Aleya Shalar

Operating Model for Enhancing Collaboration in a New Virtual Cross-Border Business Environment

Helsinki
Metropolia
University of Applied Sciences

Author(s) Title Number of Pages Date	Aleya Shalar Operating Model for Enhancing Collaboration in a New Virtual Cross-Border Business Environment 66 pages + 2 appendices 25 April 2017
Degree	Master in Engineering
Degree Programme	Business Informatics
Instructor(s)	Thomas Rohweder, Principal Lecturer Ilkka Sinisalo, Planning Manager at Finnish firm

The ability to support collaborative working across borders is becoming more significant as organizations approach internationalization and seek efficient ways of working with distributed teams. This paper aims to propose an operating model that defines, at the abstract level, the key goals, key processes, key roles and collaborative support methods for a newly formed cross-cultural and dispersed business environment.

Based on a qualitative research method set in a case study, the current challenges were analysed among a distributed project team across two nations. The case study projects were infrastructure engineering design projects based in Sweden where the client is the Swedish Transport Administration. A Swedish firm, a newly launched company who collaborates with their mother company based in Finland, utilizes their resources predominately for engineering design work. The existing literature was reviewed and resulted in a conceptual framework in which to build an operating model for collaborative working between the Finnish and Swedish organizations.

The findings showed that there exists role ambiguity, communication challenges and work process integration issues. The paper resulted in an operating model that defines the shared goals, key processes and, roles and responsibilities between the two companies. A number of support methods were identified for enhancing collaboration between the two firms. The paper concludes with practical recommendations for enhancing the collaboration between the two companies.

Keywords	Collaboration, Collaborative work, virtual teams, partnership, cross-cultural

Contents

1   Introduction

By taking advantage of the numerous technologies available in electronic communication, more and more organizations are expanding their operations across borders. Teams are becoming more dispersed and traditional ways of working are no longer adequate for distributed team work. Although such dispersed teams and working via virtual means is not a new phenomenon, there are lingering challenges, especially for companies new to the environment. Today many organizations face the challenge of shifting towards a culture of virtual collaboration. In other words, how to effectively connect team members, regardless of national culture, location or time zone in order to produce seamless project outcomes.

For a concept that is broadly used in everyday language there is a surprising lack (Patel, Pettitt and Wilson, 2012) of clarity about what it really is and the practicalities involved in collaboration. Definitions are often tailored to a particular environment (Patel, Pettitt and Wilson, 2012). They are linked too often to social software or have become overly complicated with merged definitions from various sources. Simply, collaboration can be defined as two or more people (a team) working together (a process) to realize their mutual goals (a purpose). In organizations, the working culture and managerial practices can either support or hinder good collaboration. This thesis sets out a framework for building an operating model for collaborative working in new cross-border business environments.

1.1   Case Background

A consulting firm in Finland has expanded its infrastructure design operations to the Swedish market via their newly launched daughter company, referred to as the Swedish firm in this study. This means there will be sharing of resources between the two companies and, therefore, effective collaboration between the Finnish firm and the Swedish firm is vital. However, there are challenges due to physical distance and different organizational cultures.

The Swedish firm is a new company and therefore has a young working culture. There is a need to collectively define, at the abstract level, the common goals, key processes,

roles and responsibilities, and collaboration enhancing mechanisms for the working arrangement between the Swedish and Finnish organizations. This is needed before building any detailed processes. This thesis forms a foundation for building or re-engineering key processes for the new working environment based on researched best practices.

Furthermore, this thesis is related to the Finnish firm's research and development project called RAIN. The RAIN project has 3 separate work packages of which work package 'C' is concerned about the cooperation between Finland and Sweden and therefore is relevant to this thesis. The main idea of the RAIN project is to create effective ways of communication and processes that help integrate people from separate technical divisions within Finland and also with the team in Sweden. Some of the aims of the RAIN project are to identify what the current processes are in Finland and Sweden, integrate old systems in such a way that it is cost effective, find data management systems that caters for all, identify best practices for cooperation, find the right partners, set up tools to help manage Swedish projects and have support mechanisms to continuously learn and adopt best practices. In addition, the focus is on achieving change through people and establishing procedures to improve integration capabilities to form a new co-operative culture that spreads to partnering companies and across the Finnish firm's business areas.

