to all individuals within the organization. Focus on increasing access to knowledge between different projects.

1.3 Research question

To fulfill the purpose of the thesis, the following research questions have been selected:

1. What kind of information is critical for the Design and Production managers to distribute within the organization to support effective knowledge sharing?
2. To what extent does the existing knowledge life cycle for the Design and Production managers require improvement?
3. How can artificial intelligence be utilized to support and improve the knowledge life cycle at Peab?

1.4 Limitation

To remain within the scope of the research questions, the interviews have been limited to only include individuals within the business area of construction within the organization called Peab Bygg. Within construction, the research focused on individuals from both the Design and Production phases of projects. Thereby, only individuals within Peab's organization are interviewed who fully understand the context of the pilot project, which means that the consultants who are a part of

the Design phase are not interviewed specifically, but rather the manager from Peab is the one who is interviewed for that perspective. The limitation means that the conclusion may not for sure be relevant to all of the organization, but because most other business areas of the organization operate in a similar way when it comes to their knowledge sharing, insight may still be relevant for them as well.

For the literature that has been investigated on the subject of AI, the limitation was made to focus on established sources that are less susceptible to becoming outdated as new technology is introduced. The result of this limitation is that the technological aspect of AI is not addressed in depth, which allows the focus to be maintained on the knowledge management literature and frameworks. This was done since AI is a topic that is changing fast, and as this thesis is being written, developments are happening with the technology that may impact the way the thesis is written. As an example, since the beginning of this master's thesis, the image and video generation capabilities among popular AI tools have seen a huge leap in usability.

1.5 Layout of the thesis

To be able to answer the research questions, this thesis includes first an overview of the theory related to Knowledge management, Post-Project reviews, and Artificial Intelligence. Then the methodology of the thesis is explained, and the context in which the study was carried out. After that follows the results of the study where the interview answers are presented. The results are then discussed in the Analysis and Recommendations chapter. The Analysis is organized by first analyzing the theory and interview answers regarding the first two research questions and giving recommendations. Only after recommendations have been given for the first and second research questions can the third research question be analyzed. The first and second research questions focus on what information and improvements Peabs Design and Production managers need. Only after these needs are identified and solved, can the thesis analyze how AI can be introduced in the knowledge life cycle. The findings are then summarized in the conclusion of the thesis.

2

Theory

The following chapter dives into the literature study for the master's thesis, aiming to create an understanding of the theoretical background for the case study. To create depth when it comes to the discussion of the research questions. The topics that are covered are an introduction to the field of Knowledge management, Knowledge management in a project-based environment, Generative AI, and AI Transcription, as well as a breakdown of Post-Project Reviews in project organisations.

2.1 Knowledge management

The concept of knowledge management, as mentioned by Wiig (1996) started being discussed in the 1980s with the emergence of evermore competitive markets. The definition of Knowledge, according to Cambridge University, is the understanding an individual has regarding a subject that they have gained from experience or study (Cambridge University Press, n.d). Grant (1996) states that knowledge is the most valuable asset a company has access to, and it is something that resides inside the person.

2.1.1 Explicit and Tacit Knowledge Management

According to both Nonaka (1994) and Grant (1996), knowledge can be divided into Explicit and Tacit knowledge depending on how the knowledge can be shared. Explicit knowledge can be quantified, documented, and therefore easily transferable (Nonaka, 1994). Explicit knowledge, according to Nonaka (1994), is something that can be transferred through the use of documentation. Nonaka (1994) explains how documented knowledge makes it easier to share information with a lot of people at a low marginal cost. Documented knowledge is less vulnerable in case of high employee turnover, because it hinders employees from bringing explicit knowledge with them when leaving the organisation (Nonaka, 1994).

On the other hand, Tacit knowledge is highly connected to the person who possesses it and is seen as something that is stored inside our minds (Grant, 1996). However, tacit knowledge can be transferred through person-to-person interaction with the use of tools like storytelling. Grant (1996) explains that it is precisely what makes the knowledge vulnerable to misunderstandings and other employees' ability to digest information. This means organisations can not have an overreliance on it for knowledge management.

Looking at the two types of knowledge, Grant (1996) argues that explicit knowledge is transferred through communication while tacit knowledge comes from application and action. The tacit knowledge is tied to the individual who possesses it and is harder to transfer, according to Addis (2016). They go on to explain how this, in turn, leads to tacit knowledge being hard to transfer since it can be tied to a personal understanding of experiences, values and beliefs. Here is where the perspective of Addis (2016) comes in, where he explains how if knowledge can be codified and controlled, then it will raise organisational performance. Addis (2016) also believes that tacit knowledge can be converted into explicit knowledge, but throughout the process, there is a need for a balance between tacit and explicit knowledge. This leads to the final point of tacit and explicit knowledge, which is the fact that you can not have one without the other, and they are both equally fundamental, according to Nonaka and Takeuchi (1995), which will be further explained in the SECI model.

Another perspective on the traditional view of knowledge management, stemming from Grant (1996) and Nonaka (1994), is mentioned by Hadjimichael and Tsoukas (2019), who mention the fact that the introduction of AI is challenging the views of what the definitions of Tacit and Explicit knowledge are. As already covered, the tacit knowledge resides in the individuals, while explicit knowledge is documented and written down. The point that Hadjimichael and Tsoukas (2019) are trying to make is the fact that advanced AI is using techniques such as Machine learning that challenge previous understandings and definitions of tacit knowledge. This is because AI can learn from feedback and repetition to create and solve tasks that previously were thought only to be possible for humans with tacit knowledge (Hadjimichael & Tsoukas, 2019). They go on to explain that maybe the fact that AI is now able to do many things that require tacit knowledge, such as driving cars, playing games or diagnosing illnesses, challenges that tacit knowledge is reserved for human individuals. The line between tacit and explicit knowledge becomes even more unclear when considering how AI could allow for further information to be codified and turned into explicit knowledge (Hadjimichael & Tsoukas, 2019).

A critic of the perspective that AI is changing the theory on tacit knowledge is also brought up by Hadjimichael and Tsoukas (2019), who explain that there is a certain need for understanding context and nuances when it comes to tacit knowledge, which AI is missing. This highlights how AI outputs can be generated for individuals to use, but the human individual needs to assess if the information is applicable on their situation.

2.2 SECI - model

To understand the topic of knowledge management, there is a need for a model that explains how different insights among the individuals inside the organization are shared. A model that tries to understand the topic is the SECI model by Nonaka and Takeuchi (1995), as seen in Figure 1. The authors explain that the model is based on the idea that knowledge creation is generated at the intersection where

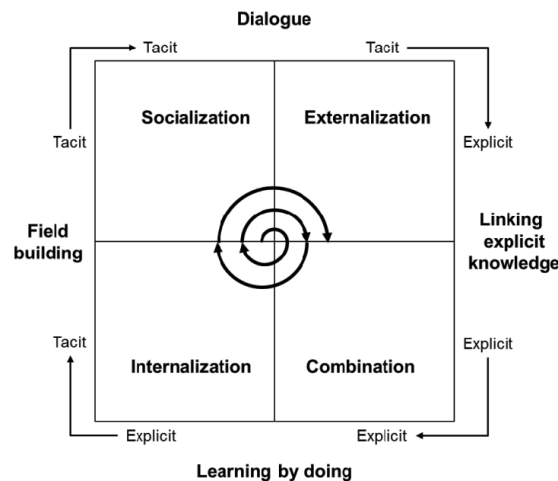


Figure 1: SECI model (Nonaka and Takeuchi, 1995)

tacit and explicit knowledge meet. The model describes how knowledge might be shared within an organization to increase the overall knowledge of the employees within it.

The SECI model is divided into four areas, Socialization, Externalization, Combination, and Internalization, and is referred to as the spiral of knowledge creation, which describes how knowledge is disseminated through conversation (Nonaka and Takeuchi, 1995). The model is cyclical, which means that the knowledge gets rotated around inside the model, and through every generation, the knowledge and understanding among employees deepens (Nonaka and Takeuchi, 1995).

2.2.1 Socialization

At the socialisation step, there is an exchange of tacit knowledge, which is then transferred from one individual to another by sharing experiences (Nonaka and Takeuchi, 1995). This means that the knowledge goes from tacit to tacit. This occurs through mentorship, informal meetings, and shared experiences. A specific situation of tacit to tacit is how a new employee might be guided around and informed by an older employee. The knowledge is hard to convey to the whole organization and is tied to the individual's understanding of the organization (Nonaka & Takeuchi, 1995).

2.2.2 Externalization

At the externalisation, the tacit knowledge is internalised, which allows the employee to choose what information they keep. The knowledge goes from being tacit and is converted into explicit, which is done through creating documentation or methods for others within the organization. It is the process of choosing what is said and how the knowledge is documented that makes the knowledge explicit, according to Nonaka and Takeuchi (1995). Another aspect that makes the knowledge explicit is that the knowledge is made available to everyone in the organization.

2.2.3 Combination

The combination step is when the explicit knowledge becomes more complex and important (Nonaka and Takeuchi, 1995). This can be observed as the documented knowledge becomes stored in databases available to everyone inside the organization. The tacit knowledge is converted from explicit to explicit. An example of this is how knowledge might be used by an employee to create a guide or plan for how a specific problem can be handled and upload that for everyone to access, thereby combining a lot of knowledge. Additionally, the knowledge needs to be stored in a standardised way, both in how and where it is documented, so that employees know where to find the information (Nonaka and Takeuchi, 1995).

2.2.4 Internalization

To complete the spiral, the last step is internalisation, which is when individuals in the organization have developed a tacit knowledge of the stored explicit knowledge. This means that the knowledge goes from explicit to tacit since it is extracted to the individual from the databases that exist. The important step of this process is when individuals read the knowledge that is stored and then internalize it and think about how they might use it in practice (Nonaka and Takeuchi, 1995). The internalising then leads to new knowledge for the individual and becomes part of their tacit knowledge.

2.2.5 Criticism of the SECI model

To fully understand the SECI model, there are criticisms that need to be brought up against it. Bratianu (2010) criticizes the SECI model for being too simplistic when it comes to the knowledge sharing processes. According to Bratianu (2010), the processes can not be seen as having a linear progression and do not reflect how knowledge is shared, but instead, the process should be seen as more dynamic and fluent.

Bratianu (2010) further goes on to explain how the focus on Tacit-Explicit Knowledge is a too simplistic approach and believes that the introduction of further aspects is needed, such as Emotional knowledge, Spiritual knowledge, and Rational knowledge, which are not included in the SECI model. Another aspect of emotional knowledge is whether or not individuals feel inclined to share knowledge with each other, depending on trust, fear, and motivation. This aspect, according to Bratianu is overlooked, and instead the SECI model applies a heavy focus on the mechanical aspect of knowledge sharing.

The critic of simplification of knowledge in the model from Nonaka & Takeuchi (1995) is also a point that Tsoukas and Vladimirou (2001) bring up, similar to Bratianu (2010), where they explain that parts of what can be considered tacit knowledge are also what individuals feel and what their intuition tells them. Tsoukas and Vladimirou (2001) argue that intuitive knowledge can not be codified or gained from taking part in explicit knowledge. Instead, they argue that it emerges when

individuals gain experience and become familiar with a specific assignment. As mentioned by Tsoukas and Vladimirou (2001), when individuals further interact with a task, they gain a sense of embodied understanding and pattern recognition related to the assignment, which reduces the need to consciously think about the task when carrying it out.

Tsoukas and Vladimirou (2001) believe that tacit knowledge is based on experience, explain why participants in their study struggle to articulate their tacit knowledge, which is part of why not all tacit knowledge can be codified. This is in agreement with Polanyi (1962), who describes tacit knowledge as being tied to the person and argues that not all knowledge can be transferred with the use of documents and rather requires socialisation, imitation, and practice for the individual to develop their tacit knowledge.

Bratianu (2010) believes that there is also something to be said about the context on which the SECI model is based on which is Japanese business practices, which in some cases might not entirely translate over to the global context. Bratianu mentions how this means that overlooking context such as organisational structure, individual behaviour, and emotional states that you might find in Japanese business practices, might not be present in other businesses, and thereby might make it difficult to adapt the model.

2.3 Knowledge management in a project-based environment

Prencipe and Tell (2001) present the issues with the learning abilities of project-based organisations and their ability to spread the knowledge to other projects within them. According to Stenholm, most projects have a big focus on the iron triangle, cost, time and quality, for a project to be successful it needs to be cheaper than expected, take a shorter time than expected and have a high-quality with as few mistakes as possible (D. Stenholm et.al, 2014). Stenholm states that the solution for making fewer mistakes is knowledge, but that knowledge management is not prioritised by project managers. Koskinen and Ajmal (2008) describe project-based organisation as characterised by uncertainty, uniqueness and complexity. Furthermore, the ability of organisations to transfer knowledge varies a lot between organisations depending on their ability to create, value, and share knowledge (Koskinen and Ajmal, 2008).

For knowledge within a project-based environment, it is crucial to give room for both tacit and explicit knowledge to be able to get the most out of a project. Nesan (2012) explains that the knowledge available within construction companies is often tacit knowledge, which means that it resides in the individuals within the organisation, but is often lost towards the end of the project. There is often a need for tacit knowledge when there is a lack of documentation and available explicit knowledge within organisations, which could allow the knowledge to be used elsewhere in other

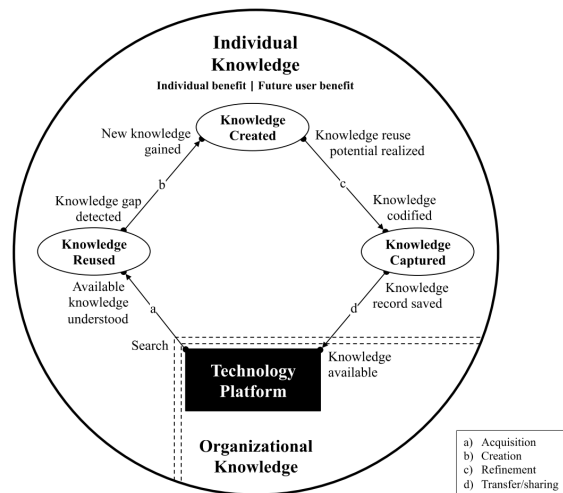


Figure 2: KM life cycle, presented from an individual’s perspective (D. Stenholm et.al, 2014)

projects (Addis, 2016).

The knowledge in project-based organisations revolves around the projects that take place inside the organisation and are organised around it (Prencipe & Tell, 2001). The outcome of a project is the combination of all team members’ individual knowledge, prior knowledge, and learned knowledge during the project. For organisations that would like to take advantage of knowledge creation within their organisation, it is important to foster the creative individuals responsible for the knowledge creation, since an organisation cannot create knowledge without the individuals in it (Nonaka, 1994). If a team member leaves the team or the company, that member’s knowledge often leaves with them, leaving the team with less knowledge to solve the project (D. Stenholm et.al, 2014).

2.3.1 KM life cycle

In Stenholm’s research, they found that evaluations are often made, but that none of the interviewees use the collected knowledge or know what happens with it. A proposed knowledge management life cycle was created to show why knowledge should be captured and later used, as seen in Figure 2. The KM life cycle consists of four processes, “Acquisition”, “Creation”, “Refinement” and, “Transfer/Sharing” and three decision points, “ Knowledge reused”, “Knowledge created” and, “Knowledge captured” (D. Stenholm et.al, 2014).

2.3.2 Acquisition

The process of Acquisition, in Figure 2, is the process of when an individual realises that they need information that the individual does not have (D. Stenholm et.al, 2014). The individual needs to search, find, and understand new information. This process leads to the decision point Knowledge reused, here the individual needs

to use information and communication technology (ICT) to acquire the knowledge from the technology platform (D. Stenholm et.al, 2014).

2.3.3 Creation

The next process is creation, where the individual learns new knowledge, and the decision is made by the individual to decide if the information is vital for other employees in the company.

2.3.4 Refinement

The process refinement is when the individual modifies the vital new knowledge and takes tacit knowledge and makes it explicit knowledge (D. Stenholm et.al, 2014). Turning the tacit knowledge into explicit can be done by writing it down in Word files or filling in a form this very similarity to the SECI model at the externalisation stage. At “Knowledge captured” the individual needs to decide how the knowledge should be stored, to whom the knowledge should be distributed to and how it can be available for future use (D. Stenholm et.al, 2014).

2.3.5 Transfer/Sharing

The last process is transfer/sharing and that implies how the knowledge is shared in the organization and where the new explicit knowledge is saved for future use.

2.4 Knowledge management workshops (Post project review)

Post-project review is defined as the formal review of a project examining the lessons learned as well as how they can be used in future projects (Zedtwitz, 2002). The main idea of the post-project review is to ensure that everyone in the project group has access to the same kind of critical post-project information that is important for discussion. Zedtwitz (2002) admits that it might be difficult to have one singular framework that will work for all industries and contexts but instead proposes an improved framework over current practices. A comparison was made between some companies needing retrospectives and other coaching project reviews all depending on the context of the organisation.

It is difficult to carry out a profound evaluation of projects since employees who possess the knowledge usually move on to new projects (Ahsan and Gunawan, 2010). At some companies, there are also no regulations or even an obligation to conduct a post-project review that would allow for the information to be easily gathered and distributed to decision-makers (Ahsan & Gunawan, 2010)

2.4.0.1 Receptive maturity of an organization

Zedtwitz (2002) argues that unless an organization has reached the maturity of being receptive to knowledge sharing throughout the whole organization, the introduction of a new reflective process will not be perceived as adding value to current business activities and therefore will meet resistance. Therefore, to understand the framework for a post-project review, it is also important to understand the maturity of the organization according to the levels proposed by Zedtwitz (2002). The framework is made up of five levels, which describe an organization’s willingness to conduct post-project reviews and the critical processes around them. The main points of each of the levels are highlighted in Figure 3.

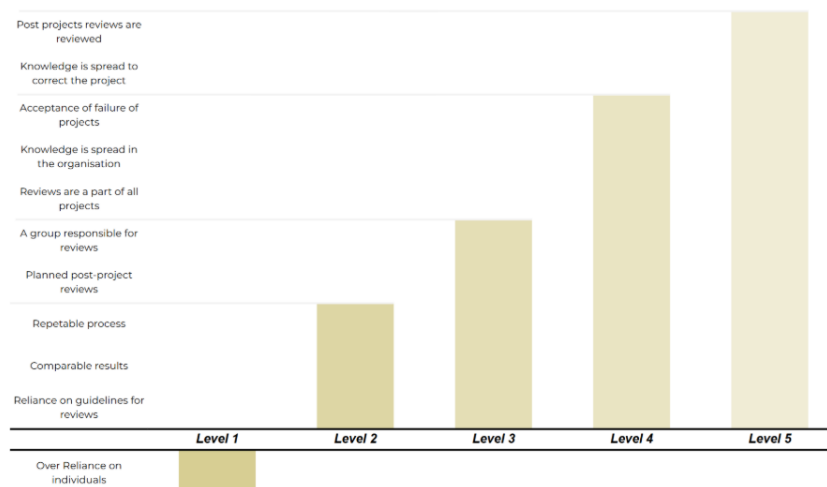


Figure 3: Receptive maturity framework (Zedtwitz, 2002)

2.4.0.2 Level 1 Initial

At the first level, reviews happen sporadically and are often triggered by a project failure. Post-project reviews are often not planned but rather happen in a company with a major project failure or success which can sometimes make it difficult to define the process as well as the execution of it. Here there is an over-reliance on the individuals to ensure the quality of the reviews. The outcome can be described as undefined and difficult to compare to other projects.

2.4.0.3 Level 2 Repeatable

A clear step up from the previous level, where now the organization has introduced guidelines for how the reviews should be carried out, which means that they can be compared to previous reviews. One such system is the use of reports to store and direct the reviews in a particular direction.

2.4.0.4 Level 3 Defined

At this level reviews are a standard practice part of all project and management activities. The process is also documented and standardized which makes it re-

peatable. An integral part at this level is the individuals who must work towards improving the post-project review. A way that is done by using logbooks to note down important events that can be used in the future as a reference in the post-project review. Here, the beginning of the maintenance of reviews is by having a group of people responsible for the review, and to make sure that it takes place and ensure that consistent company-wide processes related to reviews.

2.4.0.5 *Level 4 Acceptance of failure*

At this level, quantitative quality goals are laid out which can then be measured across projects. All results collected are and made available company-wide. The knowledge is predictable and actionable, which allows managers to apply it to post-project review practices. Here, the organization also accepts the presence of failure in projects and it is not seen as an inconvenience but rather a natural phenomenon that makes them ready to act on it and support those in need. An incentive to motivate individuals to admit failure and ask for help can be provided by incentives such as prizes for overcoming mishaps and in the end delivering.

2.4.0.6 *Level 5 Optimizing*

At the final level, the whole organization has adopted a post-project review mindset which allows for inter-project learning. Information is collected and then assigned to specific projects where it would be relevant. At the same time as post-project reviews are a part of the natural order at the company, it is also constantly under critique and review. This means flaws in the process are detected which can then be improved. Reaching the final level heavily depends on the learning culture within the organization.

2.4.0.7 *Resistance towards post-project review in organizations*

Furthermore, it is explained by Zedtwitz (2002) that resistance to learning from post-project reviews comes from psychological barriers since there will be no learning unless individuals create and share information. In addition to that, it is explained that there might be difficulty communicating among employees regarding the past since no focus is put on it from a managerial standpoint. Another aspect is team-based shortcomings related to social and technical aspects, language barriers within the team, the inner workings of teams, and who is friends with whom. Another barrier is related to us as humans and our ability to retain information, which is difficult and often leads to simplifications as well as generalizations. That means that the learnings can not be used in any other project, and in reality, the reason for negative outcomes in projects often relates to a multitude of reasons, and one specific reason can not be solely responsible (Zedtwitz, 2002).