This thesis supports the RAIN project in work package C with a focus on finding the current processes that work well in Finland and Sweden, and researching best practices that enhance co-operation and integration between the Finnish firm and the Swedish firm. The findings directly link to the RAIN project objectives and they can also be adopted in other areas of the business.

1.2   The Business Challenge & Objective

The challenge with this new working arrangement is how to manage information flow with virtual interactions between multiple teams. The issue here is that there is no physical co-location, and teams will not meet each other face-to-face so often, except for virtual encounters. The challenge is to identify how to overcome issues relating to physical distance, i.e. between designers in Finland and project team in Sweden, in such a way that work can be done most effectively and productively without the loss of

quality, time or information.

In addition to the challenge of physical distance is the difference in the ways of working in Sweden and Finland. Integration of the two working styles is paramount in the smooth running of projects in this context. Furthermore, The Finnish organization have well established practices in their company unlike the Swedish firm where the company culture is very young and work practices have yet to be formed.

The objective of this thesis is to produce an operating model that collectively defines:

- Goals of the joint relationship of the two companies
- Key processes that support the goals
- Roles and responsibilities
- Integration and collaboration enhancing mechanisms for effective exchange of information and learning in a cross-cultural and virtual working environment, including client and stakeholder interaction.

The outcome of this research project is the operating model that defines the common goals, key processes, roles and responsibilities and the collaboration enhancing mechanisms needed for the cross-cultural and virtual interactions between the Finnish and Swedish organization.

1.3   Structure of Report

In the next section the method of the research is described with the rationale behind the research approach. After this the current state analysis outlines the current situation between the two organizations; the strategy behind the collaborative partnership, the current projects and its challenges, and the existing good practices. Then a number of existing literature is presented and summarized in which to set the framework for the operating model. The rationale behind the framework and model is then discussed followed by the findings from building the operating model. The feedback received for the operating model is then presented. Finally, the thesis ends with a discussion of the findings, credibility of the research, the limitations and suggests further studies.

2　Project Plan

2.1　Research Design

This thesis uses a qualitative research approach. To fully understand the current work dynamics between the two organizations the current state analysis involved a case study where data was collected via interviews that aimed at identifying the current interaction activities between the Finnish and Swedish organizations. The interviews also aimed to identify the good collaborative practices that are already in place and the challenges that came from working with teams abroad. This data formed the basis of the research areas in the literature review that followed.

The existing knowledge from literature involves the elements required for the operating model. The focus was on best practices around general integration enhancing mechanisms but also specific collaborative practices based on findings from the current state analysis. This formed part of the conceptual framework for building the operating model.

The operating model was built in a collective and collaborative way through one-to-one interviews first, then workshops involving the key stakeholders. The order in which the operating model is set out is crucial because without doing the first step, the second cannot be defined accurately. By defining the goals first, we get an understanding of what we want to achieve. The key processes can then be defined so it is aligned with the goals. The division of labour can easily be done based on the needs of the key processes. Thus, the roles and responsibilities can be defined. Lastly, the support mechanisms to be defined are not only the general integration enhancing mechanisms that are good to have in an organization undertaking virtual work, but also the practical collaborative systems required at critical points in a design project such as the exchange of information between persons.