2.4.1 Steps towards arranging a successful Post-project review

After project completion, there will be many different opinions and ideas that have sprung up, but harvesting is not something that most companies do. To mitigate this, Zedtwitz (2002) brings up the importance of incorporating post-project reviews. Zedtwitz (2002) sees the post-project review as the most structured and most applicable tool for passing experience between teams. It is also explained that the main objective behind the post-project review is to foster learning at all levels of organizations. Now that an understanding of the organizational context needed is established, there is a need to look at available tools for a successful post-project review. Laoyan (2024) proposes six steps that can be implemented to improve the process of carrying out post-project reviews.

2.4.1.1 *Step 1*

According to Laoyan (2024) the first step is to ensure that the meeting is carried out within a few days of the project concluding but also to give the team some time to reflect on the process. This allows team members to have a fresh memory of the project. An easy way to guarantee this is to include the review in the overall process and this is done by planning for the meeting from the beginning of the project (Laoyan, 2024)

2.4.1.2 *Step 2*

The second step according to Laoyan (2024) is to identifying major topics ahead of the meeting which can be done by sending out a survey to the rest of the team to get an overview of opinions. Then if several team members end up mentioning the same thing an effort should be made to include a discussion regarding that topic (Laoyan, 2024).

2.4.1.3 *Step 3*

The third step is sending out the agenda for the meeting ahead of the meeting to make sure that the team is well-informed about the process and aware of the main topics that will be discussed (Laoyan, 2024).

2.4.1.4 *Step 4*

The fourth step as mentioned by Laoyan (2024) is to appoint a moderator and secretary of the meeting. This should be two different people and allow one person to try to understand the meeting and its members. While the other person can take note of important findings and discussions (Laoyan, 2024).

2.4.1.5 *Step 5*

This step relates to what mandate the moderator has over the discussion. According to Laoyan (2024) the moderator will make sure that the meeting sticks to the main

points of the meeting as well as avoid discussions not related to the topics identified in step 2. The moderator is also responsible for asking the correct questions to invite other participants to share their opinions by asking open-ended questions allows the participants to reflect on their process and what they experienced during the project (Laoyan, 2024).

2.4.1.6 Step 6

The final step is sending out a summary after the meeting to share the most valuable insights with the whole team. The summary should also highlight how their opinion has changed the processes and what they might expect in future projects (Laoyan, 2024).

2.4.2 Additional steps for a Post-project review

The steps represented by Laoyan (2024) can be combined with the ideas proposed by Pamela Hamilton (2016). She describes workshops as requiring a clear objective to achieve, which ensures that participants understand the purpose of taking part in them. In this case, the intention is to evaluate the project. Additionally, she mentions the need for a well-structured agenda and a clear leader is needed which guides the sessions in the right direction.

For the rest of the people present at the workshop, they need to be prepared by having ideas and inspiration. The workshop should then be built around their ideas and foster new perspectives related to the objective. This makes the workshop more enjoyable and appreciated, being there engaging and productive. A team that works in an effective workshop will encourage each other and their ideas, and allow for enough time that is needed for a successful workshop (Pamela Hamilton, 2016).

2.5 Artificial Intelligence (AI)

AI is a technology that allows computers and machines to mimic the thinking of humans, to continuously learn, problem solve, and be creative (Stryker & Kavlakoglu, 2025). This is done by having AI learn through experience and information that it has access to by processing large amounts of data sets and look for patterns by using algorithms to make predictions of what the correct interpretation is (Stryker & Kavlakoglu, 2025). In 2018, the European Commission defined Artificial Intelligence (AI) as follows.

“Artificial intelligence (AI) refers to systems that display intelligent behavior by analyzing their environment and taking actions, with some degree of autonomy, to achieve specific goals.”- (European Commission, High-Level Expert Group on Artificial Intelligence, 2018)

According to Stryker and Kavlakoglu (2025), the key aspect of AI is to think and act in a way that is seen as them thinking, but rather than thinking, they just achieve goals flexibly and adaptively. These goals can be many different things, such as as-

sistants in our smartphones or the recommendation systems on streaming services. Specifically, there are generative AI, which refers to deep learning models that can generate original text, images, video, and other content (Stryker & Kavlakoglu, 2025). Furthermore, they explain that such tools include ChatGPT, GPT-4, and Microsoft Copilot, which can be referred to as AI-powered chatbots.

2.5.1 Introduction to an AI Chatbot

A chatbot is a Conversational artificial intelligence that enables computers to understand and participate in human conversations in the form of dialogues Saka et al. (2024). There are three different kinds of chatbots: menu-based chatbots, keyword recognition chatbots, and Natural Language Processing (NLP) (Dray, 2019). The most advanced chatbots use Natural Language Processing (NLP) capabilities and can learn from continuous user interactions (Dray, 2019). By utilising chatbots, users have a better opportunity to complete tasks more quickly while also taking advantage of information retrieval and providing customised content (Saka et al., 2024).

ChatGPT, developed by OpenAI, is one of the most well-known AI interfaces. ChatGPT is a combination of conversational AI and generative AI (Saka et al., 2024). Saka describes that generative AI can create new text and pictures, and differs from conversational AI, which can only show text that the AI has been trained on. GPT stands for Generative Pre-trained Transformers and has been developed to identify statistical patterns in natural language and generate coherent text that resembles human-produced content. The ChatGPT model uses machine learning algorithms and large unstructured datasets to train and learn complex language patterns without the need for explicit rules (Saka et al., 2024). OpenAI has developed several versions, and each has become smarter (Saka et al., 2024). The latest models are GPT-4 and GPT-4o (Microsoft, 2025).

2.5.2 The usage of AI GPT models in construction

According to (Saka et.al., 2024) GPT models can be used for knowledge management in the construction sector. If the GPT model is trained on construction-related information, the model enables it to be used for knowledge-based creation that could entail best practices, regulatory requirements, safety procedures, design guidelines, and project documentation (Saka et.al., 2024). Another use case would be to use GPT models to support the documentation process and help with organizing the information.

GPT models can be part of a Chatbot system to provide employees at a construction company with answers to their questions and problems, thereby providing real-time education and personalized training (Saka et.al., 2024). Saka et.al. (2024) explain that in the construction sector, there is a lot of tacit knowledge that has historically been difficult to manage. The report continues to explain that with GPT, experiences and expertise from the employees at the company can be captured. The GPT

model can be trained to gain insights and knowledge from historical data and past project reports (Saka et.al., 2024).

The GPT model can also translate reports and knowledge to provide answers and education in multiple languages. Saka et.al. (2024) describe language barriers as problems in construction projects and that they can limit productivity and hinder effective health and safety work on construction sites. With the use of the Chatbot, employees at the construction company can quickly translate important knowledge from previous projects and can create quick and easy preparation of materials for training the construction personnel in the language they are most comfortable with (Saka et.al., 2024).

2.5.3 How to train an AI GPT model using company-specific data.

To use a chatbot for company-specific knowledge management, a private empty chatbot needs to be used, not to give out company secrets to the whole internet. For this, for example, Microsoft Azure Open AI GPT-4 can be used, as seen in Figure 4 (Microsoft, 2025). By incorporating AI and chatbots in a company's knowledge management processes, the knowledge becomes much more manageable, and employees can more quickly find the answers that they are looking for (Randle Haggerty, 2023). A company's knowledge base is all the information the company has on itself, consisting of, for example, important policies, procedures, training guides, and project evaluations. Managing a company's knowledge base can be time-intensive, and there is a lot of undocumented tacit knowledge that employees have (Randle Haggerty, 2023). Instead of individual employees who have to dig through systems and reports to find relevant information, the employees can ask the AI chatbot for the information if it is connected to the company knowledge base. The more data and context the AI is trained on, the better it will perform and give accurate responses (Randle Haggerty, 2023)

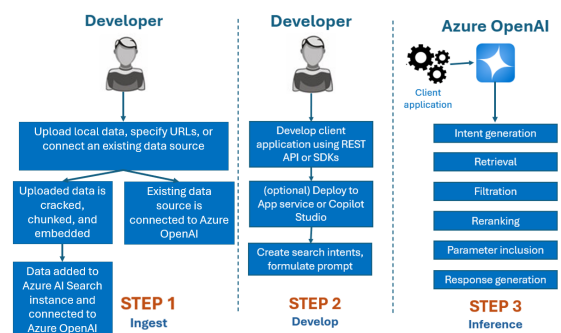


Figure 4: Azure OpenAI training (Microsoft, 2025)

With the AI's advanced tools, Chat-GPTs can effectively use a vast amount of big data, but for the AI system to function correctly, it must be trained on good data (Scott Hietpas, 2023). If an AI model uses poor or incomplete data, it can pro-

duce errors and unreliable outcomes, but if the model has access to accurate and high-quality data, it produces better answers. It is important to collect a lot of information to build a comprehensive knowledge base, but also important to convert the information into a format that can be used in Chat-GPT (Scott Hietpas, 2023).

The first step to building a knowledge base for the chatbot is to define what the chatbot is supposed to be used for and what information needs to be collected (Altexsoft Editorial Team, 2023). The company needs to find sources of the relevant data (Randle Haggerty, 2023). If the AI Chatbot is intended to be used for knowledge sharing between projects and to answer employees' questions about best practices and recurring mistakes, employee surveys, questionnaires, and post-project reviews can be used for data collection (Altexsoft Editorial Team, 2023).

2.5.4 AI Transcription

Post-project reviews are meetings where the recorded information becomes the basis for knowledge sharing from that specific project. A report from the University of Michigan, explains that parts of the meeting can be missed in notes if individuals in the meeting get distracted (Subrahmanyam et al., 2024) . A presented solution in the article is to use technological support, such as AI, to transcribe meetings and for the AI to summarise the meeting and write a meeting report. Note-taking is often a burdensome task for meeting participants, and the notes are reflected in the understanding of the meeting from that particular individual, an AI would instead save an audio file of the meeting, transcribe every word that is uttered during the meeting, and from that info write a summary (Subrahmanyam et al., 2024) .

To use AI as the secretary, the meeting needs to be recorded. The AI browser then uses automatic speech recognition (ASR) to transcribe the speech to text (Subrahmanyam et al., 2024) . According to Microsoft there is transcription in real time, where the software transcribes every word directly after it is spoken (Microsoft, 2025) . Transcription in real-time is a good tool for online meetings where all the members have their own microphones, since that type of software can detect which microphone has been used to say something. There is also development for teams to detect differences in the voice of in-person meetings (Microsoft, 2025).

In the study by Subrahmanyam et al. (2024), a test was executed where several meetings were recorded, transcribed, and analyzed, and the participants were given two reports, one with highlights and action points, and one with summaries. The study found that several of the interviewees read the action point report and summary report of the meeting, and when they found something they wanted more context on, they wanted to read the transcript of the meeting to get more detailed information about what was said (Subrahmanyam et al., 2024). Some of the interviewees also decided to listen to the audio file of the meeting to get a better understanding of the report.

“Participants also looked for context to understand who made the decision or why

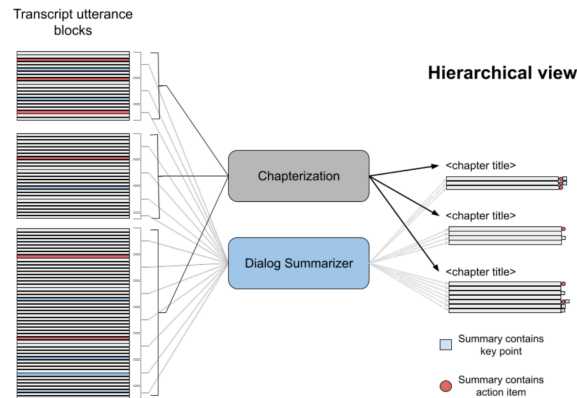


Figure 5: Summarization pipeline that generates recap reports, the summary report (Subrahmanyam et al., 2024)

it was made. To get more context for ambiguous summaries, two participants explored the “show context” feature of the UX. However, three other participants still requested a link to the original video or the full transcript for more context. They mentioned that the limited context did not help them understand completely, and it would be helpful to look at the original discussion for clarity.” - (Subrahmanyam et al., 2024)

For the creation of the Summary report, the hierarchical view was used, as seen in Figure 5, and three AI models were needed. The transcript was first scanned, and the AI model broke the meeting transcript into chapters based on topic changes (Subrahmanyam et al., 2024). The AI model looks at how words are grouped in the transcript, and if the words start to shift to a new topic, the AI marks that as a new chapter. When the transcript is divided into chapters, the two additional models create titles and summaries as seen in Figure 5 (Subrahmanyam et al., 2024).

In the study of Subrahmanyam et al. (2024), the participants’ opinions of the reports were investigated. Six participants indicated that some of the generated highlights were not relevant to them in the action point report. The participants in the study explained that due to the limited context in the highlights recap, they could not use the action point report for brainstorming or sharing knowledge (Subrahmanyam et al., 2024). The summary report was more appreciated in the (Subrahmanyam et al., 2024) study. The participants appreciated that the report provided a quick overview of the meeting. Different from the action point report, the summary report had star icons against chapters containing “key points” and “action items” that also helped in easy access to reminders (Subrahmanyam et al., 2024).

The overview of the meeting in the summary report helped participants who missed the meeting and wanted to understand it in a short time. The study saw that topic segmentation helped participants easily navigate different parts of the meeting and scan the analysis discussion that they cared about (Subrahmanyam et al., 2024). When the participants read the summary report, they would consider a relevant part of the meeting, locate its chapter heading, and explore the chapter by expanding it and looking at the notes that are part of the chapter. If the participant wanted

to know even more of the context, they would then read the raw transcript (Subrahmanyam et al., 2024). The summary report in the study had some problems; three of the participants found errors in the AI-generated summaries, however, not so big that they did not understand the outcome and context.

3

Methods

The methodology for conducting the master's thesis started with research into knowledge management and the use cases for AI. To answer the research question proposed a qualitative study was conducted to gather the information needed. In this chapter, the methodology is presented, the limitations, as well as how interviews were selected.

3.1 Research approach

From the aim of the report being to understand the knowledge management life cycle within Peab and how AI may or may not be implemented to make the processes more efficient, there is a need for an open-ended and exploratory approach, which leads us to a qualitative study when conducting the case study at Peab.

To be able to answer the research question, the information gathered is used to understand the current situation for Peab regarding the knowledge lifecycle and what areas may be improved. This through exploring what information is critical for distribution and how AI may assist with that process. The answers gathered are based on the opinions of employees within the company and their view of the subjects previously mentioned.

3.2 An overview of the methodology

The first part of the study included a look at relevant literature on the subject to create an outline of the field and to be able to prepare questions for the interviews. This then led to the interviews that were carried out at the company, which included both ordinary interviews as well as one expert interview. After having completed these recommendations for the company was presented based on the information gathered from the interviewees and the theory.

3.3 Qualitative method approach

To be able to answer the research question of the report, a qualitative method approach with qualitative individual semistructured interviews with employees at Peab was chosen. As described by Bryman & Bell (2015), a qualitative method is recognised as an approach that focuses on the creation of new theories. In addition to

this, a qualitative approach focuses on people and words rather than numbers, which allows the researchers to stay close to the interviewees and create an understanding of them. The individual semistructured interview allows for a collection of qualitative data to be able to answer the research question and allows the interviewee to review their existing knowledge management processes (Bryman & Bell, 2015). In addition to the interviews conducted at the company, an interview was also conducted with an expert within the field of AI at the company. This was done to gain the full perspective and understanding of the view of AI at Peab and to give credibility to the possibility of implementation of the proposed recommendations.

3.4 Interviews

The individual interview is when an interviewee is interviewed by another person and are used to discover information about a specific individual, while group interviews are used to understand the interaction between individuals (Bryman & Bell, 2015). Considering the interview's main focus is to find out more about the specific individual's experience of knowledge management is and how their existing methods can be improved with the usage of individual interviews seems fitting. Thereby, the choice was made to work with individual interviews to focus on their experiences and understanding of the topics.

Another separation of interviews is unstructured, semistructured and structured interviews (Bryman & Bell, 2015). The main contrast between structured and unstructured interviews is that, in structured interviews, the questions stem from pre-decided questions with a clear direction (Bryman & Bell, 2015). The semi-structured interviews are somewhere in between with specific pre-decided questions, but with the addition of follow-up questions to gather more information and further help the interviewee to develop their point. This also allowed the researchers to be able to add or remove questions during the interview to make the interview fit the interviewee better, depending on their knowledge and experience (Davidson & Patel, 2019). This also allows the researchers to switch the order of the pre-determined questions to make the flow of the interview better, depending on what topics are being brought up, but still have a core plan to stick to. It is clear from the study that semistructured interviews are the most appropriate for the study since it allow for research into the main topics that are knowledge management and AI, but at the same time leaving room for other topics that may arise during the interviews.

According to Patton (1990) there is no set amount of number of interviews needed to gain a holistic view of the topic and thereby have results that are sufficient. Instead, there are factors such as how the research question is framed that should dictate what an appropriate number of interviews is. Patton (1990) argues that a study with more in-depth and difficult-to-answer questions will need fewer amount of interviews to reach a conclusion. Since that will allow the interviewer more time and effort to analyse the answers and hopefully reach an answer to their hard-to-answer questions. On the other side, there is also an upper ceiling to how many interviews might be feasible to conduct and still make it possible for the researchers

to conclude, since more interviews lead to more material to analyse (Simonsson et al., 1998). Having understood this, the decision was made to, together with the supervisors from the company, decide the number of interviews jointly.

The interviewees that were selected are divided into two groups that being Design and Production. Both perspectives were needed to fully understand what information may be relevant to them, as well as what information could be gathered from their meetings. Gaining both the Design and Production perspectives of the topics was essential for getting a full understanding of knowledge management and AI.

Regarding the phrasing of the interview questions, a decision was made to adopt the ideas of Bryman and Bell (2015) to formulate the questions in a way that does not restrict the interviewee's ability to think about alternative ideas. At the same time, the interview questions were created to make it easy to connect them to the research question and for the participants to easily understand the questions that were asked.

The structure of the interviews followed an interview guide which was the same for both Design och Production. Here, we did not adapt it depending on the different roles but we adjusted the interview to fit the context for which the individual worked in as recommended by Bryman and Bell (2015). The interview guide that was used for the Design and Production can be found in the appendix, translated from Swedish into English. At times when it was appropriate to try to get a more developed answer from the interviewee, follow-up questions were asked. At the end of each interview, the interviewee was also asked if they wanted to add anything further related to the topic that they felt they did not get the chance to bring up during the interview.

3.4.1 Conducting the interviews

The interviews were scheduled at least 3 weeks in advance to give the interviewee time to reflect on the questions and prepare for them. The interviews were then held over Teams since the company uses that system for its internal communication.

Ahead of the interviews, the questions were sent to the person who was being interviewed to make sure that they understood the content and what they were going to be asked. In agreement with the supervisors from the company, our supervisors held an introductory meeting ahead of the interview to give them an understanding of the pilot project. Because of the nature of the project being in its early phase, the need for a prep meeting ahead of the interview was necessary to make sure that individuals were fully prepared for the questions that were going to be asked during the interview.

During each of the interviews, both researchers were present, with one taking a leading role in the interview by asking the questions and the other taking notes and asking follow-up questions. Each of the interviews started with a brief description of the master thesis, what the aim of the interviews was and how they fit into the picture as well as how Peab is going to use the information. A check was also done

to make sure that they had had their meeting with our supervisors and understood the topic that was investigated. All interviews were recorded and each participants were asked for their permission to be transcribed. This was done to allow the researchers to listen to the interview again and, if needed, ask the interviewee to clarify their answer. All interviews were carried out in Swedish since it was the language participants were the most comfortable with. The questions that were asked during the interviews can be found in Appendix A.

3.4.2 Selection of interviewees

A total of 18 interviews were conducted to gain an understanding of their entire operation in Sweden. The areas of interest where interviews were conducted were: *Norra Norrland*, *Södra Norrland*, *Stockholm*, *Mellersta*, *Sydost*, *Syd*, *Bostad Syd*, *Väst* and *Bostad Väst*. Within each of the areas, interviews were conducted with one individual from the Design and Production teams. A list of the interviewees are shown in Figure 6, as well as their role and the number of years they worked at Peab.

To comply with GDPR laws, all regulations were followed throughout the whole process when handling information related to the participants and names, contact information, and transcriptions from the interviews. The participants have been kept anonymous and their names have been replaced with interviewee and a random number to make them identifiable by the researchers.

Title	Designation	Years at Peab
Site Manager	Interviewee 1	20
Site Manager	Interviewee 2	11
Design Manager	Interviewee 3	8
Project Manager	Interviewee 4	4
Design Coordinator	Interviewee 5	4
Project Manager	Interviewee 6	10
Design Coordinator	Interviewee 7	8
Work Leader	Interviewee 8	8
Design Manager	Interviewee 9	7
Design Coordinator	Interviewee 10	13
Site Manager	Interviewee 11	39
Design Coordinator	Interviewee 12	10
Site Manager	Interviewee 13	10
Site Manager	Interviewee 14	9
Site Manager	Interviewee 15	22
Design Manager	Interviewee 16	15
Site Manager	Interviewee 17	25
Project Manager	Interviewee 18	40

Figure 6: List of the interviewees' job titles

3.4.3 Codify the interviews

After having completed the interviews, the process of codifying the transcriptions began. As described by Bryman and Bell (2015) codifying is the process of taking out certain parts of the data collection, such as a phrase, to symbolise the meaning of it. This is important, as mentioned by Thorne (2000) since data from interviews

tends to be unstructured and challenging to analyse, especially when handling large amounts of data. Considering the large amounts of data that was gathered from 18 one-hour interviews, a method was needed to analyse and break them down.

Bryman and Bell (2015) suggest the use of a thematic analysis, which is a data analysis approach in which researchers look for empirical findings. Each of the interviews was codified and transcribed within a week of having conducted them to make sure that the researchers remembered and understood the context of the interviews. The first step after having gone through the interviews was to clear out all the additional information from the data that had been transcribed. After that, the relevant information could be sorted and coded into topics that were relevant to the research question. The codes that were identified represent a specific opinion that was present in one or more of the interviews. The information from the interviews was gathered in a document for analysis, and the relevant parts of the interview study were then extracted and are shown in the results chapter.

3.5 Understanding Peab

During the duration of working on the master thesis, access was given to Peabs Intranet to be able to access the different files and to understand the context in which most people at the company work. The main part of Peab's intranet is Planket, in which most information within the company can be found. To understand how the knowledge management process has looked historically, the company documentation from previous projects was reviewed to understand the flaws and features of these. At a later stage of the process, access was also given to the researchers to Dalux and Ärbas to be able to understand how those systems are set up.

3.5.1 Trustworthiness of the data collected

According to Bryman and Bell (2015) the trustworthiness of data is the criterion for a successful qualitative study. They propose four different fields for criteria for how trustworthiness can be measured. The authors kept these in mind when carrying out the study.

3.5.1.1 Credibility

The criteria for the validity of the findings are thereby how believable they are. As described by Bryman and Bell (2015) the criteria is grounded in ensuring that the research findings are shared with the participants to validate that the author has understood them correctly and also make sure that the research is carried out according to practice. To ensure that this criterion is reached the use of respondent validation can be used (Bryman & Bell, 2015).

3.5.1.2 Transferability

The criteria are related to the external validity of the findings and trying to compare them to other contexts (Bryman & Bell, 2015). Considering the qualitative nature of the study, it would be difficult to take the findings outside the context in which they were collected, that being within the company. Understanding this makes it clear that the generalizability of findings can not be expected for cases of qualitative research, so instead, a focus should be on making sure it applies to the context from which it was collected (Bryman & Bell, 2015).

3.5.1.3 Dependability

The criteria are related to the reliability of the findings. That being how applicable the findings are at another time (Bryman & Bell, 2015). Here, a recommendation has to be made to the ever-changing topic of AI, which makes it hard to work with. Instead, a focus can be on making sure that the process of finding the result is described in such detail that similar studies can be conducted in the future. Thereby making it easy to repeat the work, but not necessarily repeating the same results.

3.5.1.4 Confirmability

The criteria are related to how objective the author is in the text. That being if they have allowed their own opinion of the result to affect the outcome of the study (Bryman & Bell, 2015). To ensure that the thesis remained as objective as possible the authors have only based the conclusion and recommendation on that material that has been gathered in the study.

4

Context of study

This chapter explains the context in which the study was carried out by introducing Peab, which is a Swedish construction and civil engineering company focusing on Sweden, Norway, Denmark, Poland and Finland. The structure of the company, as well as a look into current practices and the view and use of AI and Knowledge Management, are covered to gain the context.

4.1 Peab

Peab is one of the largest construction and civil engineering companies in the Nordic region. Founded in 1959, it has grown and expanded its operations throughout Sweden and neighboring countries. The headquarters is located in Förslöv in southern Sweden. Peab has around 13,000 employees and a net revenue of 58,697 million Swedish kronor in 2024. The company's shares are publicly traded.

The main business areas for Peab operations are:

- Construction
- Civil engineering
- Industry
- Project development

Today, Peab plays a crucial role in Sweden's building sector, focusing on local presence, sustainability, and community involvement in its projects.

4.1.1 Overview of knowledge management within the organization

The case study is carried out in the Peab business area, Construction. The Peab construction follows the traditional set methods for the phases of construction within their organization, which are shown in Figure 7.

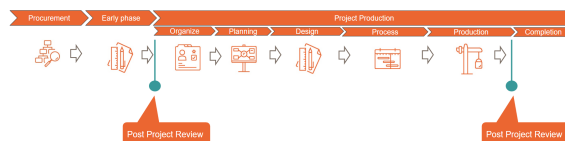


Figure 7: Showcase of project stages and highlighted spots for the extraction of knowledge.

A project starts with a design phase, in which all design documents are created with a team of the construction client, consultant design engineers, and a Peab design manager. At the end of the design phase, a closing meeting is scheduled to have a post-project review. The design documents are there after being given to the production phase. The production phase is where the designs are brought to reality by Peab employees and subcontractors. When production is finished, the Peab team has a closing meeting, and a post-project review is conducted. For both of these phases, the experiences can then be shared among the managers within the region (Peab, 2025).

In this thesis, both members from the design phase and members from the production phase are interviewed. These two teams differ somewhat from each other and have some inherent differences between them. The main one being how Design teams consist of a Design manager from Peab and consultants hired to work with the design part of the process, and Production teams consist of Peab employees. Therefore in the in the results chapter, the interview findings will be presented as their common answers, and then the differences between their answers will be divided between the interviewees involved in the design phase and the interviewees involved in the production phase.

4.2 History of knowledge management

At the beginning of the company, there was a lack of tools that would allow for knowledge management within the organization, but with the introduction of ILP, Survey, Suggestions for improvement box, and closing meetings, Peab moved into a new era of sharing. Knowledge management became a part of the organization when the Peab group went public around 1990, since the continuous improvement of the organization stands as a requirement for going public. The introduction of different business areas within the organization also saw the demand for more knowledge sharing within the specific region. The idea of the meetings is to get a sense of closure for the project and to gather the experiences from different disciplines that have been involved in the project. Internal education and training are built on experience and the need within the organization at the time, and there is no clear line between experience and the training programs that are being produced (Peab, 2025).

From 2016 to 2018, Peab introduced and spread the implementation of the VPP 'Visuell Planering Projekt', which is built on the idea of making sure that, although Peab is a large organization, all projects adhere to the same processes. This also allows the organization to work and improve its processes, as changes can easily be implemented throughout the entire company or business region. This worked so well that it is now the standard practice for everyone in the business area construction (Peab, 2025).

Since 2019, Peab has worked with suggestions for improvements, where they can adapt and change their processes in the best way to support design and production.

The idea of this stands from how they would like everyone to follow the same guiding principles and therefore requirements within these have to be up to date (Peab, 2025).

4.3 Limitations for knowledge management within Peab

Technical limitations made it difficult to share knowledge within and outside of the business regions. When a closing meeting and post-project review is concluded, a meeting report is written and stored in Peab's internal database, Ärbas. In Ärbas, all project-specific data is stored, and the different projects are locked from each other. Only the people in the specific project have access to the documents stored in the project database. This results in the post-project review meeting notes being locked in the project database, and no other individuals or projects in Peab can read the insights from the post-project reviews. With the introduction of VPP, Peab is phasing over to use Dalux instead of Ärbas for storing project data, but Dalux has the same problem as Ärbas with locked projects and no access to other projects' post-project review reports (Peab, 2025).

4.4 The view and use of AI within Peab

For the context of the study, an interview was conducted with the Head of Platforms and AI within Peab. The AI manager shared that the interest in the use and implementation of Artificial Intelligence grew with the introduction and launch of OpenAI's ChatGPT model, and during the summer of 2023, the introduction of PeabGPT was made and made available to everyone within the Peab organization. PeabGPT is built on Microsoft's Azure OpenAI model. The idea behind the PeabGPT model is to make sure that company information stays within the organization and that employees do not use the open-source GPTchat from OpenAI. Microsoft CoPilot has also been introduced and the use of the model has increased throughout the organization (Peab, 2025).

Further functions that have later been added to the space of AI models within Peab are the Procurement assistant, which is the most used out of the AI services, which aims to improve the quality of tenders. Peab has also introduced an AI tool that is being used to summarize meetings and give bullet points from transcribed meeting notes. To use the summary tool, employees at Peab have a meeting on Microsoft Teams where they record the meeting and use the AI transcription tool in Microsoft Teams. The transcription is thereafter given to the meeting owner in a Word document with written info of what all the meeting attendees have said, and who said what. The Word document is sent into the Summary tool through a form in which the meeting owner can choose if they want the summary in keynotes, summary in chronological order, or summary categorized by meeting topics. The meeting owner then receives a summary report of their meeting in their email (Peab, 2025).

The process of creating a summary report from an AI transcription is the same as described in the theoretical framework by Subrahmanyam et al. (2024), and the categories and topics for the summary can be customized by the owner of the AI Summary tool.

The latest introduction of an AI tool is the Experience assistant, which this thesis aims to make more efficient. The Experience Assistant is like the PeabGPT and the Procurement Assistant, built on Microsoft's Azure OpenAI model. It is an empty Generative pre-trained transformer model that Peab will train on their company-specific data. This GPT model aims to be able to gather experience from previous projects and then distribute the information to anyone interested through the use of a chatbot. Today, the Experience assistant is still in the gathering stage to create a database, and the information has not been reviewed. Initial tests were carried out during the spring of 2025 (Peab, 2025).

5

Results

This chapter highlights the outcome of the interview study with representatives within the Peab organisation. The chapters are divided into four parts that being *Knowledge management within the organisation*, *Post project reviews*, *The view on AI*, and their view on audio from the meetings being recorded. For each of these chapters, specific topics were identified, and these topics themselves include codes of the relevant things that were mentioned in the interviews. The topics are then divided up into shared opinions, and the headlines *Production* and *Design* to separate the information belonging to the respective fields.

5.1 Knowledge management within the organization

This chapter covers how knowledge management is viewed by the participants within the interview study. To gain an understanding of the knowledge management from the view of the participants, the following topics are being brought up and discussed: *Knowledge management*, *Risk management*, and *Use of others' experience*.

5.1.1 Knowledge management

To understand the overall view of knowledge management, interview participants were asked about their understanding of the topic and how they find new information in their everyday work life. Their view on it, that were seen throughout the interviews, are brought up below.

For both Design and Production, it is clear that a central component of knowledge management is having the ability to communicate with each other. This is done by employees frequently seeking out colleagues, experts, or other support functions for information, advice, and learning. The way this is done is often by contacting each other through informal channels such as phone calls or booking meetings with each other. This way of relying on reaching out to others as well as being reached out to is appreciated and is being utilised by the interviewees. This mostly occurs within the region where the individual is known and can thereby be referenced to by another colleague, but on occasion, they may contact someone outside their region. What information they seek may vary a lot from questions regarding law, economy, or production methods, where it would be valuable to hear from someone who has

encountered a similar project or issue before.

Specifically mentioned by interviewee 10 is the fact that communication with other individuals is part of the way that they learn and develop their knowledge at Peab. Another aspect of this is mentioned by interviewee 10 is the worry about how information can be taken out of context unless the right context is written down. They go on to mention the importance of being able to talk to the person you are trying to gain help from. Interviewee 14 mentions that it is important for production managers to communicate with workers on site, as they have likely encountered and resolved similar issues before related to production.

“Most of the time, the people performing a task have done it before. It is usually specific trades, such as carpenters and plumbers” - Interviewee 14

As is clear there is a reliance on reaching out to other individuals and a way to have access to all these people is by having a network to rely on when it comes to reaching out to others regarding questions. Interviewees 3 and 5 both mention that there is an importance to relying on personal networks that they can rely on for information and advice regarding specific topics. A way to have access to all these people is by having a network to rely on when it comes to reaching out to others regarding questions.

In 13 out of the 18 interviewees, they mention that they reach out to specific experts that both design and production reach out to for help, that being Peab Teknik, the warranty department, KMA, and Calculation engineers. Additionally, within Peab, employees reach out to Project Managers and Business Area managers when they are seeking information. For the production teams, it might be difficult to always get access and contact with the correct individual. In the cases where employees might not find the information they are looking for, they might need to look elsewhere for that information. This is a problem relevant for both design and production, where 7 interviewees mentioned the fact that they use other sources of information, such as LinkedIn, Google, YouTube, or technical websites such as Svenskt Trä, to gather new information. This lack of collective information is also clear from what is mentioned by four of the interviewees, who mentioned that there is a lack of a database and platform for gathering experiences, which across the organisation leads to mistakes being repeated. This also leads to the fact that individuals retain the knowledge instead of the organisation, since people within projects move from one project to another, and they are the ones who bring their knowledge with them, as mentioned by interviewee 14.

The way Peab rely on individuals contacting each other is criticised by interviewee 14, who mentions that a lot of time is spent on calling each other and reaching out to gain insights, time that could have been saved or spent on something else in the project. Additionally, interviewee 18 mentions the need to plan their calls to each other to avoid just making a call to someone without a heads up to minimise the time and make sure that both individuals are prepared.

5.1.1.1 Design Managers view on Knowledge management

When it comes to the design teams, it is clear that there is a need for maintaining a clear channel to the production site to enable them to ask the production team questions, and, when it is possible, include production individuals in the design process. Another aspect when it comes to how they look for new information is to take part in internal communication, which allows interviewee 7 to develop their knowledge and learn from others. Another aspect specific to the design field was study visits to gain inspiration from other projects and learn about what their designs can and will look like out in production, which is stated to help designers understand risks and opportunities, as mentioned by interviewee 5.

Specific to the design teams, when it comes to knowledge sharing to be aware of is the fact that the design engineers are responsible for the solutions that they propose, and thereby the one who suggests something owns and is responsible for the solution. This is the fundamental principle of contract law within construction, as described by interviewee 16, to be an issue they need to be aware of. The reason for this is the fact that if they know of a solution to a problem, they can not give the solution to their consultant design engineers; instead, they say that there might be a problem in this area and that they can look at a solution containing something with a vague suggestion.

"We already have a solution available. However, in the wonderful world of law, if you offer a solution, you're held responsible for ensuring that it works. So, in my role during the design phase, we say something like: "Hi, you have a problem — water is entering your radiators. We'd like you to develop a solution to drain the water." Then they come back with a proposal, for example: "This is how we plan to divert the water." And we respond: "Great, let's go with that." " - Interviewee 16

5.1.1.2 Production Managers' view on Knowledge management

When it comes to the knowledge management for production, they specifically mention how they have a mentorship empized by interviewee 18, who mentions how they support and help each other when they encounter issues on site. This comes from what was mentioned by interviewee 18, that there is a need to rely on the members within the project to be able to solve issues together.

5.2 Risk management

To understand how knowledge management may be a helping hand when it comes to Risk management, interview participants were asked about how they work with Risk management and how they might view knowledge management in this topic. Their view on it, which were brought up in interviews, are mentioned below.

For the interviewees, it is clear that the main subject for both Design and Production is the reliance on previous experience and knowledge for identifying and

managing risks. As 5 of the interviewees mentioned, they draw on personal lessons learned from previous projects that they have been a part of. This is often done within the teams, as they share a collective responsibility for ensuring that risks are handled and addressed. Specifically, interviewee 2 mentions that they look at old work preparations and the risks related to that specific activity, but these are heavily influenced by which person is working with them.

A common practice for both Design and Production is the use of risks and opportunity lists that are created early in the project and can be carried over to production when it is time for Design to hand over the responsibility to Production. This list serves as documentation for potential issues and serves as an important part of risk management, as mentioned by 5 of the interviewees. A way to further develop these risks and opportunity lists is to turn to expert help and rely on sources such as Peab Teknik and Work Environment Managers when individuals are unsure of the risks. Interviewee 18 mentioned that it is very good that the teams are creating lists of risks and possibilities regarding the work environment, economy, and risks related to specific events in production, but that is not just enough to write them down; the teams must also act on the risks.

"It's about both reacting and acting, those are two words that I try to work with, which are very important. If you don't act, it doesn't matter if you react, as they say". - Interviewee 18.

5.2.0.1 Design Managers' view on Risk management

For the design teams to fully understand risks associated with the designs they have brought forward, they need to be able to contact Site Managers to gain an understanding of what risks might be present on site regarding their designs, according to interview 3. For the design team, the responsibility of the risks is divided between the design engineers since each discipline is responsible for providing their thoughts on risks and how they can be managed, but it is the responsibility of the design manager to encourage them to do it. Looking for specific issues inside the design plans is important to avoid having them pushed over to production, as mentioned by interviewee 3.

"But the thing is, I think we need to put even more effort into actually having the goal of solving the problem during the planning phase. It's a bit too easy to pass it on to production and say, You'll have to solve this on-site" - interviewee 3.

5.2.0.2 Production Managers view on Risk management

When it comes to the risk management that occurs in production, it is clear from the interviewees that it is an integral part of the process from the beginning to the end and that it is not a one-time effort but rather an ongoing responsibility, as mentioned by interviewees 2 and 13. This is rooted in the individuals on site, as mentioned by 4 of the interviewees, where their collective experience is used to

identify and assess risks on site. Interviewee 13 shares a similar view since they believe in stopping production entirely to be able to assess the situation together and reflect on whether or not they need to ask for help. To avoid such a situation, the interviewees mentioned that there is a need to engage with those who were a part of designing the plans from the beginning, as mentioned by interviewee 2 and interviewee 1. There is also a point mentioned by interviewees 1 and 17 that working according to Peabs BTL could avoid risks by using established solutions.

5.2.1 Use of others' experience

To understand how employees at Peab make use of other individuals' knowledge, the participants were asked if they rely on taking part in other individuals' experiences. The interviewees were also asked to mention in what specific way it may aid them in their work.

For the interviewees, it is clear that the use of others' experience is important for both the Design and Production teams, with the shared idea that it will allow them to avoid having to come up with the same solution to an issue that someone has already solved. Interviewees 1, 13, and 14 emphasised that reusing proven solutions saves time and resources. Similarly, interviewees 3 and 5 mentioned that it allows them to save time and resources by achieving higher efficiency and making it easier to make decisions when insights are available to guide them through the issues they face. These insights serve as a basis for evaluating solutions, potentially eliminating the waste of time. Mentioned by interviewee 2 is the fact that this allows them to understand risks and recurring issues in a project that they may be unfamiliar with. A suggestion for how this could be done is mentioned by interviewee 6, who sees Dalux as a tool that could be valuable to share information amongst projects since there is a lot of important information stored there already.

Both Design and Production share the idea of being open to the input and feedback from others emphasising the value of collaborating and solving issues they face together, as mentioned by interviewee 12. At the same time, the aspect of being critical of others' advice is mentioned by 3 of the interviewees, which means that it is important to reflect on whether or not their suggestions are appropriate in the situation that you find yourself in.

"My way, maybe the way I have always done it, and it is not always the best way, so it is good to get tips". - Interviewee 1.

5.2.1.1 Design Managers' view on the use of others' experiences

Specific to the design teams is the need for project-specific information in the early stages of a project. Mentioned by interviewee 9 is the need to have access to this information and see the possible consequences of implementing certain solutions. There is also a mention of the fact that they need to rely on the experience of other senior managers, but that there is a need to be able to reach outside the region in which they belong.

5.2.1.2 Production Managers' view on the use of others' experiences

In production, they sometimes face problems where the design documents from the design team and reality do not align. They then need to find a new solution to the problem. Often, the production team first gather the experiences available on the production site, and it is important to be critical of the solutions proposed by colleagues since it is based on their knowledge and memory. They can also search wider and ask colleagues from other projects who have had similar problems, but specific to the production team is the need to be critical of their project conditions when taking part in other people's experiences. It is also important to be critical of the designs suggested by others' experience to make sure that what they have built is correct, as mentioned by interviewees 8 and 14.

Another solution is to use solutions from PEABs BTL, then it would have made their suggestions and solutions more reliable, as mentioned in interview 18. It is important to know that others' expertise can not just be copied over to a new project; instead, there is a need to understand the issues that come with that solution, as mentioned by interviewee 4.

5.3 Post Project Reviews

This chapter covers how the Post project review is viewed by the participants within the interview study. To further understand the structure of the post project review the chapter brings up the view of the participants and the topics that are covered are the following: *Structure and execution of closing meetings, Roles and responsibilities in meetings, Challenges and areas for Improvement, Value of the meetings, Evaluation of the post-project review agenda and Quality and use of responses.*

5.3.1 Structure and execution of closing meetings

The structure of the post-project reviews and how they are carried out for the different participants are mentioned in the following chapter, highlighting the differences and similarities among them. The different processes that interview participants followed are mentioned, which were brought up in interviews.

5.3.1.1 Design

After seven interviews with people from the design phase of a project, four different processes for conducting a closing meeting were identified, as seen in Figure 8. A majority of the interviewees had similarities for the meetings and, in some form, followed the standard post-project review agenda given by Peab, but each participant had some variation in how they conducted the meeting.

Post-Project Review Design	Standard Form	Own Form	Compiled Form Answers	Moderator	Agenda	Risk Exercise	Presentation to Production	Assigned Secretary
Design Meeting	X		X	X	X			
Alternative 2	X		X	X	X			
Alternative 3		X	X	X	X	X		
Discipline Presentation				X			X	

Review

Figure 8: Versions of Design Post-Project Review

The Design meeting, which 4 of the 7 interviewees follow, starts with sending out a form and the post-project review agenda, as seen in Appendix B, to all the meeting attendees a few days before the meeting. The attendees answered the form in writing and sent it back to the moderator of the meeting. The moderator read all the answers and compiled them. The answers were thereafter discussed in the meeting, and it was free for anyone to discuss the answers. During the meeting, all the points in the post-project review agenda were followed and discussed. One of the interviewees mentioned that they had their meeting digitally on Teams, but the other three had had the meeting in person.