The project plan flowchart in Figure 1 below represents the key steps of the thesis project.
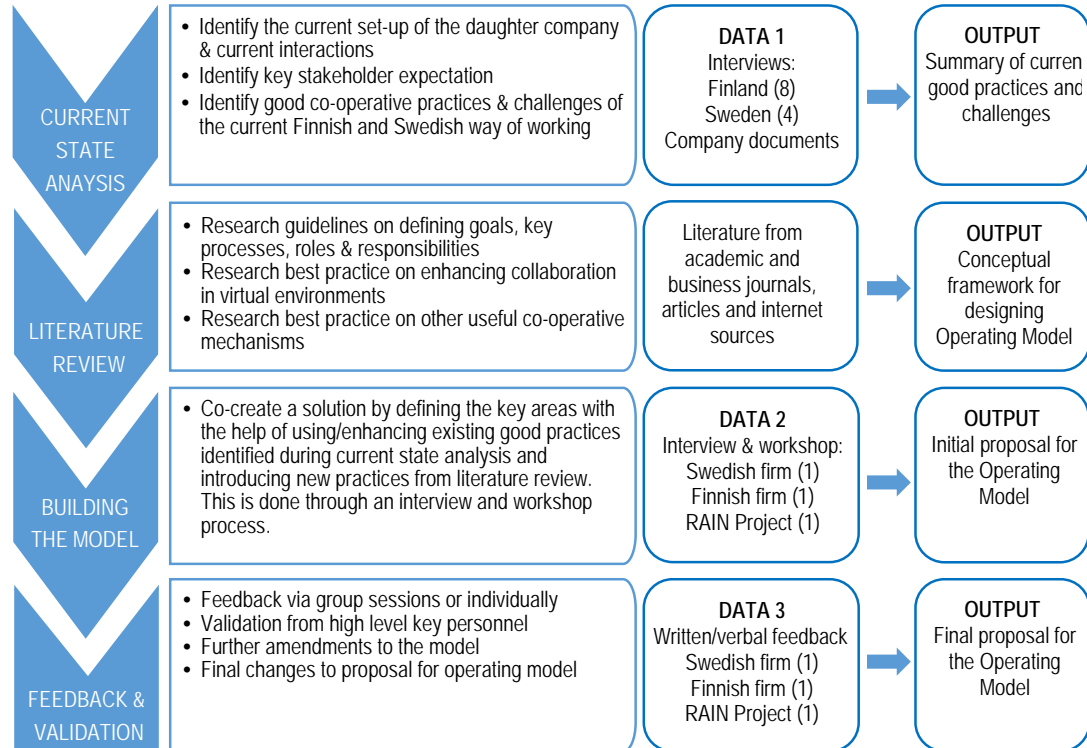
Figure 1. Project Plan Flowchart for Thesis Research.

Below in Table 1 is the data collection plan which outlines the content, source and immediate outcomes of the data that was collected.

Table 1: Data collection plan

	CONTENT	DATA SOURCE	IMMEDIATE OUTCOMES
DATA 1 Current State Analysis	1. Description of Current set-up of the daughter company & current situation with interaction & working	Interviews: - Finnish firm liaison (2) - Swedish firm liaison (1)	Summary of current state of affairs and the existing good work practices relating to integration/collaboration settings in Finland and Sweden.
	2. Stakeholder expectation of the working arrangement (top strategic & operative team)	Interviews: - Finnish firm liaison (2) - Swedish firm liaison (1) - RAIN project Manager (1)	
	3. Analysis of good co-operative practices & challenges of the	Interviews: - Finnish firm liaisons (7)	

	current Finnish way of working.	Documents: - Company documents	
	4. Analysis of good practices & challenges of the current Swedish way of working.	Interviews: - Swedish firm (2) - Client (1) - Sub-consultants (1) Documents: - Company documents	
Existing Knowledge	Best practices in enhancing collaboration in virtual settings, examples, guidelines of defining operating model.	Literature from journals, articles, Internet sources	Conceptual basis for designing the operating model
DATA 2 Building the model	Defined goals, key processes, roles & responsibilities and support mechanisms	- Finnish firm liaison (1) - Swedish firm liaison (1) - RAIN project Manager (1)	Initial proposal of operating model
DATA 3 Feedback	Description of feedback from stakeholders.	- Finnish firm liaison (1) - Swedish firm liaison (1) - RAIN project Manager (1)	Final proposal of operating model

The duration of the research was approximately 7 months. The following section describes the interview process, including details about selection of interviewees and case projects involved.

2.2   Interviews

The case study involved two separate projects which will be referred to as Project 1 and Project 2 in this thesis. Both these projects are infrastructure projects in Sweden where the client is a public organization, Swedish Transport Administration. In both these projects, the Swedish firm is the official design consultant listed in the contract. However, majority of the resources for both these jobs are from the Finnish organization where the team members are located in Finnish office.