"And then that survey has been used a bit as a basis for discussion once we've wrapped up the project. Then we go around the team, pretty informally, and everyone gets to share their thoughts — both the good and the bad." - Interviewee 10

Two alterations to the design meeting are seen in the interviews: Interviewee 3 designed their own form that had been sent out before the meeting, and Interviewee 9 had a group exercise during their meeting. Interviewee 9 explained that they ask the meeting attendees to think of 6 risks that they should take with them to the meeting. They should bring 3 general risks that they can see with the project, and 3 occupational health and safety risks. During the meeting, interviewee 9 had a paper with a timeline of the construction project, and they asked the meeting attendees to write their risks on post-it notes and place them where they believed the site manager should be aware of the risk. When the attendees place their risks, they talk a bit about it, and when everyone is done, all the risks are assembled into a list that Interviewee 9 gives to the site manager for the next phase of the project.

"We put a production schedule on the wall and then add post-it notes with those risks." - Interviewee 9

Interviewee 7 explained that they have a different arrangement for their post-project review meetings. They had used the meetings as a chance to present the project to the site management team that is supposed to build the building. Interviewee 7 said that the architect started the meeting and showed visionary pictures of how the building is supposed to look when it is done, and then the 3d model was presented. All disciplines in the design team presented their parts and the idea behind their design. The production team were given a chance to ask questions, and it was an open discussion about the project. However, there were no evaluation of the design teams' work and discussion regarding their process.

"There was probably an agenda, but we didn't really have a set protocol to follow. First, our architect talked about the project, and then we went around the table by discipline and presented."- Interview 7

5.3.1.2 Production

During the interviews with the interviewees from the production phase, 6 different variations of the closing meeting were identified, as seen in Figure 9. The Production interviewees stated that Peab had a standard Post-Project review agenda, especially made for internal Production project closing meetings, as seen in Appendix C. All the interviewees had used the post-project review agenda, but had different methods to conduct the meeting. There are two different approaches to the meeting: one is where all attendees can take up their own actions, and the other is where the moderator of the meeting has come prepared with actions that are going to be discussed.

Post-Project Review Production	Moderator	Standard Agenda	Evaluate Positive & Negative Solutions	Pre planned Solutions	Suggestions to Pre Planned Solutions	Power Point	Assigned Secretary
Free Meeting	X	X	X				
Free Meeting 2	X	X	X			X	
Free Meeting 3	X	X	X				
Planned Meeting	X	X	X	X			
Planned Meeting 2	X	X	X	X	X		
Planned Meeting 3	X	X	X	X		X	

Figure 9: Versions of Production Post-Project Review

5.3.1.3 The free meetings

4 of the interviewees explained that during the meeting, the moderator of the meeting showed the Peab given Post-project review agenda on a screen in the meeting room. The moderator thereafter goes through the agenda, and at each action point, there is a free discussion where everyone is allowed to join the discussion and give their opinion. At the end of the agenda, there is a part about different events and materials that have worked good and bad during the project, and the meeting attendees are free to spontaneously raise events from the project and engage in experience-based discussions.

One other interviewee stated a similar experience of how a closing meeting works, with the difference that they used a PowerPoint to show the agenda for the room. The PowerPoint point where also used to take notes from the meeting, and everyone in the room could see in real-time what was noted down from the discussion.

Interviewee 6 explained that they had a similar approach for the meeting as the previous interviewees, but that they thought the post-project review agenda was

too long. They thought the questions were good, but that there were too many and it would take too long a time for the meeting. Interviewee 6 made a new agenda where they took 4 questions from the original agenda, what material was good and bad, and what actions during the project were a success, and which had more problems. They could then focus more time on the evaluation of specific actions and materials from the project. The meeting was then conducted in the same way as the previous 5 interviewees, where the agenda was followed, and the attendees had a discussion where they presented ideas and actions spontaneously.

5.3.1.4 The structured meetings

Half of the interviewees approached the closing meetings with an open agenda, where the attendees of the meeting decided together what would be discussed. The other half of the attendees had a more planned agenda where different topics and actions had been decided beforehand, and what needed to be discussed and evaluated.

Three of the interviewees explained that they had a similar structure to their meeting as the free meetings. They followed the agenda, and all attendees were free to discuss the topics and actions that were presented. The difference in the meetings is that 3 of the interviewees stated that the person who moderated the meeting, either alone or together with support functions, decides a couple of actions, events, and materials that they wanted to discuss a little extra. Interviewee 2 reported that they had moderated a closing meeting and that they then had a conversation with the supervisor for the project, and that they together made a list of bigger activities that were important for the project. They wanted to discuss the activities and hear the different perspectives and viewpoints of how successful the activity was and if anything should be done differently the next time.

"The review primarily focuses on the major aspects. The KMA team may have had a different perspective, for example, that something was not as successful as one might have thought. Everyone is involved, and the issues are discussed openly during this process." - Interviewee 2

Interviewee 15 explained that when they moderated a closing meeting, they sent out the agenda to all the attendees and then asked them to write down different activities and materials that they considered important to discuss. They explain that the idea of sending out the agenda was similar to having the meeting for themselves to reflect on the questions and come up with relevant activities and ideas. The moderator then compiled the answers from the attendees, and during the meeting, they discussed the different activities that were brought up prior to the meeting, and more in-depth discussed them and shared experiences with each other.

"I compile everything that has been brought up and also document any new points that emerge during the meeting." - Interviewee 15

Interviewee 8 conducted their meetings in a similar order to interviewee 2, but had a different approach to how the activities on the agenda were planned. Interviewee

8 explained that not all blue-collar workers are able to attend the closing meetings, so they had short evaluation meetings after the bigger activities during the project with the supervisor. The moderator for the closing meeting then read the notes from the preparation documents and their evaluation of the project's activities, and chose activities that were to be discussed in the closing meeting, and brought the insights from the blue-collar workers.

"So I think it's pretty important to wrap things up – to have that for each phase, you know. To finish together with the people who worked on that part, because suddenly they might disappear, and then you won't get that feedback in the end. So I think it's important that the closing doesn't just happen at the end, but happens more continuously throughout the project. That you check in: What was good? What was bad? What can we do better?" - Interviewee 8

Interviewee 18 had a different approach for the closing meeting than the rest of the interviewees. Interviewee 18 started to work with the post-project review agenda already in the start of a project, and encouraged all others at the production site to fill in the agenda with activities and insights during the project. When starting to near the closing meeting, interviewee 18 compiled the insights and activities from the document into a PowerPoint. During the closing meeting, interviewee 18 went question by question in the agenda and presented the insights and activities that had been gathered during the year. After the moderator's ideas were presented, the rest of the attendees were allowed to give their feedback and have a discussion about the insights. If any new activities were presented during the meeting, there was a discussion held about them.

"I've written everything from the start, so there is a script in case everyone were to remain completely silent. I'd still be able to present a credible production meeting that covers most aspects, so to speak—at least from my perspective." - Interviewee 18

Another interesting aspect mentioned for the production post project review was the idea of conducting more frequent reviews throughout the production process, as mentioned by interviewee 8. Interviewee 15 also builds on this idea, mentioning how there is a need to conduct reviews when they have completed around 20 to 30 percent of larger tasks, since it can be difficult to remember the important parts of the projects towards the end of them. They emphasise the importance of ensuring that individuals evaluate each phase, and to do so while the experience is still recent and can be recalled.

"Instead, you have them after each phase that has gone either poorly or well, so you know you're doing the right thing, making it a bit more continuous. A kind of closing meeting after each phase rather than after the whole project". - Interview 8

5.3.2 Roles and responsibilities in meetings

To fully understand the processes of the participants in the interview, when it comes to the post-project review, they were asked about the responsibilities of the participants as well as how it is divided amongst them.

5.3.2.1 Design Managers' view on the Roles and responsibilities

All the interviewees gave similar answers to who is present at the closing meetings. The moderator is, according to the interviewees, either a design coordinator or a project manager, and the secretary of the meeting is, in most cases, the same person as the moderator.

Invited to the closing meeting are all the people involved in the design phase and the production management team for the project's production phase. Interviewee 9 stated that invited individuals to the meeting would have the following roles: design engineers, the developer, specialists, support functions, design coordinator, project manager, site manager, supervisors, production engineer, BIM coordinator, environmental/work environment coordinator, and installation leaders. The roles are a mixture of employees from Peab, the developer, and the consultants.

5.3.2.2 Production Managers' view on the Roles and responsibilities

There is no specific role that has the responsibility to be the moderator for the production closing meeting. All the interviewees said that the role is fluent, but that the project manager, the site manager, or the production engineer often takes the role as moderator. According to the interviewees, the moderator often also takes the role of the secretary; only interviewee 1 mentioned that they always appoint someone other than the moderator to be the secretary.

All the interviewees invite the site management team to the closing meeting: the site manager, the supervisors, the production engineer, and the project manager. The interviewees also mentioned that design coordinators, environmental/work environment coordinators, and cost estimators are often invited to the meetings. Eight out of the eleven interviewees from the production phase stated that they also invited blue-collar workers to the closing meeting to get their insights on the project and activities. The interviewees said that for the production closing meetings, they only invite employees from Peab.

5.3.3 Challenges and areas for improvement

To be able to see what areas of improvement there are with relation to the post-project review meetings from the view of the participants of the interview study, they were asked about their opinion regarding the improvements and what hindrances they have experienced related to the meetings.

5.3.3.1 Design Managers' view on the hindrances

Three themes were presented during the interviews with the design team for the biggest hindrance to conducting a closing meeting. The hindrances presented were the time it takes to conduct, the cost of arranging it, and the risk that the attendees do not feel comfortable sharing negative feedback.

All the interviewees mentioned time as a hindrance to the closing meetings. Interviewee 5 explained that the closing meeting is the last thing that happens in the design phase and that many of the consultants have started new projects. They continued saying that there is a risk of low engagement and motivation for the closing meetings because the design engineers are often stressed with new assignments that they want to focus their time and energy on.

Two of the interviewees mentioned that the cost of the meeting is a hindrance. Interviewee 16 said that at the end of a design phase, the budget for the project is often spent, and that not everyone would like to allocate resources towards a closing meeting. They explained that the design engineers often are consultants, and that someone has to pay for the hours the consultants spend in the closing meetings.

"If there are 30 people in a meeting scheduled for two hours, someone has to pay for that time." - Interviewee 16

Two interviewees explained that there is a power imbalance in the meeting, which is a hindrance. Interviewee 10 mentioned that they probably do not get the most truthful evaluations on the meetings. Interviewee 10 explained that because most of the design engineers are consultants and they are dependent on Peab to hire them for more projects, they are not keen on giving negative feedback. Interviewee 16 said that the consultants who were dissatisfied with the process may choose not to attend the meeting and thereby avoid the chance to give and receive feedback. This highlights how important it is to be able to provide anonymous feedback to the design managers, which allows their design consultants to be more detailed and honest regarding feedback.

5.3.3.2 Production Managers' view on the hinderences

One main theme was identified in the interviews with the production team regarding the biggest hindrance to conducting a closing meeting. All interviewees emphasized that the greatest challenge is the need to actively prioritize time for the meeting. Without dedicated time in the schedule, the meeting is often not prioritized in favor of more immediate production tasks.

Interviewee 15 explained that after a project has ended, the production team is often scattered and works on new projects in different parts of their region. They also mention that it can be hard to decide on a place and a time where everyone can meet and take time off from their new projects. Interviewee 14 also mentioned that there can be a lot of time between the end of a project and the closing meeting,

which may lead to the attendees forgetting important insights from the project. However, interviewee 4 stated that the closing meeting has to be carried out after the project is finished. They said that the workload exponentially increases at the end of a project, and that the team does not have the time at the end of the project for evaluations and needs time to recover as well as reflect.

Two of the interviewees mentioned that a hindrance to conducting the meetings was forgetting valuable information, and that the attendees need to be well prepared for the meeting. Interviewee 18 states that it is important that the attendees prepare what they want to discuss during the meeting and that everyone feels secure to open up regarding both the activities that went as planned and those that did not.

5.3.4 Value of the meetings

To understand how valuable the post-project review is, they were asked what they appreciated the most and how valuable they felt the meeting was for themselves as well as Peab.

5.3.4.1 Design Managers' view on what is valuable

Interview responses from the design team highlighted two key perspectives on what participants considered most valuable about closing meetings. Four out of seven interviewees highlighted the opportunity to receive feedback on their performance as project leaders as the most valuable aspect. The remaining three emphasised the social benefits of sharing experiences within the group, describing the meetings as a way to create a sense of closure at the end of the project.

Interviewee 5 explained that they are probably the person who gets the most value from the closing meeting. They said that the answers from the form that are being sent to the attendees are a lot about evaluating the project process and the meetings held by the design manager. The feedback given during the closing meeting is more about how the design team is collaborating and working together than about technical solutions and details. The value of the knowledge shared in the closing meeting is for the design manager to improve their work and the work processes.

"I might be the one who benefits the most from this in my role. I always try to improve between projects—that's really my goal, to get better and better each time. So when I go through the survey responses, I receive really valuable feedback." - Interviewee 5

Interviewee 16 stated that if the documentation from a design post-project review is going to be useful for another project, then they need to discuss the technical solutions in detail. They explained that the meeting needs to discuss, for example, what frame and structure system was chosen, if it was an easy development, and how the structural elements were anchored. There are so many different elements, details, and actions. And all of the design engineers have their own discipline that needs to be explained, with little discussion between the meeting participants, because they

are only knowledgeable in the details of their discipline.

Furthermore, interviewee 3 pointed out that the value of the closing meetings is to get a finality to the project and to meet one last time to see the engagement from everyone involved. Interviewee 7 said that it is important to highlight the team spirit and that everyone has contributed to the project. Interviewee 7 also mentioned that the social aspect of a project is important, as the closing meeting is a fun finish for a project where you can celebrate everyone's achievements.

"It's really about the sense of community, and you're struck by how skilled everyone is in their respective fields. It's truly enjoyable to work with so many knowledgeable people." - Interviewee 7

5.3.4.2 Production Managers' view on what is valuable

The production team described two main types of value in the closing meetings. 6 of the 11 interviewees pointed to the social aspect of the closing meeting, describing the meetings as a space to connect with colleagues and bring a sense of closure to the project. All of the interviewees emphasised the benefit of gathering information and reflecting together as a group, highlighting how the meetings support shared learning within the team. While many found the meetings useful for the immediate team, only a few believed that the outcomes were valuable for the company as a whole.

Interviewee 8 pointed out that the closing meetings are a valuable platform to discuss shared memories and to leave the project with a positive outlook. They said that if the project has been long and hard, it is valuable to bring up the bad experiences and discuss them together and turn them into a positive developmental opportunity. Interviewee 1 stated that they tried to end the closing meetings with an activity after work to further gain a teamwork spirit and positive associations for the workers.

"And then you also get a chance to simply praise people, to lift them up. And then there's also the aspect of raising the knowledge level – that's also very important in the group." – Interviewee 18

All the interviewees stated that the closing meeting is an important process where a lot of knowledge is shared in the group, and that important discussions are held regarding the project. Interviewee 2 said that every closing meeting contributes to their own knowledge bank. Interviewee 11 pointed out that they think it is valuable when they discuss activities and processes that they could have done differently, to further improve future projects. Interviewees 13 and 18 mention the need for a knowledge bank, and interviewee 11 specifically mentions the need for a knowledge bank adapted to the process within production. The idea for this bank is to show images of risks and opportunities. Interview 14 argues for the same thing with a knowledge bank, but with the inclusion of making it easy to contact the person who uploaded the recommendation to avoid having to search through files, and instead

can give them a call. To build on that point, the importance of information being easily accessible is mentioned by 10 out of the 18 interviewees. They highlight how important it is to be able to access information, and that it is, in current practice, difficult to do so, because there is no centralised place to search for information.

"You quite quickly benefit from it quite quickly in the next project, since you're often in the startup phase when you have this meeting. You go through how things went, and you get some useful tips and tricks for the next project – what to adjust and what to do a bit better next time." – Interviewee 15

Interviewee 1 points out that the closing meetings culminate in a lot of valuable information, but that the information is not distributed to anyone outside the meeting attendees. Interviewee 1 explains that since the information is not distributed, and some of the attendees do not see the value of writing down the information. Interviewee 6 however, states that Peab is a large company, and that it is disadvantageous not to collect and distribute as much knowledge as possible. Interviewee 8 continues the reasoning by explaining that the knowledge gathered during the closing meetings is hard to distribute to the whole organisation in Peab, but that the company benefits from the attendees using the gathered experiences for the next project they are a part of.

5.3.5 Evaluation of the post-project review agenda

To fully understand the current practices at Peab with regard to the post-project review that being both the positive and the negative, the participants were asked to evaluate their current practices, such as the template that is used for the meetings.

5.3.5.1 Design Managers' view on the agenda

Interviewee 3 mentioned that it is difficult to maintain an open conversation at the meetings and that it is therefore important to have an understanding of why the meeting is being held and what Peab would like to gain from the questions in the post-project review agenda. All questions need to be thoroughly thought out and given with an explanation of why the question is important and what the answers are going to be used for. Interviewee 10 agrees with interviewee 3 and said that the meeting is not resulting in so much feedback, because the agenda is based on that the meeting attendees feel comfortable to speak freely and share their opinions and experiences.

Interviewee 10 explained that the most valuable feedback is given by the forms before the meeting. In the forms the project members can answer anonymously and give well thought out answers and share their experiences. Interviewee 10 would like the form to handle questions regarding how the design process has worked, what their perception of the process is and how the actions and tools used have worked. Interviewee 12 want the closing meeting to focus on what improvement potential the design process has for the next project and what in the process they should keep. They mentioned that the importance of the meeting is to do a retrospective exercise

of the design process. A retrospective exercise entails answering the questions: what went well, what should they not do again, what needs to be improved, and what should they start doing.

Interviewee 5 pointed out one more theme that the interviewees thought was important to discuss during the post-project review. Interviewee 5 said that during the meeting, they identified and discussed risks and opportunities that the production team may encounter during the production phase. They explained that when the project is handed over from the design team to the production team, there is a knowledge gap, and it is therefore important to discuss all risks, compile them, and inform the people in the production team to minimise this knowledge gap.

5.3.5.2 Production Managers' view on the agenda

The interviewees from the production team have a common view on the agenda that it contains important questions and themes, but that it is long, and the meeting takes a long time. Interviewee 17 said that there are so many questions that the group loses focus, and that when they reach the important questions, the energy is low in the group. Interviewee 6 agreed that there are too many questions in the post-project review agenda, so they constructed their agenda for the meeting and only used the questions they thought were the most important to discuss.

All the interviewees thought the most important questions on the agenda were the evaluation questions about activities and method choices. Interviewee 1 said that the discussions often focus on a few activities and materials where they discuss the choice, the outcome of the choice, and whether it was a good choice or if they should have done it in another way. Interviewee 4 further explains that they want to discuss the materials and products used, to have a focus on important elements that have a lot of alternatives. Interviewee 4 had an example where they wanted to discuss a specific panel that was used for a big building. The panel was of low quality, and they had to send it back, so for the next project, it is important not to use it again, since it prolonged the building time.

Interviewee 4 also said that they think it is important to discuss the design documents. To discuss if they could carry through all the elements as the design engineers had planned and if all the documents had a high quality so that everything was understood by the production team. Interviewee 1 explained that it is interesting to evaluate the technical solutions that the design engineers have chosen and how difficult they were to implement, and if there was another option where they would have saved resources.

"Roofs can sometimes become quite complicated – sometimes they'd rather design something overly complex. And a complicated roof is easy to build incorrectly, so it can lead to some discussions around that." – Interviewee 1

5.3.6 Quality and use of documentation

To understand how the documentation of the post-project review was used, the interviewees were asked to describe the note-taking process.

A point mentioned for both Design and Production when it comes to the use of the documentation is a suggestion to create summaries of what occurred in the project, as mentioned by four interviewees, they believe that the summaries would be valuable for the next project that they are going to take part in. These summaries of projects would also serve to distribute valuable insights to other parts of the organisations that would previously not have had access to them.

To improve the documentation process, the motivation to actually provide useful documentation during the post-project review comes down to what interviewee 4 mentions regarding how there needs to be clear that there is a clear receiver of the information that they produce during the post-project reviews to motivate them to share. Another crucial aspect of this is having dedicated and motivated individuals who would like to learn and develop their own knowledge. As interviewee 10 describes when individuals have the opportunity to learn from others, they are themselves more motivated to share their knowledge.

“Clarify my feedback from experience in a better way, because then I know that if I do it, there is someone on the other end who receives it”. - Interviewee 4.

5.3.6.1 Design Managers view the documentation

All interviewees stated that the notes taken during the closing meetings are usually limited to short sentences or keywords. As a result, they believed that the documentation is often difficult for others outside the meeting to interpret or make use of. According to the interviewees, the notes primarily serve as personal reminders rather than structured information meant for others in Peab.

Interviewee 10 stated that since there is no effective way to spread the information from the meetings to other parts of the organisation, little effort has been put into the notetaking. However, they continued to say that if there was an easier way to distribute the information, more time and effort would be put into writing more understandable notes. Interviewee 12 said that the meetings are held to create valuable knowledge, but that the meetings are not held in the most effective way. They said that in Dalux, there is stored a lot more information that would be useful.

Interviewee 10 also said that the most valuable knowledge for the next design team is the knowledge from the production post-project review. They explained that it is only after the building is finished that they know what solutions worked and what solutions need to be altered for the next project.

“The feedback goes back to the design phase, but... I mean, it comes two, three, even four years after the design is finished. That’s when we find out whether we chose

the right solutions." – Interviewee 10

5.3.6.2 Production Managers view the documentation

All interviewees from the production team agreed that the notes from the closing meetings are generally brief, often consisting of short sentences or keywords. However, unlike the design team, several interviewees believed that the content could be useful to others in the company, provided that the notes are written more descriptively. According to them, with slightly more context, the documentation could support knowledge sharing beyond the individuals who participated in the meeting.

"If you want, I can show what I did last time – you'll see how poor the quality can be. We built a small wooden fire station in Grums, and the structural assembly was highlighted as very successful. But when you read the notes – 'assembly quick, airtight house, lightweight elements good' – it's hard to understand if you don't already know the context." – Interviewee 4

Interviewee 2 said that the documentation from the closing meetings is of varying quality, but that it contains useful information. They explained that when a new project starts, it is interesting to know what risks they need to look out for in both the design phase and the production phase. Interviewee 2 said that this information is possible to gather from looking at the notes from post-project reviews and from work preparations that are written and evaluated during the project.

Interviewee 8 stated that the notes from the meetings can be used as a check if there is something that has been extra good or bad in a previous project. They said that if the documentation is not thorough enough to understand exactly how the process worked, then the person looking for the information can contact the old project team to get more information. Interviewee 11 agrees with this idea as they mention how no one has to know everything, they have to dare to pick up the phone and call and ask for more information.

5.4 The view on AI

This chapter brings up how AI is viewed by the participants within the interview study to further understand their opinion of the topic. This chapter does not contain specific topics but instead focuses on the overall view of AI amongst Design and Production. The participants were asked about how they use AI, the benefits as well as drawbacks of using it, and if they are open to incorporating more AI in the future.

The comfort with using AI was overall moderate among the interviewees for the design group. Five out of seven interviewees answered that they use AI tools such as ChatGPT and Microsoft CoPilot. The comfort with AI for the interviewees in the production group was generally low. 3 out of 11 interviewees expressed that they are comfortable and use AI actively in their work and free time. 4 out of the 18 interviewees had never actively used an AI tool.

“I’m aware that when I’m online and doing those kinds of things, it might be there, and when you click some button, it might activate without you realizing it — but I don’t use any of those AI tools.” - Interviewee 18

The Advantages of AI that were mentioned in the interviews were mostly connected to writing formal texts and meeting notes. Interviewee 9 talked about how AI tools can be used for translating texts and writing grammatically correct texts in a language where the person is less skilled. AI can also be used for capturing information where the person is less skilled in the field, Interviewee 7 said that AI could be used to take meeting notes and write down information that the secretary might not understand and therefore not note down. AI can help streamline their tasks. Interviewee 17 mentioned that they put a lot of time into finding answers to the questions and finding solutions to production problems. They said that AI can help with searching for information and save a lot of time. Most of the interviewees mentioned that AI would help them find information and inspiration on how to solve problems.

Interviewee 6 mentions the tender offer process and that the new Peab AI assistant for tender creations helps to create tender offers in a shorter time. The assistant finds old Peab tender offers and gives the user ideas of how old texts and solutions can be used in new projects. Interviewee 3 said that the AI assistant makes the tender offer process shorter by presenting ideas that can be used.

Interviewee 10 stated that you can ask a chatbot a vague question about what you are looking for, and with the information presented, you can get more specific when you understand what you are looking for, and the chatbot helps to answer the questions. The chatbot can also help with finding the correct information by summarizing reports and texts. Interviewee 12 had the idea that AI can streamline work by summarizing reports and people can find what they are looking for in reports faster. Interviewee 9 also stated that the summarized information is easier to share with a group of people who only need to read the most important parts of the report.

This means removing the heavy reliance on the individuals who would otherwise have been taking the notes for the meeting and allowing all participants to fully focus on the conversations that are taking place. Two other use cases that were mentioned were the use of AI to generate post-project review agendas, as previously mentioned, and to use AI to sort through information and make previously accessible documents searchable, as described by interviewee 14.

"You get ten documents, then you're supposed to sit and read through ten documents and try to find what fits best. Yeah, or we just simply throw it into the AI and have it read all the documents. Then we just ask the question: how do I best build that wall based on these experiences that I have by doing it like this, and then you get the answer. - Interviewee 14

All interviewees stated the same concern and disadvantages with AI. The interviewees expressed concern about trust issues for AI. Interviewee 16 mentioned that when they had tested an AI chatbot on a topic on which they were an expert, they found that the AI had given an incorrect answer or that some parts of the response were incorrect. Interviewee 12 expressed concern that they do not know where AI finds the presented information or whether it is true. Interviewee 9 said that you cannot copy and paste the answers from an AI chatbot.

“It’s still not developed enough to fully trust all the information it provides, and you need to double-check it.” – Interviewee 9

Interviewee 10 had the concern that when Peab develops their own AI assistant, they use their own data, and a disadvantage with that AI assistant is that the information from the AI is only as good as the information that is put into training the AI. The interviewee said that if the information from an employee at Peab is wrong, then the information given by the AI assistant will be wrong. However, they also said that with more information put in the assistant, the AI will have more information to analyse, and the answer will be more trustworthy. Interviewee 14 said that a person with a lot of experience in the field can use the responses from AI and choose what answers are relevant for them, but that new employees may find it harder to detect false information from AI. Interviewee 4 said that if AI replaces the employees’ own thoughts and experiences, they will never be able to build the buildings, that there are still people that has to implement the solutions. Interviewee 6 says that the context for a solution is very important and that an AI tool can propose a solution to a problem from an earlier project that might not be able to be implemented in the new project.

“So that you don’t just assume that ‘this is how it can be done,’ when it might have been an industrial project and now it’s a residential one. The requirements and so on can be very different for different types of products, so it’s important to critically assess the information you get and see whether it’s actually applicable.” – Interviewee 6

The interviewees mostly agreed on their thoughts on the future use of AI in Peab. Only 2 out of the 18 interviewees see no meaning in using AI in their work. They do not understand how the tools can be useful in their assignments and how they work today.

“No, I don’t have any need for it in production. I don’t see how it could help me — it doesn’t actually build a house.” - Interviewee 11

9 out of the 18 interviewees, however, are very positive about the more use of AI. They collectively think AI will be used more in their work and are excited for the progress of AI. 7 out of the 18 interviewees are still positive about using more AI in their work, but they are a bit more cautious about the development and have some more concerns.

*"But of course, I'm curious about how it could help me if I had a bit more knowledge."
– Interviewee 5*

5.4.1 Recorded audio

The topic of recording audio from the meetings was identified before the interviews, identified as a area of improvement, but to investigate the possibility of implementation, participants were asked about their opinion of it and how it may affect their post-project review meetings.

Both the design and production teams sees recording audio as something that might restrict people during the post-project reviews. This is related to the fact that most individuals do not feel comfortable with the idea of having themselves recorded. Interviewees mentioned that they might fear the fact that what they mentioned during the meeting could be used against them in the future. They therefore thought people will think a lot more before they share their opinions. But with the expectation to this being if it is motivated, why the meetings are being recorded. Thereby if there is a purpose for the meeting, such as to create summaries of what was said during the meeting for the person responsible for the meeting. Another way to get around this would be to clearly ask for permission to record the meeting and thereby state a clear purpose for what it is being done. Doing that would make all interviewees feel positive towards it and allow the meeting to be recorded, according to interviewee 10. Another aspect that would make meeting participants more positive towards recording the meeting would be to ensured that the participants of the meetings are going to be kept anonymous. Five interviewees were specifically positive towards the idea of anonymous answers since it might make some participants more comfortable and still keep the discussions open despite them being recorded. At the same time interviewees 5,7 and 10 mentioned how they believe that most individuals, after a while not think about the fact that they are being recorded and thereby will just disregard the fact that it is happening and that it will not affect them.

6

Analysis and Recommendations

This chapter builds on the material presented in the previous chapters: the context of this study and the results. The following discussion focuses on the purpose of the post-project reviews and the use of AI, and how it may further develop the subject of knowledge management. Where possibilities for the implementation of AI tools exist, and where there is still a need for individuals. The discussion is centered around the knowledge management framework brought up in the literature study, with a focus on the SECI model and Knowledge management life cycle. The discussion also includes an overview of the purpose of the meetings are being held to be able to understand what parts could be made more efficient with the use of AI.

6.1 The purpose of post-project review

To understand what parts can or cannot be improved by using AI, it is necessary to understand the purpose of the post-project reviews and why they are important for the individuals involved and for Peab as an organization. This chapter discusses the points made during the interview study and compares them with the framework discussed in the literature study.

As stated in the interviews at Peab they work with knowledge sharing through word of mouth, and when a new project group is established, they combine and share their knowledge. In the literature, it is stated that the outcome of a project is the combination of the project members' knowledge, and when a team member leaves the project, their knowledge leaves with them (D. Stenholm et.al, 2014).

The interviews showed that there is no collected bank of knowledge for Peab and that many mistakes happen time after time again in similar projects. These observations were also discussed in the literature by Stenholm. Stenholm stated that when knowledge is lost, mistakes tend to be repeated and often lead to people needlessly doing work that has already been done, commonly referred to as 'reinventing the wheel' (D. Stenholm et al., 2014). The interviewees all agreed that they found it useful to access the experiences of others to prevent making mistakes and identify risks. 5 of the 11 interviewees mentioned a need to collect knowledge from the projects and to build a shared knowledge bank.

Stenholm (2014) has created a knowledge management life cycle from the individ-

ual's point of view in a project-based organization. The first part of the life cycle is acquisition, where individuals realize they have inadequate knowledge on a topic and that they need to search for new information (D. Stenholm et.al., 2014). In Stenholm's life cycle model, the individual turns to a platform for organizational knowledge; according to the interviews, no such platform is available at Peab. Instead, the interviewees search for colleagues they can call and ask questions to or search on the Internet for similar problems. Here, Peab does not have adequate organizational knowledge of shared explicit knowledge, they do not value and share the created knowledge (Koskinen and Ajmal, 2008).

In the next step of the life cycle model, knowledge is created if the individual finds the information they sought, and the individual decides if the knowledge is valuable to share with the rest of the organization (D. Stenholm et al., 2014). The knowledge is then refined and turned from tacit to explicit knowledge. The last step is to share the explicit knowledge with the organizational knowledge platform so that everyone in the organization has access to the information (D. Stenholm et al., 2014).

According to the model from Stenholm, the individual's need for acquiring new information and the problem with meeting a task that the individual is not able to solve with their knowledge decide what information needs to be gathered for the organizational knowledge platform. Peab does not have an organizational knowledge platform at this moment, as seen in Figure 10, their knowledge lifecycle is broken. Peab relies on individuals to share tacit knowledge with their colleagues as a way to spread knowledge. To create an organizational knowledge platform, the first step, according to the Stenholm (2014) model, is to detect what knowledge gap exists in the organization and what information the individuals at Peab are asking for.

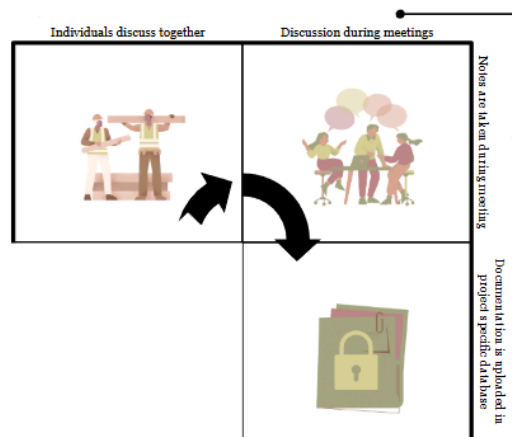


Figure 10: Peab's broken Knowledge Life Cycle

During the interviews, questions regarding what kind of information the interviewees searched for in their work and how others' experiences could help them were asked. All the interviewees brought up that they search for information about production-specific actions, materials, and technical solutions. They wanted some tips and

solutions on how to solve issues they faced during the design or production time. They also wanted to get information about the risks and previous problems with the specific actions, materials, and technical solutions that were presented. The interviewees said that they would benefit from hearing about the experiences of their colleagues on these topics. Interviewee 15 said that the production time is often several years, and it can be a long time between them completing a certain type of activity, and that they then need to refresh their knowledge. All interviewees thought that experiences from other colleagues and projects would help them to make more well-thought-out decisions, save time and money by choosing a solution that others had made successful, and avoid choosing solutions that others had found ineffective.

Zedtwitz (2002) states that a way to examine the lessons learned in a project and to analyze how they can be used in future projects is by conducting Post-Project reviews. Peab started introducing closing meetings and post-project reviews in the 1990s, and their purpose of these meetings is to give the project team a sense of closure before the next project and to gather experiences from different disciplines in the projects (Peab, 2025). The purpose of the meetings given by Peab is the same as what the interviewees said they valued most about the meetings.

The purpose of the meeting for the design and production closing meeting was the same; however, a difference was observed between the design closing meetings and the production closing meetings. Both groups of interviewees valued the social benefits of meeting the individuals involved in the project and the feeling of closure, but when it came to the information gathered from the meetings, the value and purpose of the knowledge differed. In the closing meetings for the design team, the process of the design phase and collaboration were evaluated, but for the production team, the project, actions, material, and specific technical solutions were evaluated. The design team consisted mainly of design managers and project managers who appreciated the direct feedback they received on their leadership, work routines, and meeting styles from the post-project review. The production team consisted of site managers, project managers, and supervisors who appreciated that they got feedback on choices of activities, materials, approaches, and technical solutions that were used during the project. There seems to be a discrepancy between what Peab sees as the purpose of the post-project review meeting and what the managers believe it to be.

6.1.1 Design Post-Project Review Valued Discussions

The design team agreed that during the design phase, they sought information by talking to the production site managers, asking questions to experts and the Peab help functions, and calling colleagues who had encountered similar problems. They appreciated field trips to look at similar projects in production, or finished projects, and sought inspiration on social media. The information that these sources of knowledge have is mostly about different technical solutions, materials, and designs. The information that the design interviewees are looking for in their daily work and the

information they are gathering in the closing meetings is not in line.

The topics that the design interviewees appreciated discussing during the closing meetings are retrospective questions about the design process, how the design manager has coordinated the work, and how the collaboration has worked with the different disciplines and with Peab. The interviewees also appreciated discussing what kind of risks the designs have and how the chosen technical solutions will affect the production team that will work with the design documents.

The finished product from the design closing meetings is that the design manager gets an evaluation of their work, and their knowledge will be improved for their next project. Interviewee 5 said during the interview that the design managers are probably the ones who get the most value from the closing meetings. The closing meeting also contributes to information for the production team about the project, what risks they need to think about extra during the production, and which design engineer they can ask additional questions to.

The interviewees gave several answers to why they thought it was hard to get valuable information from the design engineers. Interviewee 16 mentioned that there is a legal implication for design engineers to share their technical solutions. They said that according to the law, the person who proposes a solution is legally responsible for the finished product. Interviewee 16 explained that most design engineers can give vague ideas and give a direction, but that they do not want to give a solution to anyone else, even though they know it works, because they do not want to be legally liable.

The interviews showed that another reason why technical evaluations are hard to conduct during the design post-project review is that all the design engineers have their own expert discipline and that they have little to evaluate together. If a technical solution should be evaluated, they need to go into detail about what the solution is, how it works, how it affects the other disciplines, and then evaluate how easy it was to work with. The evaluation meeting would become more of a presentation of the problems that the different design engineers had encountered and their solutions, with very little discussion, according to interviewee 16.

Interviewee 10 mentioned another problem as to why it is hard to have post-project reviews in the design phase. The interviews made it visible that there is a power imbalance during the design closing meetings between the consultants who are hired for specific projects and Peab, who hire them. Consultants often are not honest and do not want to share negative feedback and discuss mistakes because they want to give a good impression, so they are hired for the next Peab project. This is a problem, according to Zedwitz (2002) where one of the requirements is to accept that mistakes happen in projects, and they need to be discussed in the post-project review. Interviewee 3 stated that it is difficult to maintain an open discussion in closing meetings and that it is very important to describe why feedback is important and the value they receive from each question during the meeting.

During the interviews, many of the interviewees put a lot of emphasis on the forms being a good complement to the closing meetings. When design engineers filled out the form before the meeting, they could give well-thought-out answers about their experience, and if the form is digital, consultants can give honest feedback anonymously. With anonymous forms, consultants can give negative feedback without risk of being pointed out and risk of missing the next project that Peab has. However, the interviews showed that the most valuable knowledge for the design team is the information they get from the production post-project reviews. They explained that they do not know how their technical solutions will work in the production phase until production is finished. It is just after the whole project is done that the design engineers can see what worked and what of their work needs to be altered or different for their next project.

6.1.2 Production Post-Project Review Valued discussions

The interviewees from the production team mentioned that most of their questions were about the choices of activities, materials, approaches, and technical solutions. When asked questions about what they valued most with the closing meetings, most of the interviewees from the production team strengthened the claim that the answers about specific actions, materials, and technical solutions were what they appreciated taking with them from the meetings. All interviewees said that the most important topics discussed during the closing meetings were when they evaluated activities that had gone particularly well or the ones that had been more difficult, and when they evaluated specifications around materials that they had not used earlier. One of the interviewees mentioned that the post-project review agenda is too long and that he has chosen to only evaluate the activities and materials at their closing meetings.

In contrast to the design team, production wanted to discuss both successes and mistakes, and they wanted to share thoughts about different technical solutions and materials. A difference between the teams is that in the design closing meeting, there are attendees from several different companies, but in the production closing meeting, there are only Peab employees. Since there are only Peab employees at the production closing meeting, they can share technical solutions without the implication of legal liability. Everyone in the production closing meeting is employed at Peab, so the legal liability does not shift between the people proposing solutions, and instead, they try to find the best solution together.

It was also important that the interviewees evaluated and discussed the design documents provided by the design team. The interviewees from the production team did not always find the design documents to be enough, and by evaluating the documents, the production team can send feedback back to the design team and influence how they work with the next project.

6.2 How to Conduct a Post-Project Review

According to Zedtwitz (2002), many different opinions, ideas, and new knowledge have been generated through a project, and to harvest these thoughts, incorporating post-project reviews is presented. The main idea of the meeting is to make sure that everyone in the project has access to the same knowledge, so everyone must attend and share their knowledge (Zedtwitz, 2002). For the post-project review to be as effective as possible and for the knowledge to reach as many in the organization as possible, Zedtwitz (2002) has made a framework to analyze how willing an organization is to conduct and use post-project reviews. The framework is made up of 5 levels, and to be on level 5, the organization needs to achieve 10 different requirements.

To understand the requirements from Zedtwitz (2002) and how to organize a well-functioning post-project review, Laoyan (2024) has proposed 6 steps that need to be completed. The first step is to have the closing meeting a few days after the project is concluded. The second step is to identify major topics ahead of the meeting and prepare for discussions. The third step is to send out the agenda to everyone invited to the meeting, and the fourth step is to appoint two persons who are responsible during the meeting, one moderator and one secretary. The fifth step is to give the moderator training courses and guidelines on how to moderate discussions and how to ask open-ended questions. The final step is to create a summary of the meeting and send it to all attendees. In the next two chapters, the post-project reviews at Peab will be compared with Laoyan (2024) and result in recommendations to Peab of how they can improve their post-project reviews and how to mend the knowledge life cycle. By following the presented recommendations, the knowledge lifecycle will work as presented in Figure 11.

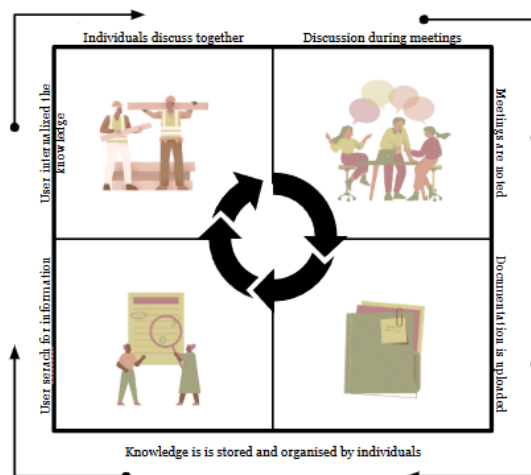


Figure 11: Repaired Knowledge Life Cycle

6.2.1 Design Post-Project Review Implementation

At the design closing meeting, everyone who has been involved in the design process is invited, and some of the people who will take the design documents and continue the production phase of the project. According to the interviewees, the attendees consist of consultants from different design engineering companies, developers' personnel, and Peab's production personnel.

The meeting is held at the end of the design phase, right after it is finished or when little is left to do. The design team follows the recommendation in Step 1 from Laoyan (2024) that the post-project review should be held within a few days of project closure.

Step 2 of the Laoyan recommendations is that major topics should be identified before the meeting, and a presented example is to send a form to attendees. The design interviewees have described that a form is sent out before the closure meeting, where attendees can evaluate the design process and give comments and opinions anonymously. The information from the forms is combined into a presentation that is used to discuss the different points.

The interviewees stated that the discussions are better if the attendees come prepared for the meeting. Some of the interviewees were sent the agenda that they wanted all of the design engineers to bring with them risks for the production that they had found in their designs, so that all risks could be discussed in the meeting. The answers from the interviewees align with Laoyan, who explained that before the meeting is held, the agenda should be sent out to all attendees (Laoyan, 2024).

Step 4 in the framework of Laoyan is to give two people in the meeting the responsibility as moderator and secretary. According to the interviews, the moderator for the design closing meeting was often the design manager or the project manager, and the secretary was often the same person. To follow the framework, the moderator should give the secretary role to someone else in the meeting who can concentrate on taking notes, and the interviewee's answers align with Laoyan that it would be beneficial to give someone else the secretary role.