In order to establish a complete picture of the current cooperation activities between the Swedish and Finnish firms, and the current ways of working in design projects,

interviews were conducted with companies involved with Project 1 which included the Finnish company, the Swedish company, Swedish Transport Agency and two different sub-consultants from Sweden. The interviewees that were chosen, in addition to the planning manager at the Finnish firm and managing director at the Swedish firm, were project managers, discipline leaders or project engineers. For Project 2, only interviews from the Finnish and Swedish firms were conducted because the project is still ongoing as of the time of this thesis. The interviewees in Project 2 were also involved in Project 1. There were a total of seven interviewees from Finland, two from the Swedish firm, one from the client organization and two from two different sub-consultants. This totals to five Swedish and seven Finnish interviewees. Out of the Finnish interviews, two have had long experience working and living in Sweden in their past work history and a third interviewee is a native Swede who now works in Finland. This to some degree can even out the number of Swedish and Finnish interviewees, in the context of identifying the differences between the Finnish and Swedish working cultures.

In order to understand the stakeholder expectations, i.e. the goals and strategic intention behind the set-up, there was a separate set of interview questions which only involved the vice president and planning manager at the Finnish firm and the directing manager at the Swedish firm.

Table 2 below summarizes the number of interviewees, their management level and organization for the case study projects. The interview questions for the case study projects are attached in the appendices.

Table 2:   Number of interviewees, their position and company for the case study.

	Finland	Sweden		
	Finnish Firm	Swedish Firm	Sub-consultant	Client
High Level	1	1		
Middle Level	2			1
Low Level	4	1	2	

Interviews with the Finnish team were conducted face-to-face in Finland, while interviews with members from the Swedish firm, the client and sub-consultants, were conducted via Skype or telephone. The interview questions were sent to the interviewees before the interview. The questions were semi-structured allowing for probing questions to further clarify, elaborate or direct the interview back to the original

question. Follow-up questions were asked for clarification or elaboration after the interviews were transcribed. All interviewees were asked the same main set of questions with some variations depending on how the interview went. This was the case with the client and sub-consultants as not all the questions were relevant to them. Notes were taken during the interviews in addition to recordings. The recordings gave the ability to go back to the interview discussions to correctly quote the interviewees and to eliminate any misunderstandings while the notes suggested what was emphasised during the interviews.

Furthermore, for the case study interviews, the interviewees were notified that their responses would be anonymous in order to create an open and trustful environment during the interviews. Afterwards, the interviewees were given a chance to go over their transcribed responses and confirm the content was correct in order to avoid misunderstandings and incorrectness. To keep the anonymity of the interviewees, the quotations in this report are referenced by the interviewee's management level in their company, that is, high, middle or low level along with a number if there is more than one in a particular category. This gives each interviewee a unique label while also keeping their identity unknown. Not all interviewees are in management roles, therefore, in order to simplify the classification, interviewees that are not managers will be referred to as low level.

2.3   Delimitations

It was not possible to conduct interviews with the sub-consultants and client for Project 2 as the project was still on going at the time of the current state analysis. The interviewees did describe the general communication with the sub-consultants and client in Project 2. However, the focus was communication and interaction between the two case companies. Furthermore, in case project 1, not all sub-consultants agreed to participate in the interviews which limited the current state analysis to two external company contributions to the case project investigation.

3   Analysis of Current Business Environment

This chapter describes the data derived from the interviews. The current set up of the Swedish organization and its current operations with the Finnish firm is then presented, followed by the key stakeholder expectations. The report goes into some of the key themes derived from the interviews relating to collaborative work in the case study projects. The chapter ends with a summary of the current state analysis.

3.1   The Current Setup

The Finnish company's business depends on one customer and one market segment in Finland. The core business is in rail track design involving railway, electrification, signalling and telecommunications, also known as BEST system in Sweden. Business opportunities are limited to BEST system type works for the Finnish Transport Administration as a customer. Due to very limited growth opportunities in a declining market in Finland, they have entered the Swedish market and launched their daughter company in 2016, which is a consulting firm based in Sweden.

For the first few months the only staff at the Swedish firm have been the managing director and a project engineer. To initiate the organization, two project managing offices have been set up; one in Stockholm and the other in Gothenburg. In turn, project managers and designers are expected to be hired for these offices. The intention is to build up a resource pool of competencies that currently the Finnish organization does not have or lacks in strength in the Swedish market.

> It is not a replicate of [the Finnish firm] because [they] have railway expertise and can speak Swedish, but there is a lack of competence in civil and environmental work. For example, they don't win road work. It's not their strength. (Swedish firm, high level)

Furthermore, the general business idea of the Swedish organization is that it is a project-oriented organization rather than a departmental or function-based company. The business model is to minimize administrative activities and mid managers, and focus on delivery.