When the moderator is appointed, Laoyan (2024) recommends that the moderator be trained and given instructions on their mandate and how to lead the discussions. The interviewees pointed out that it was difficult to moderate the design closing meetings and that it was difficult to get the attendees to open up and have good discussions. Hamilton (2016) states that workshops need a clear objective so that participants understand why they should contribute to the discussion. Hamilton (2016) also mentions that the workshop needs to be built around the attendees' ideas to make them engage and encourage each other to share their ideas and opinions. Since the Design team had several different ways to conduct a Post-project review, a standard Post-project review should be created, as seen in Figure 12. By creating a standard meeting, Peab can ensure that all moderators conduct the same questions and exercises.

6. Analysis and Recommendations

Post-Project Review Design	Standard Form	Own Form	Compiled Form Answers	Moderator	Agenda	Exercises	Presentation to Production	Assigned Secretary
Standard Meeting	X		X	X	X	X		X

Figure 12: Standard version of Design Post-Project Review

Interviewee 12 mentions an exercise that they do in their closing meetings, which is called a retrospective exercise. In the retrospective exercise, participants can evaluate the design process through the lens of four questions. The exercise is possible to do in groups on paper and post-its or in break rooms and digital post-its. If the people from Peab and the developer had their own group and the consultants their own groups, you could make the feedback more anonymous and bridge the power imbalance that hinders this kind of feedback.

Another exercise that was mentioned by the interviewees was to establish a timeline with the project's risks. Interviewee 9 asked design engineers to take with them three activity-specific risks and three project risks that they could find in their designs. Interviewee 9 then put up a big paper with a production timeline in the room where everyone had to place their risks where the production needed to think about it a bit more and explain to the other attendees about the risk, and a discussion was had about how the risk could be met and if the project had any more similar risks by the other disciplines. In the end, interviewee 9 noted all the risks and put together a risk observation report and gave it to the site manager for the production phase of the project.

The final step in the Laoyan (2024) framework is to make a summary of the most valuable insights from the meeting and share them with all attendees. From listening to the interviewees and their insights on who the information is valuable for, two summary reports are recommended from the design closing meetings: a risk summary and a design process evaluation summary. The interviewees stated that the important result of the closing meetings is to identify the risks and opportunities of the project. A summary of the risk discussions needs to be documented and distributed to the production team so they know where to have an extra look out, and for the design engineers to know what technical solutions have risks and to see if they can improve them for their next project. The documentation on potential risks for technical solutions can be valuable for other design engineers and production personnel who work with similar solutions.

The interviewees explained that feedback on the design process is probably only valuable to the design manager, and the biggest focus should be on giving the design manager information on how to improve their performance. The evaluation of the design manager's process can be hard for others to read since it is more of a score evaluation of how good the design manager did their work and if that specific design manager's process worked well or not. For the design managers in Peab to share their knowledge and discuss process ideas. Interviewee 5 mentioned that they wanted a network for all design managers in Peab to discuss ideas, ask for help, and

share experiences.

6.2.2 Production Post-Project Review Implementation

At the production closing meetings, the site management team and their support functions and managers are invited to attend. Most of the interviewees also answered that they invite the project's blue-collar workers. To follow the advice from Zedwitz (2002) that all individuals have new knowledge from projects, it should be standard procedure to invite blue-collar workers to the post-project review to harness as much knowledge as possible.

The first step in the theory from Laoyan (2024) is to have the meeting a few days after the project is finished, and here the interviewees have a lot of different answers. The interviewees all agreed that the biggest hindrance to the closing meetings is finding the time to conduct the meeting and that it often is not prioritized because other tasks feel more important. The idea that the meeting should be a couple of days after the end of the project is seen as a problem by interviewee 15, who said that the project team needs a longer time to relax and reflect after the stressful last weeks of the project. A bit more time than Laoyan (2024) recommends may be needed, but the meeting should be held in the near future of the project's end.

The case study discovered that there were two distinct differences in the way the interviewees conducted their post-project reviews. Half of the interviewees had a meeting without planned action points where they had headline, questions from the agenda that they followed, but the meeting attendees took up what topics they wanted to discuss under each headline. The other half of the interviewees had prepared post-project reviews where they had predecided a couple of topics at each headline that they wanted to be discussed and evaluated. The prepared interviewees had a few different methods for how they prepared the evaluations, but the essence of their preparations was to look at the project and choose activities, materials, methods and techniques that had stood out in the project. The topics were often more advanced activities that had gone extra well or more difficult assignments that needed to be evaluated and discussed an extra time so that everyone in the project could take the knowledge and improve it the next time.

Laoyan (2024) stated that the second step in conducting an effective post-project review is to identify major topics before the meeting. Preparing the post-project reviews is also a requirement for level 3 in the framework of Zedwitz (2002). It is recommended that the meeting moderator choose a couple of topics that are extra important to be discussed during the evaluation to get relevant information from the review. Laoyan (2024) recommends asking meeting attendees to send in topics ahead of the meeting, which was also described by interviewee 15. From the interviews, it is brought up that preparations can be made by looking through the preparation documents for each activity in the project and its evaluations. The interviewees also brought up ideas to write down special activities in a list during the project or to discuss with a couple of people from the site management what

the most distinctive activities have been.

The agenda needs to be sent out before the post-project review was brought up during the interviews. Interviewee 18 especially said that it is a hindrance for the evaluations if the attendees do not show up prepared for the meeting and that everyone had reflected beforehand on what activities they had learned important knowledge from. The third step in the theory by Laoyan (2024) is that the agenda for the closing meeting needs to be sent out ahead of time to the participants.

The production team has no appointed person who is responsible for closing meetings. The interviews gave examples of different people and roles that take responsibility for hosting the meeting. However, all interviewees except one said that the same person who moderated the meeting also took the meeting notes. To follow the fourth step of Laoyan (2024), the team should appoint one person to moderate the meeting and another person at the meeting to take the meeting notes. There must be two people so that the moderator can direct the discussion to make sure it is relevant to the topics. The note-taker can then concentrate on taking notes of important findings (Laoyan, 2024). In the result chapter, it is clear that it has been a problem for the moderator to also take notes. The notes are described as short meanings and keywords that are hard for others to read and understand by almost all interviewees.

Laoyan (2024) states that the moderator of the meeting needs a clear mandate to guide the discussion. Pamela Hamilton (2016) reinforces Laoyan's statement that a workshop needs a well-structured agenda and a clear leader who guides the discussions. The interviewees mentioned that a visual aid, such as a PowerPoint, can be used to guide the meeting discussions. Since all interviewees had different roles that took the moderator role in the closing meetings, and there could be different roles in the next project, a clear structure for who is responsible for the closing meetings should be established. It would also be beneficial for the decided moderator role to have a course in how the moderator role and meetings can be structured and work, seeing as the interviewees had all different ways to conduct the closing meetings today. A new standard meeting, as seen in Figure 13, needs to be created.

Post-Project Review Production	Moderator	Standard Agenda	Evaluate Positive & Negative Solutions	Pre planned Solutions	Suggestions to Pre Planned Solutions	Power Point	Assigned Secretary
Standard Meeting	X	X	X	X	X	X	X

Figure 13: Standard version of Production Post-Project Review

Hamilton (2016) describes that workshops need a clear objective to ensure that all participants understand the purpose of the meeting. The same rule applies to notetaking of the meeting, as seen in the interviews. Interviewee 10 said that the notes are short and often almost nonexistent from the meetings because they have no effective way to spread the information. Interviewee 10 also said, though, that if the notes from the meeting have value for Peab and are distributed to other col-

leagues, more time and effort will be motivated to put into the note-taking process. The last step for Laoyan (2024) in conducting an effective post-project review is to write a summary of the meeting and distribute the notes of the valuable insights to all affected by the learnings from the project. Today, sharing notes is difficult in the Peab organization and a shared organizational knowledge database needs to be created.

6.3 Enhancing Knowledge Management with AI: A SECI Model Perspective

As established by Nonaka and Takeuchi (1995), the SECI model can be used to explain the distribution and sharing of knowledge that occurs within an organization. To start to understand how AI can or cannot be implemented to make the knowledge sharing process more efficient, the framework is used to understand the perspective of knowledge management. The main focus of the discussion around the framework will be on understanding where the post-project reviews fit into the SECI framework.

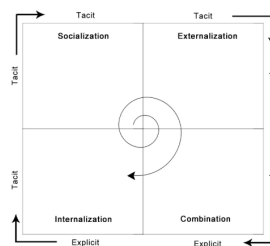


Figure 14: SECI model

Each of the four areas of the SECI model, as seen in Figure 14, will be addressed, as well as the process of moving between them to find the appropriate areas for which AI can be implemented to make the process more efficient. There is a higher chance for the implementation of AI inside Externalization, Combination and Internalization, which is why these stages are brought up first, and then Socialization will be addressed. To fully understand the implementation, there is a need to understand the organization's view of AI. Despite the fact that the pool of interviewees does not represent everyone in the organization, their responses and views will still provide an understanding of how the user might feel about interacting with AI.

6.3.1 Interviewees view on AI

The integration of AI into existing processes is supported by interviews, which revealed a clear consensus on its benefits. Participants expressed a generally positive attitude toward the adoption of AI into their work processes, with Design managers seeing more opportunities for implementation. It was clear from the interviews that most individuals have tried some of the available AI services, that being, ChatGPT, Microsoft CoPilot or PeabGPT.

One thing that stands in the way is the organization's understanding of AI, since several interviewees mentioned that they are missing an understanding of the technology and how it might help them. In most cases, they do not understand how AI could be used by them and need education related to the topic. This could stand as a hindrance to the implementation of AI services within the Peab organization. Interviewees also mentioned how they have a concern regarding how much they can trust AI and rely on it to provide accurate answers, since, as was mentioned in the interviews, AI will only be as good as the information provided.

In general, there seems to be a need for educational tools that can be used to highlight the benefits of using the AI services available in the Peab organization. If these educational tools were to be implemented, then it would allow individuals to easily transition to using AI services.

6.3.2 Externalisation: Post Project Reviews

Starting with the Externalization process, which is where knowledge is written down, recorded, and turned into explicit knowledge (Nonaka and Takeuchi, 1995). In the case for Peab that process is the time leading up to the post-project review, as well as when the actual meeting occurs, as seen in Figure 15.

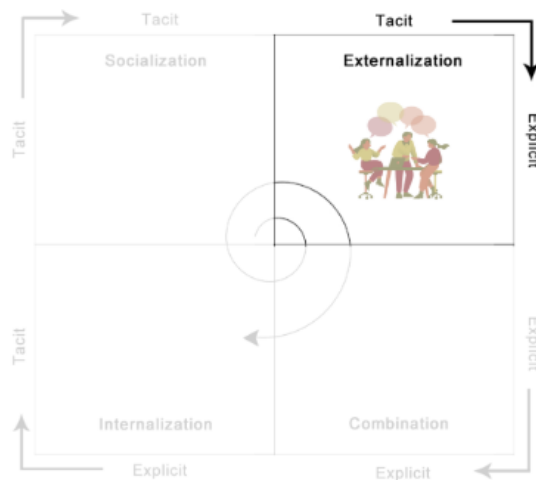


Figure 15: Externalisation in the SECI model

6.3.2.1 Ahead of the meeting

Currently, there are some different ways of conducting the period leading up to the actual post-project review for both Design and Production teams, as has been mentioned previously regarding the procedures for a post-project review.

For both the Design and Production teams, there seems to be a need to read through and interpret older meeting protocols to generate recommendations for what meeting points should be brought up during the post-project review. This was brought up in

the interviews, where it was explained that there is a need to tailor the agenda for the post-project reviews to the specific project context, considering the variations that exist between projects, each with their own distinct challenges and conditions. There is no specific tool that might effectively solve this issue but it may be resolved by making use of any of the AI tools permitted within Peab that being Copilot or the Peabgpt. For both the Design and Production teams, this could be used to read through and interpret older meeting protocols to generate recommendations for what meeting points should be brought up during the post-project review. Since the design teams uses forms to gather answers and opinions regarding the processes, these answers could be summarised with the use of AI to make it easier for the design manager to prepare a head of the post project review. The Production teams would benefit specifically from summaries based on the following: Work Preparations, Economic results and the time plan for the project to understand which processes might need to be evaluated in more detail

6.3.2.2 During the meeting

The current practices between the Design and Production team varies some for how the actual meeting is set up but there are ways AI could be implemented to make the meetings more effective for both the Design and Production teams.

One such aspect would be to record and transcribe the meetings, as explored in the literature study and specifically explained by Sumit Asthana. et al. (2024) transcription can be used to record the contents of a meeting. Implementation of this would provide, as mentioned by Sumit Asthana. et al. (2024), a transcript of what was said during the meeting. Specifically for Peab and how they might utilize the tools available for them is to make use of the transcription tool available through Teams to create the documentation for the meetings. Being that Teams is the standard program used for organisational communication and a part of the standard practice, this seems to be the most fitting tool to take care of the transcription. There is still a need for an individual to review the text that is being transcribed as brought up in the interview study from Sumit Asthana et al. (2024), where they mention that they did find errors in the transcribed text and therefore there can not be an overreliance on the transcription software. To solve this issue, there seems to be a need for both a secretary as well as a transcribing software would be the most optimal solution. The tool used for transcribing, which in this case will be Teams transcribing software, will be referred to as the Transcription tool.

For the design team, this would be quite easy to implement the Transcription tool since their post-project reviews occur online on Teams. When it comes to the production teams, it can be more difficult to transcribe the meetings since their post-project reviews often occur on-site. On the production site, the necessary technology would not be as easily accessible, especially if there are a lot of people taking part in the meeting. This does not mean that the Transcription tool will not be helpful, as it can still assist the person responsible for the production meeting with notes of what was said. During the interview study there was an interview carried out with an AI expert at Peab, and they mention that despite the software limitations

on the Transcription tool today the technology is still developing, and in the future, there might be more a possibilities to use the Transcription tool for meetings that occur in person.

One aspect of transcribing the meetings that was brought up during the interviews was participants' opinions on having their audio recorded during the meetings, which was mentioned by Sumit Asthana et al. (2024) as a requirement for the implementation of transcribing services. Both Design and Production managers brought up similar points, they were worried about the attendees feeling restricted by the fact that they are being recorded. To counteract this, the moderator could ask for permission and explain the purpose for why the meeting is being recorded would make it easier for participants to understand, which will be important when trying to implement the transcription software. Interviewees also mentioned how most individuals will not think about the fact that they are being recorded after a while, and that it will not affect them. Another aspect that would help is if it is ensured that the individuals are made anonymous in the transcription to avoid them feeling pointed out.

6.3.3 Combination: Creation of Databases of Knowledge

At the stage of combination, as seen in Figure 16, the knowledge that is mentioned throughout the post-project reviews is being harvested and is now prepared to be stored inside databases. Before that can occur, the data needs to be processed and to be made accessible to everyone inside the organisation (Nonaka and Takeuchi, 1995).

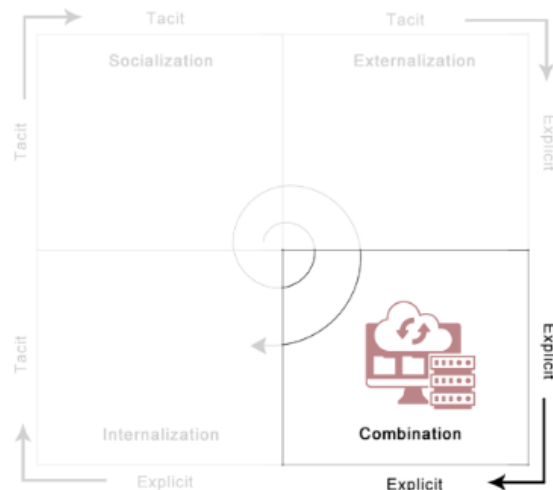


Figure 16: Combination in the SECI model

6.3.3.1 After the meetings

Currently, the time after the meetings is where most of the information that was gathered during the post-project reviews ends its journey, as mentioned in the interviews. Following the post-project reviews in both the Design and Production teams,

the documentation is described in the interviews as brief notes and short sentences. The interviewees suggest that, due to the absence of a process for disseminating the information from the post-project review within the organisation, minimal effort is invested in making the documentation more extensive. Furthermore, several interviewees suggested that the content holds potential value for broader knowledge sharing if more time is invested in the documentation part. This could be done, as mentioned by the interviewees, by improving the clarity and descriptiveness of the documentation.

As mentioned in the interviews, employees would be more motivated to share their experiences and spend further time on them if their knowledge is perceived as valuable and usable for others. Several interviewees mention that it is important they feel that their contributions are of use elsewhere inside the organisation, and thereby are more motivated to clarify and document their experiences. Thereby, this relies on the information being put to use elsewhere in the organisation and the transparency of how this occurs.

To solve the motivation to share and the documentation process for the meetings needs to be improved, and it can be done with the help of AI to create summaries, as mentioned by Sumit Asthana. et al. (2024), which can adapt the summary to suit what would be beneficial to add to the organisation's knowledge database. In Peab's case, there is already a tool that can generate summaries from text, which will be referred to as the Summarisation tool from now on in the thesis. Therefore, the documentation that is produced by the Transcription tool can then be handed over to the Summarisation tool. As was mentioned in the literature by Sumit Asthana et al. (2024), summarisation tools can select specific topics that the user may be interested in. In Peab's case, their Summarisation tool can be used to produce documentation that would focus on the type of information that would be relevant to share with the knowledge database. A key aspect of this, as mentioned in the interviews, would be to make sure that the information contains enough details and is descriptive enough to be valuable for someone else to utilise, which would be a requirement for the summary created by the Summarisation tool.

The information used for the database will be based on the documentation from the post-project review. As mentioned previously, the ability to transcribe the meetings differs somewhat for the Production and Design post-project reviews, but either way, documentation will need to be adjusted in a way so that it is descriptive enough to be used in the knowledge database. As seen in the interviews, the most common way to take notes is manually, but they can also be summarised and adapted to fit a template that would make the implementation of the information into the database more efficient. As mentioned by Scott Hietpas (2023) in the literature, only quality data should be added to the database to ensure that as few errors are produced in the outcome.

Another way the Summarisation tool could be implemented after the meetings would be to summarise exercises that are often implemented into the post-project review

for design. The same can be said for the production teams if they carry out exercises as well. After the Design post project reviews have been carried out, they need to inform the production of what risks and possibilities they are already aware of within the project. The Summarisation tool could be used to help create this summary to make the distribution of information more easily accessible, even to those who could not take part in the actual meeting, similar to what was mentioned by Sumit Asthana. et al. (2024).

6.3.3.2 Information gets added to the database

After the Summarisation tool has created the new adapted documentation, the information is ready to be stored inside the knowledge database. For this information than to be able to be distributed, there is a need for a tool to handle large data sets and summarise them into something that we as individuals can interact with. As described in the literature by Saka et.al. (2024), an AI chatbot can be set up to handle large amounts of data and be trained on specific company data and draw conclusions based on the data it has access to. This solves the point previously mentioned in the discussion with the need for a shared organisational knowledge database.

In Peabs case, there is already a tool that exists for this kind of process, and it is referred to as the Experience Assistant. This tool would be able to handle documentation that the Summarisation tool would provide when it gets added to the database. There is already another tool within Peab, which is the Procurement Assistant that works in a similar way to how the Experience Assistant will be setup only that it is trained on documentation related to the tendering process. As mentioned by Scott Hietpas (2023), the larger the amount of data that is accessible to the chatbot, the more accurate and better answers will be provided. Therefore, in addition to the documentation that is already being added to the database, there is also a possibility to include several other sources of information. As mentioned in the interviews, a lot of information is stored inside Dalux, which is the documentation platform used for storing project-specific files only related to that project. The files that can be extracted from Dalux pages would be Work Preparations, Lists of material used, Meeting notes, Blueprints and technical solutions, as mentioned by the interviewees. Additional documentation with information that can be added to the database is Peabs BTL, which was mentioned to be beneficial during the interviews. Another aspect that was brought up during the interviews where that interviewees found new information from the warranty department. Their tips and tricks could also be implemented into the knowledge database.

To further develop the data that is collected inside the knowledge database the Experience Assisant could also be trained on the company-specific data (Randle Haggerty, 2023). Another aspect mentioned by Randle Haggerty (2023) is that the more data an AI gets trained on, the better it will perform.

6.3.4 Internalization: Distribution of knowledge from the database

At this stage of the SECI model the knowledge has been stored and codified in a way that makes it accessible for the organization. In Peabs case this is where the inclusion of the Experience Assistant comes in, as seen in Figure 17, which works to distribute the knowledge that it has inside the knowledge database (Nonaka and Takeuchi, 1995).

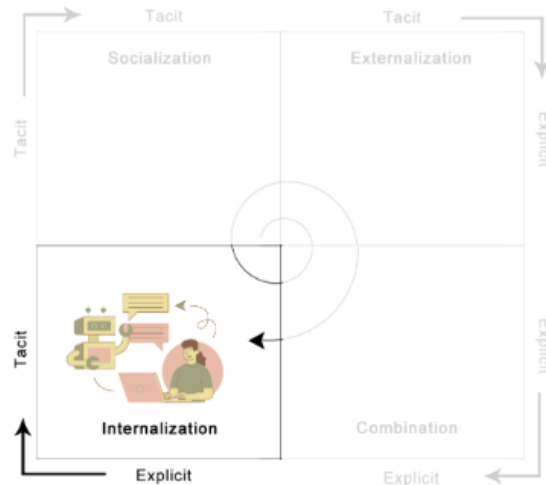


Figure 17: Internalization in the SECI model

6.3.4.1 Finding information

Currently, within the Peab organization, there are several ways to find and access new information, but there is a limitation on what is accessible to them. This is because individuals in the organization do not have access to other projects' databases and their knowledge is therefore only accessible to those who are a part of the project, as mentioned in the interviews. Individuals search for information in many different ways, but they struggle with the ability to access the most valuable lessons learned from other projects. The interviewees also emphasized the need for information to be easily accessible within the organization, which in the current practice it is described as not being.

The organization now has the knowledge database set up, but there is a need to be able to distribute the knowledge within the organization in an effective and easy way. This leads to the full implementation of the Experience Assistant by having it work as a Chatbot that combines all the documentation it has access to, creating the foundation on which it would base its answers. This would be done by having the Experience Assistant be set up as a GPT model in the way described by Saka et al. (2024). Making the valuable insights as described by Laoyan (2024) distributed to all affected by the learning from the project. Depending on the information that has been added to the database, the AI will have differing abilities to answer the questions that it encounters. As mentioned in the interviews, there is a need for AI

to be able to help with searching for information.

As mentioned previously, the Experience Assistant already come with some specific features that include being able to assist with answering questions from the user. These questions can be anything regarding company-specific data as long as it has been uploaded to the knowledge database (Saka et.al., 2024). The current model of the Experience Assistant also has the ability to translate and provide it answers in whatever language the user may feel most comfortable with.

In addition to these features, to be able to make full use of the system, there are some suggestions to be made on how it may be improved. The first aspect would be to implement suggested prompts to assist in what kind of questions might be asked. As well as the AI chatbot, including follow-up questions in their answers to further help the user find the answer that they are looking for. The second feature would be to provide suggestions for what project they might take a look at, and access the Dalux site for that specific project by being given contact information to someone who can give them access to it. This was also mentioned in the interviews to be appreciated if they seek further information regarding the project or how they solved specific issues. This is quite similar to how the study mentioned by S, Asthana. et al. (2024) bring up how their interview participants sometimes had to dig deeper to and look at the source of the information to fully get an understanding.

The third feature would be for the AI to provide a source for the answer it gave. This could be a link to the document from which the information is based on which would give the user the ability to fact-check the answer they receive and also be able to read up further if it is needed. If there is no specific document available, then the AI could provide the contact information to someone responsible for that specific project so that they can gain further insight from the individual instead of having to rely solely on the documentation of that project. This mirrors what was mentioned during the interviews about how they prefer having a conversation with each other, and also the fact that they do not mind if someone reaches out to them from or outside their region. There is a consensus among both Design and Production managers regarding being approached by colleagues seeking advice or insights based on their past experiences, which provides them with pride and fulfillment. It is clear from the interviews that individuals inside the organization do enjoy and rely on being able to contact others for help when encountering issues that they can not solve.

These all together create a process from which tacit knowledge from the meetings can be stored and converted to explicit knowledge in databases, which is then again converted back into tacit knowledge for the individual to put into practice. This mirrors what is mentioned by Nonaka and Takeuchi (1995), who mention how the significant step of this stage is how individuals internalize the knowledge and reflect on how they might put it into practice. This whole process further develops the individual's understanding and their tacit knowledge through the use of the tools previously mentioned.

6.3.4.2 What data can pass through the SECI model?

There is merit to the argument made by Hadjimichael and Tsoukas (2019) in the literature that the distinction between tacit and explicit knowledge is not as clear as the traditional literature mentions, with the introduction of AI. With the AI chatbot being designed as the bridge between explicit and tacit knowledge, the lines between them become even more blurred. For instance, at the internalization process when explicit knowledge turns into tacit, it may in this context resemble what occurs at the socialisation step. This occurs since the AI gathers the knowledge from the database of explicit knowledge and then synthesises it and delivers a combination of all those documents into one answer specific to your need and prompt. Doing this can be seen as the AI mimics the behavior of a knowledgeable employee, drawing on many years of experience and understanding to provide a tailored answer. This means that this process of interaction can neither purely be placed at the socialisation stage nor internalisation stage, instead existing and taking place in both, depending largely on the prompt used to generate the answer.

At the same time, more of the previously uncodifiable tacit knowledge can be converted through these processes to explicit knowledge for the AI to base its answers on. As explained by Hadjimichael and Tsoukas (2019), AI can create tacit knowledge from the explicit data it bases its answers on. This intersects with the ideas that were brought up by Tsoukas and Vladimirou (2001) regarding how not all information is able to be codified and converted into explicit knowledge. Since there is certain tacit knowledge that can not be forced through the SECI model, such as intuitive knowledge. As mentioned by Polanyi (1962), this kind of intuitive understanding of a task, which can be described as a feeling, will not be learned from reading explicit knowledge but rather needs to be taught by experiencing it on your own. This is similar to what Tsoukas and Vladimirou (2001) mentioned regarding how tacit experience is gained through experience and can therefore not be internalized by taking part in explicit knowledge.

There is therefore another way to gain this kind of experience and it is as mentioned by Polanyi (1962) can occur through socialisation, imitation, and practice. Socialization is when individuals take on a task together and share their ideas with each other to socially create knowledge, with imitation being that one individual might mimic what another person does to gain the same kind of fundamental understanding that they have. Lastly through practice, the individual will understand what works and what does not and therefore be able to identify similar situations in other projects, and this understanding is something that they could not have received through reading explicit knowledge. It may also be that an individual may need to carry out the task on their own to learn and make mistakes. Leading us into the next topic, which is how to address the social aspect of the SECI model, and why it is still important, and that AI can not replace that.

In the case of Peab, the knowledge that can be processed through the framework setup around the SECI model mainly includes documentation on methods, materials, technical solutions, risk, and opportunities regarding certain solutions, and

contact information. Most of this kind of information can pass through the knowledge lifecycle, but other aspects cannot be processed. It is mainly anything to do with feelings and the deep understanding of risk associated with a project that can only be gained by your own experience with it. As previously described with the idea of intuition and the feeling of what works and what does not are based on previous experience.

6.3.5 Socialisation: The need for individuals

At the final or first step of the SECI model, depending on how you view it, the individuals have just gathered new tacit knowledge from interacting with the Experience Assistant to further develop their own tacit knowledge. The individuals are then able to use in conversations among themselves, further developing each other's tacit knowledge, as seen in Figure 18. Here, as mentioned by Nonaka and Takeuchi (1995), the conversations occur between individuals where they share their experience with each other. The way this currently happens is when individuals are having conversations on site or by calling each other and asking for their experience to help each other, which was mentioned throughout the interviews and previously in the discussion.

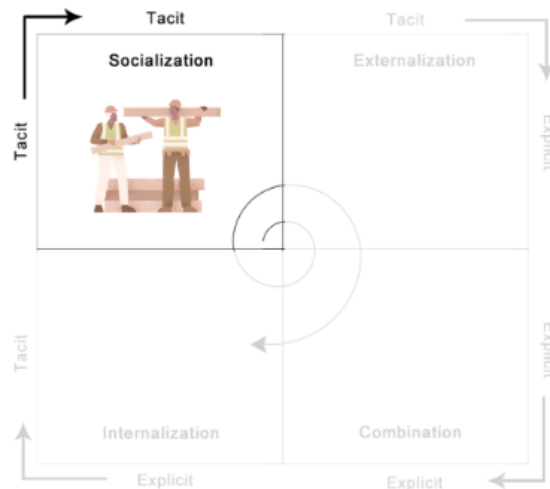


Figure 18: Socialization in the SECI model

There does not seem to be a great way for AI to be implemented to make it possible to make this process more efficient, since it relies on the interaction between individuals. Individuals can have an exchange with certain AI chatbots to some degree, but it would still count towards the internalization stage since it is the process of converting Explicit knowledge to Tacit knowledge. For there to be an exchange between Tacit and Tacit knowledge between individuals, there is a need for individuals to be present to make those conversations possible (Nonaka and Takeuchi, 1995). Therefore, the need for AI efficiency will not be required at the Socialization step,

and instead, the focus needs to be on the individuals that exist inside the organization and making sure that they continue to add to both others' tacit knowledge as well as to the bank of explicit knowledge.

There is an argument to be made that parts of what happens when interacting with the AI chatbot can be seen as socialization, as previously mentioned. Despite this, not all tacit knowledge can be stored as explicit knowledge and then converted back into tacit knowledge. Meaning that there is a need for individuals to share their intuitive knowledge amongst each other since they are unable to do so with the use of the process setup around the SECI model. This is needed, as mentioned by Tsoukas and Vladimirou (2001) and Polanyi (1962), who describe the need for socialization, imitation, and practice for the individual to develop their tacit knowledge. This seems to agree with what the results of the interview study show, from which it is clear that the post-project reviews can not be replaced by only forms and documentation; real conversations between people need to be held. For individuals to learn and develop their tacit knowledge through conversation.

6.4 The need for human interaction

As mentioned in the analysis of the SECI model, there are still parts of the process where the main focus will remain on the individuals. As was brought up during the chapter regarding the purpose of the actual meetings, there are two main aspects: the social aspect and the knowledge management aspect when it comes to the post-project reviews. The knowledge management aspect has already been covered by the SECI model, so that leaves the social aspect to be discussed.

6.4.1 Current practices of the social aspect regarding the meetings

Looking at the social aspects of how Peab works, there are several things brought up in the interviews that were appreciated regarding the meetings. Today, the current practices regarding the social aspects for the Design and Production teams post project reviews differ. For both the Design and Production teams, there is a need to reach a sense of closure regarding the project they have been involved in, to make it possible for them to move on to the next project. This highlights the need for post-project reviews for both Design and Production to cover the needs of the individuals, if you were to look outside the knowledge management perspective.

6.4.2 The Social aspect specific to Design

For the Design teams, there is a difficulty in gathering everyone who was involved in the project since those involved have already moved on to the next project. Since those who take part in the Design teams post project review are all external, except the Design manager, Project manager and sometimes individuals from production, there is a difficulty in gathering everyone for that meeting, since they might be involved elsewhere. Adding on the fact that most of their recurring meetings happen

on Teams, it is not hard to understand that their ability to work with the social aspects can be quite limited. What this might lead to is a difficulty with the ability to communicate and cooperate between the disciplines involved in the project. Where there is a need for disciplines to adapt their solutions to each other to make sure that the project is completed.

Mentioned in the interview is how design managers appreciate the sense of social connection that is formed during the post-project reviews and the social benefits from discussing what occurred during the project. Another key social aspect is the feedback that the design managers gain from the post-project review, which they may use to improve their process for upcoming projects. This feedback is seen as the most valuable thing that comes from the meetings. This highlights how important it is to conduct the post-project review for design.

6.4.2.1 The social aspect can be improved through recommendations for Design

There are things to be done to improve the social aspect in their teams. During the post-project review, focus on lifting up the individuals in the project and give them praise for the work that they have done. Another key aspect to remember for the post-project reviews is to include members of the production team during the post-project reviews for design to create a connection between the two teams and form a sense of trust, as mentioned in the interviews. The idea is that this trust might then be carried over and used to allow the production teams to easily reach out to the design team. Other than that, it is unclear how these aspects can be increased for the Design teams, but what is clear is the need for an increase in the social aspects for the design teams.

6.4.3 The Social aspect specific to Production

For the Production teams, on the other hand, there is a clear possibility to include more social aspects than what they are doing today. This varied a lot between teams from different regions, who all had their own way of conducting their post-project review. From the interviews, there were mentions of combining the post-project review meeting with a following activity for everyone involved. This is to strengthen the bond in the team and make sure that everyone gets the chance to feel closure for the project.

The appreciated parts of the post-project review are having a space where they can share and reflect on the experiences that they have gone through during the project. This opportunity to share what they have learned and listen to each other was seen as the most beneficial aspect of the meetings. The reason for this is the fact that it contributed to the individual's own knowledge bank while having discussions among themselves before moving on to their next project. This shows how important the post-project reviews are for the individuals who attend and for the social aspect of Peab.

6.4.3.1 The social aspect can be improved through recommendations for Production

During the meeting, the focus should be, as previously mentioned, on discussion activities from production and highlighting both negative and positive aspects. One part of this would be to discuss the activities that individuals had a negative association with and thereby giving them the chance to discuss it together. This also allows individuals involved in a negative activity to move on from it and maybe even, together, turn it into something positive that everyone can learn from. A final thing Production managers can do is to lift up individuals inside the project to make sure that they feel seen and give them praise for their work, as mentioned in the interviews.

6.5 The receptive maturity of Peab

As mentioned by Zedtwitz (2002), an organization can be described by its ability to be receptive to knowledge sharing throughout the whole organization. This maturity will affect the organization's ability to share and disseminate knowledge within it and learn from past actions.

From looking at current practices at Peab, it is clear that they would, on the scale, be ranked at level 2, as seen in Figure 19. Level 2 is characterized by the organization relying on guidelines for reviews, with comparable results and a repeatable process. As mentioned in the interviews, all managers have access to the template that they follow for their post-project reviews, which are the guidelines that they follow. Since they follow this template, it allows for comparable results between projects and a repeatable process that can take place in any project within Peab.

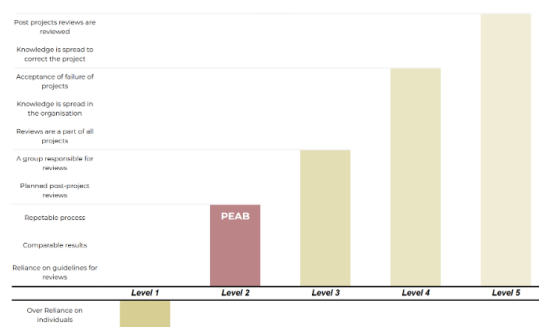


Figure 19: Peab's placement in Zedtwitz framework

Looking at the changes that have been brought up throughout the discussion, there is a possibility to move up to a higher level within the framework proposed by Zedtwitz (2002). From looking at the changes and comparing them to the framework for receptive maturity for the organization, Peab has the ability to move all the way to the final level, which is level 5 in the framework.

Level 5 is characterized by the organization having adopted post-project review as a natural part of each project, and information being shared with the correct individual with ease, and the fact that post-project reviews are under review after they have taken place. The key steps that make this possible for Peab through the changes that have been presented are discussed below.

The first step for Peab would be to make sure that Post Project Reviews occur in all of their projects, which, from the interviews, is clear that they do not occur in all projects today. Forcing all projects to take responsibility within the knowledge sharing cycle, as seen in the SECI, where the meetings in the structure that we proposed are a key component to increase knowledge inside the organization. By having them be a key component of all projects, it means that the project also needs to plan its post-project review. The way this is done is by looking at the key activities during the project and then reflecting on these together, as mentioned previously in the discussion. This also means making sure the correct people are present for the post-project review, as mentioned in the interviews.

The next step would be to have more of a central responsibility for the post-project review and ownership of what is said during them. The current practice is a central responsibility for updating and distributing the templates used in the post-project review, but they do not take an active role in the meeting; instead, that is left up to the manager. To fulfill this step in its entirety, there is a need for a central group to engage more in the structure of the post-project review, making sure that everyone follows more of a similar process as seen in the interviews within Design and Production. There are quite large differences between how they carry out their meetings.

Furthermore, the current practices for how knowledge is distributed within the organization are inadequate for the requirements of knowledge spread in the organization. As seen in the interviews, the documentation from the post-project reviews often ends up in the Dalux or Årbas database for that specific project or somewhere else where it is not accessible for anyone outside that project. This means that most of the learning from the post-project review is done by the individuals who take part in the meeting (Zedtwitz, 2002). This mirrors what was mentioned in the interviews, where several interviewees see that the current practices allow the individuals to learn, but not the whole organization. This will be solved with the introduction of the Experience Assistant, as there is an ability to change that, since information can now be processed and then distributed as previously discussed. This also allows individuals to gain access to the correct information that they are looking for by using correct prompts that give them access to the information that they are searching for, which in turn fulfills the knowledge being spread to the correct projects.

Before the information can be contributed to the knowledge database, there is a need to review the information from the post-project review that is being uploaded to ensure that the Experience Assistant bases its answers on correct and accurate information. Thereby making sure that the post-project review that occurred is also being reviewed. At the same time, it is important that the group with central

responsibility for the post-project reviews also criticizes and reviews the process to implement changes to the templates and the overall process, which can be described by the SECI model in the previous chapter.

Finally, the last step needed to reach the final level in the framework proposed by Zedtwitz (2002) would be the organization's view on failure within the projects and the need for recognizing them as a natural part of each project. Thereby accepting that failures will occur and seeing them as an opportunity to learn and grow the organization. This goes into the point made by Zedtwitz (2002) that the final step has a heavy reliance on the learning culture within the organization, which is a point that will not be further addressed. Nonetheless, there needs to be an understanding and further investigation into what the learning culture is at Peab and how to see failures as a natural part of that step to reach level 5, as seen in Figure 20.

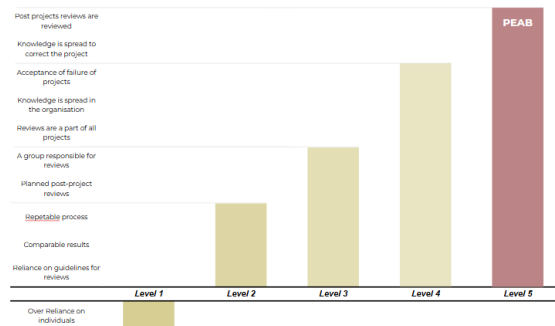


Figure 20: Peab's potential placement in Zedtwitz framework

7

Conclusion

This study aimed to understand the knowledge management life cycle within Peab and determine to what extent it needs to be improved, and how Artificial Intelligence may be implemented to gather, as well as distribute, the knowledge.

7.1 What kind of information is critical for the Design and Production managers to distribute within the organization to support effective knowledge sharing?

The report shows that Peab Construction employees search for information when faced with a problem with an activity, material, or technical solution that they have not worked with before. When faced with a problem, the interviewees wanted examples of solutions that could be applied to their project.

The critical information that needs to be shared with Design and Production managers is the experience of employees who have tried a solution before. Peab needs a collection of information regarding tested materials, activities, technical solutions, risks/opportunities with tested solutions, and the contact information for the individuals responsible for the projects. These experiences can be collected through evaluations and post-project reviews from production teams. The knowledge from the production teams is sought after by both the production interviewees and the design interviewees. The design interviewees mentioned that due to contract law, power imbalance, and different competences between the participants in the post-project design review, specific solutions cannot be evaluated. However, they assess risks and opportunities in their post-project review.

With access to a collection of tested and evaluated solutions, the interviewees stated that they could make faster and more informed decisions on how to solve the problems they faced. By making fewer repeated mistakes and spending less time on problem-solving, the projects will save money, be more economically sustainable, and they will also use less machinery and material on solutions that they have to redo, making the project more environmentally sustainable.

7.2 To what extent does the existing knowledge life cycle for the Design and Production managers require improvement?

Peab's employees do not have an organizational knowledge database to turn to with questions, as the thesis shows that the Design and Production managers need to call colleagues or turn to the Internet when they have questions. To have a closed life cycle, Stenholm et al. (2014) state the need for a technology platform to distribute knowledge.

Today, Peab is ranked on level 2 of the 5 levels in Zedwitz's (2002) framework for organizational knowledge maturity. To reach level 5 and have a functioning knowledge lifecycle, Peab needs to have preplanned post-project reviews, a central group responsible for the agenda, to review the process and ensure that all projects conduct a post-project review. The knowledge from the review must be documented and spread in the organization, and the right knowledge must reach the right individual.

To have a standardized post-project meeting, a post-project model from Laoyan (2024) has been used. With the steps from the Laoyan model and the aligned interview answers, this thesis recommends having the meeting shortly before the project's end, and to identify important topics of specific activities that need to be evaluated ahead of the meeting. The agenda for the meeting must be sent in advance so that everyone is prepared. Peab also need to appoint one person as moderator and another person in the meeting to take notes, to give the moderator training and guidelines so they all conduct the meeting in the same way, and to create summaries of the meeting to be stored in a organizational knowledge database to be distributed to everyone in Peabs organization.

7.3 How can artificial intelligence be utilized to support and improve the knowledge life cycle at Peab?

There are tools available to Peab that can be used to improve the knowledge life cycle. Firstly, at the post-project reviews, the tacit knowledge is converted into explicit knowledge through the use of a Transcription Tool. This explicit knowledge can then be further developed with the use of a Summarization Tool to select specific topics relevant to the rest of the organization. This approach allows for the creation of a knowledge database that contains information from post-project reviews and other relevant sources. The resulting data can be further processed and developed by using a GPT Experience Assistant to be trained on the data and distribute it. The knowledge will then return as explicit knowledge for the individual to internalize and make it tacit knowledge through interaction with the Experience Assistant, utilizing the chatbot function as seen in Figure 21. However, the function of the Experience Assistant needs to be further developed to make full use of the Knowledge Sharing framework.

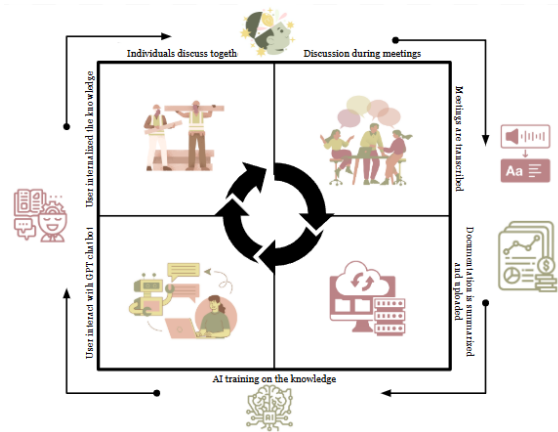


Figure 21: The recommended knowledge life cycle for Peab

The social aspect of the Knowledge Sharing Framework remains critical because individuals need to discuss their experience and reach closure for the project. This aspect of the process will not be improved with the use of the proposed tool. This aspect stands as its own important part for enabling the rest of the process, relying on the individuals rather than the tools available.