> By having a project orientated structure, it minimizes the need of technical managers that often works as 'manpower institutions'. We intend to be very project focused. (Swedish firm, high level)

Figure 2 below shows the current project-oriented set-up for undertaking Swedish projects at the Swedish firm using the Finnish firm's resources.
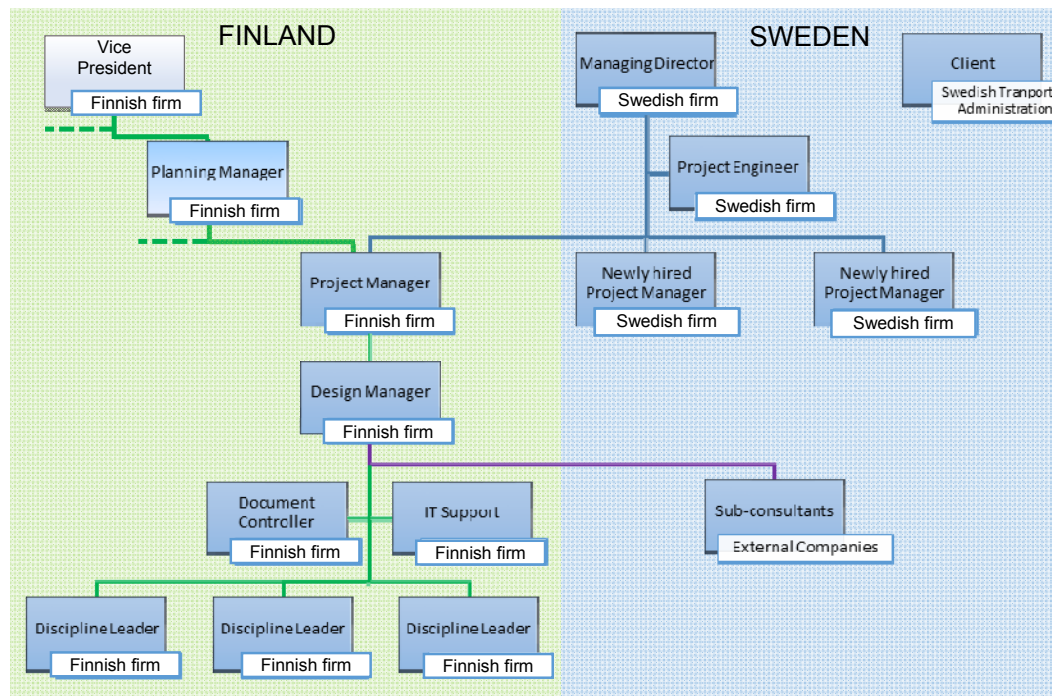
Figure 2   Current project-based organizational structure at Swedish firm and its relationship with the Finnish organization on Swedish projects.

So far at the Swedish firm, all communication regarding technical and management issues have been administered by the managing director while almost all administrative issues have been handled by the project engineer. The managing director also communicates with the Finnish organization's vice president regarding corporate issues and with the planning manager regarding development issues concerning co-operative procedures and processes as well as important project issues including project bidding. He also has been communicating with project managers from the Finnish firm regarding project management and technical issues. The project engineer communicates with the engineers and project managers in Finland and consultants in Sweden.

So far, the organizations have cooperated in two design projects. The first project, Project 1, is time charged and the second project, Project 2, is a lump sum contract project. While Project 1 has finalized its first stage with good performance results according to the client, Project 2 is ongoing and is believed to be progressing well.

3.2 Key Stakeholder Expectations

The strategic intention behind the Swedish organization is to eventually create a Scandinavian level knowledge hub divided with specialties in Finland, Sweden and in the future, Norway. The goal for Sweden is to develop it to be increasingly road and civil works focused. In the beginning most Swedish projects at the Swedish firm are expected to be related to rail design (especially BEST type projects) but expected to expand into road infrastructure projects in the future. Currently the Swedish government is investing in the rail and road infrastructure sector so the Finnish organization believe it is a good opportunity to enter Sweden and initially focus on gaining rail infrastructure projects because it is their strongest suit.

In the future, it is expected that there will be an increasing share of road and civil works projects using Swedish resources while continuing to use Finnish resources for a large share of rail design work. The plan is to develop the Finnish and Swedish organizations based on demand and build a model where resources can be used as flexibly as possible between the two countries.