Not all the information considered critical can be handled by the Knowledge Sharing Framework, highlighting the need for other ways to share that specific information. In Peab's case, this can be resolved by having individuals interact to teach each other the kind of feeling and intuition that can not be handled by the Tacit and Explicit knowledge, which the Knowledge Sharing Framework is built around.

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A

Interview Guide for Design Managers & Site/Production Managers

[5 min] About the Interviewee

- Tell us about your role at Peab.
- How long have you been working here?
- Approximately how many project closing meetings have you participated in?

[10 min] Knowledge Transfer

We want to understand your view of knowledge transfer, your understanding of knowledge management, and how you work with it today.

- How do you work with knowledge transfer?
- Where and how do you search for new information?
- Do you ever struggle to find the information you're looking for?
- How do you work with risk management in the project?
 - *Design*: Where do you turn for production-related questions during the design phase?
 - *Production*: Where do you turn for technical questions during task planning to identify risks?
- Would it be useful for you to access others' experiences? How could that help you?

[20 min] Closing Meetings Now we'd like to hear how you currently work with closing meetings and what they typically look like for you.

- What do closing meetings look like today?
- Is there a template for how these meetings are structured?
- Have you led a meeting, and are there any guidelines for the agenda?
- What kind of questions are asked? Are exercises conducted during the meeting?
- Who participates—internal staff only or external as well?
- What position does the moderator typically have?
 - Is it the same person who acts as secretary?
- What are the biggest obstacles related to these meetings?
- What do you value most about the meetings?
- Do the closing meetings feel valuable to you? To Peab?

- What do you think about the questions in the Word template? (*Show the template*)
 - Which is the most valuable question?
 - Which is the least valuable?
 - Is it clear what is expected of you when answering the questions?
- How would you describe the responses submitted in the Word template for the closing meeting?
- How much time do you spend writing your answers? Do you think your responses could help someone else?

[5 min] AI

We'd like to hear a bit more about your view on AI. Some examples of AI that people may not think about include personalized marketing, web searches, and cybersecurity.

- Do you use AI in your:
 - Work life?
 - Private life?
- Have you tried using an AI chatbot like Copilot?
 - What advantages do you see?
 - What disadvantages?
- What is your general opinion on AI—positive or negative?
- Are you open to using more AI in your work? How do you see your use of AI evolving in your job?

[10 min] Improvement Possibilities

Now that we've heard your thoughts on knowledge transfer, how the meetings are held today, and AI, we'd like to hear your ideas on improvements.

- What do you think knowledge transfer could look like in the future?
- How would you prefer to access others' experiences if you could choose? (Chat, colleague, presentation, report)
- What improvements do you see for closing meetings?
- Could AI be implemented to improve the closing meetings?
- What would motivate you to share your experiences? What do you need to feel motivated?

(We've been thinking that some lessons might be lost in documentation...)

- How do you think the meetings would change if audio recordings were made?
- How would it be affected if participants were anonymous?
- Have you ever had a colleague ask you about experiences from a past project?
- How would it feel if a colleague you've never met contacts you for help or insight?
- How would it feel if they knew about you because you shared information during a closing meeting?

B

Post Project Review Agenda for Design

Design Phase Post-Project Review

1 (6)

AGENDA / MINUTES

CONSTRUCTION BUSINESS UNIT

QUALITY

Design Post-Project review including formsurvey

Project Name, Location

Project no

Design Manager

Prepared by

Date

Location

Attendees

Absent

Distributed to

1.0 Introduction

The purpose of the meeting is to highlight everyone's experiences from the design phase—both positive and negative.

Start by having everyone fill out the survey (attached at the end of this document) before discussing the summarized reflections below.

1.1 Participants' Impressions of the Project / Meetings / Working Methods

Let the participants share brief reflections on the project, meeting structure, and work methods in a roundtable format.

Examples:

Peab's design guidelines

How were the meetings perceived? Too long? Too few?

VP design

Project platform

Review process

Etc.

1.2 Suggestions for Improvement

What could be done better next time?

Suggestions for improvement?

2.0 Documentation

2.1 Current Documents

Category	Construction Documents	Remaining Documents	Responsible	Completion Date
A - Architect				

0754-6



B. Post Project Review Agenda for Design

2 (6)

AK – Acoustics engineer				
BR – Fire Safety engineer				
E – Electrical design engineer				
EN – Energy engineer				
G – Geotechnical engineer				
H – Elevator design engineer				
I – Interior Architect				
K1 – Structural engineer				
K2 – Structural engineer (building section xxx)				
Kx – Structural engineer (building section xxx)				
L – Landscape Architect				
M – Civil design engineer				
O – Glass & Facade designer				
R – Plumbing & Drainage Engineer				
S – Control Systems Designer				
SK - Kitchen Equipment Designer				
SP - Sprinkler Designer				
T - Traffic Planner				
TG – Accessibility engineer				
V – Ventilation Design engineer				
VS – Heating & Plumbing Engineer				
Moisture				

2.2

As-built Documents

*When should as-built documents be completed?
Scope and format?*

0754-6



2.3 Archiving

Explain how documents will be archived:

What will be archived

Where it will be stored

Number of copies

Format

3.0 Risks and Opportunities

3.1 Identified Risks and Opportunities

Discuss any risks or opportunities identified during the design phase that could continue to impact the construction phase—document these for handover to production.

3.2 Lessons Learned

Lessons or events of interest for future or other projects?

4.0 Quality, Environment, and Work Environment

4.1 Quality

How has quality work and its management functioned?

Have Peab's quality goals been considered and achieved in the design?

Have the client's quality goals been considered and achieved?

4.2 Environment

How has environmental work and its management functioned?

Have Peab's environmental goals been considered and achieved?

Have the client's environmental goals been considered and achieved?

Have all designers submitted completed and approved "Environmental Requirements for Design"?

How has product environmental assessment / logbook functioned in the design?

4.3 Work Environment

How has occupational health and safety management functioned?

Have Peab's work environment goals been achieved?

Have the client's goals been achieved?

Has Peab's checklist "Design Risks for Work Environment" been signed and submitted?

4.4 Environmental Certification (if applicable)

How has the certification work progressed?

Is there any work/information from production that should be returned to the design team for certification purposes?

Minutes taken by

Namn Namnsson

Approved by

Approved by

B. Post Project Review Agenda for Design

5 (6)

Design Phase Evaluation - Form Survey

Project No.	Project name	Location	Date
-------------	--------------	----------	------

Evaluation	Rating 1-5	Comment
Our general work method		
VP- design		
Technical meetings		
Project platform		
3D Coordination Review		
Functional Review		
2D Review		
Overall organization		
Has the client's organization functioned well?		
Has the TE's organization functioned well?		
Have designer/contractor organizations functioned well?		
Has project management functioned well?		
Has design management functioned well?		
Has coordination functioned well?		
Have agreed deadlines been met?		
Have drawing deliveries been on time?		
Have decisions been received on time?		
How well did the final result match the set budget?		

Open-ended questions on next page!

0754-6



B. Post Project Review Agenda for Design

6 (6)

Question	Answer/ Comment
What risks that may affect the construction process were identified during the design?	
If we were to redo this design in two years, what advice would you give yourself?	
Do you have any suggestions for improvements or tips?	
Is there anything else you'd like to raise?	
Name and Company (optional)	

C

Post Project Review Agenda for Production

Production Post Project Review

1 (4)

AGENDA / MINUTES BUSINESS AREA CONSTRUCTION QUALITY

Project:

Project
number:

Date:

Location:

Attendees:

Absentees:

Agenda:

1 Project overview

- Description of the project

--

2 Design Phase

- How was the quality of the design documents?

--

3 Planning and preparation

Structural plan as a basis for budget and schedule	Yes / No	-
Resource-loaded schedule	Yes / No	-
Updated production budget	Yes / No	-
Clear task distribution within the organization	Yes / No	-
Environmental control conducted and environmental requirement lists distributed, with implementation measures prepared in the Environmental Planning/Preparation phase	Yes / No	-
Control program established with work preparations and self-inspections	Yes / No	-

0750-8



4 Production

How did the VPP meetings function?	
How did communication and information dissemination function in the project?	
How did the work with the Issue Log in Årbas function?	
Which deviations were most frequent during production?	

4.1 Quality

Set quality goals:	-
Quality goal results:	-

Review of the project's quality work:

Planning	-
Work preparations, self-inspections	-
Control program	-
Quality deviations	-
Project plan	-
As-built documents	-
Operation and maintenance	-
CE marking	-
Tests	-

4.2 Environment

Set environmental goals:	-
Environmental goal results:	-

Review of the project's environmental work:

Hazardous and health-endangering products	-
Energy use	-
Logbook	-

Environmental rounds	-
Environmental deviations	-
Environmental incidents/near misses	-
Environmental certification	-

4.3 Work Environment

Set work environment goals:	-
Work environment goal results:	-

Review of the project's work environment efforts::

Safety work	-
Work preparations	-
Risk observations	-
Near misses	-
Accidents	-

4.4 Activities that were good and bad in production

Good activities	Description	What we learned	Activity (3000 frame)	Building part (35 steelwork)
-	-	-	-	-
-	-	-	-	-

Less good activities	Description	What we learned	Activity (3000 frame)	Building part (35 steelwork)
-	-	-	-	-
-	-	-	-	-

4.5 Successful and unsuccessful material choices

Successful material choice	Description	What we learned	Activity (3000 frame)	Building part (35 steelwork)
-	-	-	-	-
-	-	-	-	-

Less successful material choice	Description	What we learned	Activity (3000 frame)	Building part (35 steelwork)
-	-	-	-	-
-	-	-	-	-

5 Project Closure / Handover to Warranty

Type	Checked Yes/No	Planned Date	Completed Date
Project Closure Checklist (ID 0482)	-	-	-

C. Post Project Review Agenda for Production

4 (4)

Handover to Warranty (ID 1016)	-	-	-
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6 Finance

Experiences (Summarize major discrepancies between contract estimate and Result 1, and between forecast and final cost)

Typ	Description	What we learned	Cost	Account	Activity	Building part
Finance	-	-	-	-	-	-
	-	-	-	-	-	-

Financial Summary

--

7 Evaluation of Suppliers, Contractors, and Consultants (Conducted in the supplier register / ILP digitally)

To be evaluated:

Supplier	Contractor	Consultants
-	-	-
-	-	-
-	-	-
-	-	-

8 Inspection Remarks (Have there been any major/serious remarks?)

Type of Experience	Description	Remark	What we learned
Self-inspection	-	-	-
Final inspection	-	-	-

9 Points to Bring to the Construction Closure Meeting

-

Minutes by

Namn Namnsson

Approved by

Namn Namnsson

Approved by

Namn Namnsson

0750-8



D

List of translated quotes

Interviewee number	Original Swedish quotes	Translated into English
9	Det är fortfarande inte så utvecklad att man kan lita på all information som man får ut och man måste dubbelkolla det	It is still not developed enough to fully trust all the information it provides, and you need to double-check it.
5	Men det är klart att jag är nyfiken på hur det skulle kunna hjälpa mig om jag fick lite mera kunskap	But of course, I am curious about how it could help me if I had a bit more knowledge
18	Jag är medveten om att när jag är inne på nätet och såna grejer så kanske det finns där och när man trycker på någon knapp då med omedvetet, men jag använder inga sådana här ai verktyg	I am aware that when I'm online and doing those kinds of things, it might be there, and when you click some button, it might activate without you realizing it — but I don't use any of those AI tools.
6	Så att man inte liksom tar för givet att så här kan man göra, men det har varit industriprojekt och det här är ett bostadsprojekt. Det kan ju vara väldigt olika vilka krav och så vidare som finns för olika produkter så att det gäller ju att vara kritisk till det man får fram och se att det är applicerbar	So that you don't just assume that 'this is how it can be done,' when it might have been an industrial project, and now it's a residential one. The requirements and so on can be very different for different types of products, so it's important to critically assess the information you get and see whether it's applicable.
11	Nej, jag har inget behov av det produktion. Jag vet inte vad det skulle kunna hjälpa mig. Det bygger ju liksom inte ett hus.	No, I don't have any need for it in production. I don't see how it could help me — it doesn't build a house.
10	Och sen så har använts den enkäten lite som ett diskussionsunderlag. När vi väl har avslut straffet. Och så går vi lite laget runt rätt planlöst och. Alla får säga sitt ris och ros.	And then that survey has been used a bit as a basis for discussion once we've wrapped up the project. Then we go around the team, pretty informally, and everyone gets to share their thoughts, both the good and the bad.
9	Vi sätter en tidplan för produktion på på väggen och sen sätter dit postit lappar med de där riskerna.	We put a production schedule on the wall and then added Post-it notes with those risks.
7	Det finns nog en agenda, men vi hade inte liksom protokollet som vi gick efter utan vi hade först väran arkitekt som berättar om själva projektet och sen så gick vi disciplin svit liksom runt bordet och presenterade.	There was probably an agenda, but we didn't have a set protocol to follow. First, our architect talked about the project, and then we went around the table by discipline and presented.
2	Och så går man igenom och fokuserar egentligen bara på de stora delarna. KMA kanske hade en annan uppfattning — att något inte var lika bra som man själv tyckte. Alla är med, och man diskuterar det öppet i den här processen.	The review primarily focuses on the major aspects. The KMA team may have had a different perspective, for example, that something was not as successful as one might have thought. Everyone is involved, and the issues are discussed openly during this process.
15	Jag samlar upp allt som alla har kommit på, och skriver även ner nya saker som dyker upp under mötet.	I compile everything that has been brought up and also document any new points that emerge during the meeting.
8	Så jag tycker det är rätt viktigt att man avslutar, att man har det för vårt moment liksom. Att man avslutar med dem som har gjort momentet, för helt plötsligt kanske de försvinner och då får du inte den återkopplingen i slutet. Så det kan jag tycka är viktigt — att avslutat inte bara sker i slutet, utan att det sker lite mer kontinuerligt i projektet. Att man sätter av: Vad var bra? Vad var dåligt? Vad kan vi göra bättre?	So I think it's pretty important to wrap things up — to have that for each phase, you know. To finish together with the people who worked on that part, because suddenly they might disappear, and then you won't get that feedback in the end. So I think it's important that the closing doesn't just happen at the end, but happens more continuously throughout the project. That you check in: What was good? What was bad? What can we do better?
18	Jag har ju skrivit allting från början där så det finns ju ett manus om alla skulle vara helt tysta. Då skulle jag ändå kunna presentera ett trovärdigt produktionsmöte där vi får med det mesta om man säger så utifrån min syn på det då.	I've written everything from the start, so there is a script in case everyone were to remain completely silent. I'd still be able to present a credible production meeting that covers most aspects, so to speak—at least from my perspective.
16	Om det är 30 personer i ett möte som är bokad i två timmar, så är det någon som måste betala för den tiden.	If there are 30 people in a meeting scheduled for two hours, someone has to pay for that time.
5	Det kanske är jag som har mest nytta av det här i min roll. Jag försöker ju alltid förbättra mig mellan projekten. Det är liksom mitt mål — att hela tiden bli bättre och bättre. Så när jag sitter och läser enkätsvaren får jag väldigt bra feedback.	I might be the one who benefits the most from this in my role. I always try to improve between projects—that's my goal, to get better and better each time. So when I go through the survey responses, I receive really valuable feedback.
7	Det handlar liksom om gemenskapen, och man sälls av hur dukliga alla är inom sina områden. Det är verkligen roligt att få arbeta med så många kuniga personer.	It's really about the sense of community, and you're struck by how skilled everyone is in their respective fields. It's truly enjoyable to work with so many knowledgeable people.
18	Och så får man en chans att berömma folk helt enkelt, att lyfta folk. Sen är det ju också det här med att öka kunskapsnivån — det är också väldigt viktigt i gruppen.	And then you also get a chance to simply praise people, to lift them up. And then there's also the aspect of raising the knowledge level — that's also very important in the group.
15	Du får ganska snabbt nytta av det till nästa projekt, eftersom du ofta befinner dig i uppstarten av det när du har det här mötet. Då går man igenom hur det har varit, och får med sig bra tips och tricks inför nästa projekt — vad som kan justeras och vad man kan göra lite bättre nästa gång.	You quite quickly benefit from it quite quickly in the next project, since you're often in the startup phase when you have this meeting. You go through how things went, and you get some useful tips and tricks for the next project — what to adjust and what to do a bit better next time.
1	Tak kan ibland bli ganska komplicerade — ibland ritar de hellre tillrättade tak. Och ett kringligt tak är ju lätt att bygga fel, så det kan uppstå en del diskussioner kring det.	Roofs can sometimes become quite complicated — sometimes they'd rather design something overly complex. And a complicated roof is easy to build incorrectly, so it can lead to some discussions around that.
10	Feedbacken går ju tillbaka till projekteringen, men, jag tänker att det kommer två, tre, fyra år efter att projekteringen är avslutad. Då får vi veta om vi valde rätt lösningar.	The feedback goes back to the design phase, but... I mean, it comes two, three, even four years after the design is finished. That's when we find out whether we chose the right solutions.
4	Vill ni att jag visar det jag gjorde senast, så ni har bristfällig kvalitet det blir. Vi byggde en liten brandstation i trä i Grums, och stommonteringen var något som lyftes fram som väldigt bra. Men när man läser anteckningarna — stommontering gick snabbt, fått hus, littelement bra — så är det svårt att förstå om man inte vet vad det handlar om.	If you want, I can show what I did last time — you'll see how poor the quality can be. We built a small wooden fire station in Grums, and the structural assembly was highlighted as very successful. But when you read the notes — assembly quick, airy house, lightweight elements good — it's hard to understand if you don't already know the context.
14	Du får tio dokument, då ska du sitta och läsa igenom tio dokument där och så ska du försöka hitta det som passar bäst på. Ja, eller så slänger vi bara helt enkelt in det i ai och låsa in alla dokumenten. Så ställer vi bara frågan, hur bygger jag bäst den vägg utifrån de här erfarenheterna som jag har genom att göra så här då och så får du svaret.	You get ten documents, then you're supposed to sit and read through ten documents and try to find what fits best. Yeah, or we just simply throw it into the AI and have it read all the documents. Then we just ask the question: how do I best build that wall based on these experiences that I have by doing it like this, and then you get the answer.
4	Förtydliga min erfarenhetsföreläsning på ett bättre sätt, för då vet jag att gör jag det då det finns någon på andra sidan som tar emot det.	Clarify my feedback from experience in a better way, because then I know that if I do it, there is someone on the other end who receives it.
16	Vi har redan en lösning tillgänglig. Men i juridikens värld fungerar det så att om man föreslår en lösning tar man också ansvar för att den verkligen fungerar. Därför, i min roll under projekteringen, uttrycker vi oss så här: "Hej, ni har ett problem — det kommer i vatten i era element. Vi vill att ni tar fram en lösning för att leda bort det." Då får de komma tillbaka med ett förslag, till exempel: "Så här vill vi leda bort vattnet." Då kan vi säga: "Bra, då kör vi på det."	We already have a solution available. However, in the wonderful world of law, if you offer a solution, you're held responsible for ensuring that it works. So, in my role during the design phase, we say something like: "Hi, you have a problem — water is entering your radiators. We'd like you to develop a solution to drain the water." Then they come back with a proposal, for example: "This is how we plan to divert the water." And we respond: "Great, let's go with that."
18	Det handlar om att reagera och agera, dem två orden som jag försöker jobba med, det är väldigt viktigt, om du inte agerar spelar det ingen roll om du reagerar som dem säger.	It's about both reacting and acting; those are two words that I try to work with, which are very important. If you don't act, it doesn't matter if you react, as they say.
8	Infallet kan du ha dem efter vare fas som har gått bra eller dåligt, så du vet vad du gör rätt och därmed lite mer kontinuerligt. Ett typ av avslutsmöte efter varje moment istället för hela projektet	Instead, you have them after each phase that has gone either poorly or well, so you know you're doing the right thing, making it a bit more continuous. A kind of closing meeting after each phase, rather than after the whole project.
14	Oftast så är det så att människor som utför momentet skall utföra moment har oftast gjort det här momentet innan. Då tänker jag oftast oftast är det ju specifika yrkesgrupper som är snickare rörliggare.	Most of the time, the people performing a task have done it before. It is usually specific trades, such as carpenters and plumbers.
3	Men saken är den att jag tycker att vi måste lägga ännu mer fokus på att verkligen ha som mål att lösa problem redan i projekteringsfasen. Det är lite för lätt att bara skicka vidare det till produktionen och säga: "Ni får lösa det på plats."	But the thing is, I think we need to put even more effort into actually having the goal of solving the problem during the planning phase. It's a bit too easy to pass it on to production and say, "You'll have to solve this on-site."
1	Mitt sätt, kanske det sätt jag alltid har gjort det på, och det är inte alltid det bästa sättet, så det är bra att få tips.	My way, maybe the way I have always done it, and it is not always the best way, so it is good to get tips.
15	Man får ganska snabbt nytta av det i nästa projekt, eftersom man ofta är i uppstartsfasen när man har det här mötet. Man går igenom hur det gick, och får med sig några bra tips och knep till nästa projekt — vad man kan justera och vad man kan göra lite bättre nästa gång.	You quite quickly benefit from it quite quickly in the next project, since you're often in the startup phase when you have this meeting. You go through how things went, and you get some useful tips and tricks for the next project — what to adjust and what to do a bit better next time.

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