> The idea is to be a Scandinavian business and look at it as a whole in terms of resources from [Swedish firm] and [Finnish firm] so to optimize project delivery. Maybe in the future there are more business opportunities in Finland. (Finnish firm, high level 1)

The vision is to become a Nordic consulting firm in the infrastructure sector by 2020. To achieve this, the strategy is to have the customer interface, including sales, marketing and project management, in the customer country and use resources from other countries.

> Local presence in business area means not needing to interface with the client. This means we can use resources from anywhere in the world for engineering know-how. (Finnish firm, high level 1)

Currently Finnish project managers have been able to manage Swedish projects because they have the language skills but it is believed that there is little possibility the other direction, i.e. Swedish project managers for Finnish projects. However, it is believed that the design resources should be flexible between the countries.

> If you use designers only in Sweden you don't take benefits from using people from different countries if the market goes down in a single country. But if flexible in using resources across borders you develop opportunities to work as an international business. (Finnish firm, high level 1)

The immediate expectations are to perform design work in Finland and use external resources where needed which has been the case so far. Track engineering is the core business but external sources for GIS based know-how and civil engineering know-how exists in Sweden. By gathering experiences from the first few projects in Sweden, the business is expected to grow to include road and street design, tram/light rail design and area/regional planning in the future.

3.3   Case Study Projects

Project 1 is the first Swedish project that the Finnish organization has worked on, in cooperation with the Swedish firm. The project management team and rail designers were in Finland while sub-consultants were in Sweden. The Swedish firm's staff interfaced with the Swedish client along with the Finnish project management team. Their role was to support the Finnish team by coordinating the work, interfacing with the client and sub-consultants, and providing guidance on Swedish requirements. The second project, Project 2, is still ongoing and is managed from Finland, where majority of the designers are in Finland and one sub-consultant is located in Sweden. The team in Project 2 includes most of the members in Project 1 and the project engineer from the Swedish firm.

For the most part, the Swedish firm has adopted or tied into the Finnish firm's systems and processes on these two jobs but it is evident to both organizations that adjustments need to be made to suit both ways of working.

3.4   Facilitators, Challenges, and Good Practices

This section presents data derived from the interviews that describe the current facilitators and challenges related to collaborative work on the case study projects. The areas of interest were communication, meetings, language, collaborative tools, roles and responsibilities, processes, work-culture, good practices and improvements. The chapter ends with a summary of the key findings.

3.4.1   Communication

The most commonly used forms of communication in the case study projects were web conferences, e-mails, telephone calls and face-to-face meetings. Out of these methods, the most favoured was meetings that were face-to-face. Majority of the interviewees, both from Sweden and Finland, perceived that live meetings between the organizations and with the client was the most beneficial way for enhancing communication and collaboration. In Project 1, while most of the project team in Finland worked from their offices, the project manager and assistant project manager worked from the Sweden offices two days a week. This was a condition stated in the contract by the client. These visits were considered to be very beneficial and majority of the interviewees expressed that more face-to-face meetings would further benefit the project.

> There are always some challenges with virtual collaboration. Technical issues, getting to know each other, effectiveness, lack of response at meetings etc. But in general it is working quite well. However, the investment in having two consultants in Sweden for two days every week has probably made the collaboration better in both projects. (Swedish firm, high level)

While it was understood that travelling often to Sweden could add up in costs, most believed that it is very important to have face-to-face encounters in the early stages of a project. These visits to Sweden were considered worth the investment because it helped ease any language barriers and enhanced the relationship with the client which then helped communication and collaboration later in the project when using other virtual communication tools.

> If it wasn't in the contract to be physically present twice a week in Sweden, maybe we could have saved money and time but maybe then we would have problems. At the beginning when we don't know each other we should be there face-to-face. It is easier to communicate face-to-face when language levels are different. (Finnish firm, middle level 1)

Overall, given the co-location of the teams, the use of web conferencing, namely Skype, was considered to be "working well for communication" (Swedish firm, high level) and were also used for meetings. Skype was thought to be an effective tool that most were well acquainted with. However, some of the challenges identified with this type of virtual interaction were occasional technical or connection issues, not knowing if

the message was understood or who else was in the Skype meeting, and the effectiveness and lack of response in meetings.

> The biggest problem is when people are sitting separately and to get them involved in the discussion. Some don't participate or may not be focusing on the meeting. So the challenge is to get everyone involved and make meetings interesting because it is important to have everyone involved in discussions. (Finnish firm, high level 2)

Most of the interviewees thought Skype meetings were generally working well, however at the same time thought that it was hard to hear when catering for larger audiences. "The sound quality varied a lot during these meetings and the more participants, the poorer the sound quality" (Swedish firm, low level). It was suggested by both the Swedish and Finnish firms that investing in better microphones could solve audio problems.

> We should use microphones that are higher. It's something simple, but it could help the clarity of the meetings as too often there are audio issues; often asking people to speak louder. (Finnish firm, middle level 1)

Furthermore, some of the interviewees believed that a communication plan including virtual meeting protocol should be established early in the project to make Skype and other forms of communication more effective.

3.4.2   Meetings

For Project 1, there were face-to-face meetings with the client and sub-consultants in Sweden which the project management team from Finland physically attended twice a week and designers from Finland attended via Skype. Some of the challenges when it came to meeting practicalities between the Finnish team and the Swedish team were that it was not always integrated.

> There was never enough time to prepare altogether. If you want to have a good meeting it's good to meet up with your team before meeting the client. Sometimes they came directly from the airport to the meeting with the client. So there was never enough time to actually sit down and discuss things before the meeting. That was a challenge. I think we would have been more united if we had an hour, for example, to prepare our meeting together. (Swedish firm, low level)

Although majority agreed that these face-to-face meetings helped collaboration it was

not always seen to be effective because they were "long meetings when it is in Sweden in order to use the time while the Finnish consultants are there" (Swedish firm, high level). However, it was perceived that meetings continuously improved and became more effective over time.

> From the first meeting to the last, it was constantly improving. We got better at it in the end. Maybe in the beginning we didn't have all the templates and we didn't really know how to do it, but we got more efficient towards the end and found new ways to tackle issues. (Swedish firm, low level)

For Project 2, weekly meetings were held in the Finnish firm's offices and meetings with the client were done with Skype. Sometimes the Swedish firm's staff joined in via Skype. There didn't appear to be many problems with this arrangement from the Finnish side as majority of the design team were in Finland but they were not sure how it went for the others. Furthermore, a video meeting at the beginning of Project 2 was seen to be beneficial. Although there were technical issues that hindered visibility at times, it was still considered something that should be done more often, especially at the beginning of a project and when face-to-face meetings were not available. The reason behind this is because most of the interviewees felt that it was sometimes difficult to know who was in the meeting, who is speaking and what their roles are in the project. Having a video meeting at the beginning of the project meant that you were better aware of who is involved and can later recognize and know who you are speaking with during a Skype meeting or a phone call.

3.4.3 Language

All communication with the client including official documents were in the Swedish language. In order to minimize communication problems on the projects, the team in Finland was mostly chosen for their ability to speak Swedish, in addition to their technical experience. Majority of the team were able to speak Swedish however, there were varying levels of language skills.

> We learned to be careful in our communication in order not to misunderstand each other, and to take the time and confirm all the questions and so on. It worked very well. (Client, middle level)

It was seen as a challenge for those whose Swedish language skills were lower and still developing. In some cases, translators were required and difficulties arose when

Swedish was spoken at a fast pace or if accents were from a different region in Sweden. In addition, the Swedish language in Finland is not completely the same as the Swedish language in Sweden. This is referred to as Finnish-Swedish which is a dialect of Swedish spoken by the Swedish-speaking population living in Finland.

Internal meetings at the Finnish firm were held in their native language but in order to practice their Swedish, the Finnish team implemented a rule to only speak Swedish during these meetings. They were later able to have meetings completely in Swedish which meant Swedish language skills had improved.

> I think everybody's language skill improved. In the beginning we tried to hold internal meetings in Swedish as well. We tried not to speak Finnish, so in the end we had the meetings in Swedish basically the whole time. (Finnish firm, low level 2)

Overall, language deficiencies did not hinder performance or relationship with the client. For Project 1, the key people interfacing with the client had good Swedish language skills and communication was face-to-face which helped with language barriers. Interviewees expressed that it was easier to identify misunderstandings by seeing facial expressions and body language when face-to-face. For Project 2, there were less face-to-face encounters with Swedish teams so there were more challenges related to using Skype for communication. This was especially the case with the sub-consultant when it came to making sure that what was communicated was understood.

3.4.4   Collaborative Tools

When it came to collaborative tools, especially related to document management and information flow, there appeared to be major challenges. A lot of the interviewees expressed that it was much easier to share information when in the same location while it was more difficult to refer to information over the phone or Skype.

> Exchanging all kinds of material and always having something to show the other person for example, a drawing or sketch. It's much easier if you are all in the same place. And reading facial expressions and things like that are important. (Finnish firm, low level 1)

For document control, the Finnish organization uses a different system to the Swedish firm. A project portal called Webforum is used in the Swedish organization where all

project administrative documents are stored and the system is open (with restrictions) for every participant in a particular project. The Finnish organization uses a system called Onedrive. At the moment the systems are not integrated.

> [Finnish firm's] Onedrive has been used for [Project 1] and caused many problems for the Swedish participants due to the use of the Finnish language and lack of project portal tools and structure. (Swedish firm, high level)

There were mixed views about Onedrive versus Webforum from the interviewees. The ability for multiple people to work from a single file was regarded as positive attribute to Onedrive which Webforum can not cater for.

> I think Onedrive works okay, because in the same document two people can work at the same time. When we are talking about Webforum, only one person can work in the document so it's a little bit difficult because you have to wait for the person that has the document opened to finish. (Finnish firm, middle manager 2)

However, at the same time loading documents were much slower, lacked structure and the content was in the Finnish language making it difficult for Swedish persons to use.

> The challenge with Onedrive is that you can't really get an overview. You can't see the folder tree. You have to guess where you are. You don't see if you have everything you need. It's in Finnish and that was a big challenge because I don't understand the language. (Swedish firm, low level)

Webforum was seen to be a more user-friendly tool were folder names were in English to make it accessible for everyone. It was also mentioned that it was a good project management tool as more functions were available, for example there were time recording and reporting tools within the system.

> Webforum - it's much easier. You get that overview. You can also do other things in the settings. Things like time reporting is in excel in Onedrive but in Webforum you can do it directly in the software. You can get different kinds of overviews from it which could save you time. I think you can get better use out of Webforum. (Swedish firm, low level)

In addition to these tools used by the Finnish and Swedish firms, sub-consultants had their own databases and information was exchanged via email and OneDrive. However, it was viewed that the "project engineer had to do a lot of double work" (Sub-consultant, low level 1) because systems were not integrated.

> Usually companies are helping us, not the other way around. They have access

> to the original information, in some other folder or some other system, but it hasn't really been working well on the same files; it's more like we do ours and they do theirs. It is quite separate, I would say. We have to communicate to do it but we don't access exactly the same thing at the same time. (Finnish firm, low level 3)

Furthermore, the Swedish Transport Administration have their own databases. One of them is called Project Portal Investment (PPI) where everything relating to the administration of the project is saved and shared with the project members. You can request for information, seek clarification, and see the review comments register and the responses. Everyone in the project has access to it. The other database is called IDA, which is essentially ProjectWise, a program where everything related to the product is saved, such as design models and drawings. Using these databases and the style of documentation was unfamiliar to the Finnish team and required a longer start up time.

> We have needed to access the Swedish Transport Agency's archives. There have been some problems with that but it's been going fine mainly. It might be difficult knowing what kind of information is available and what we need to get here. (Finnish firm, low level 3)

Overall it was viewed as a good system because it had the ability to include everyone involved in the project and all the information was controlled in an official way. The minor challenges the Finnish team had was that they were not acquainted with working in such an official way. For example, simple questions wanted to be answered sooner.

> I think it was very sort of hierarchical. They had official questions and they asked us to work in an official way. I guess sometimes it's good to have that system but sometimes if you have a really small question, you have to wait two to three days. They wanted it this way. Sometimes it took considerable time to get the answers this way [from PPI]. (Finnish firm, low level 2)

From the sub-consultant's perspective, there were challenges because they did not use the client's portals. Being a Swedish sub-consultant, they were used to working directly with the Swedish Transport Administration's information portals and found that going through the Finnish organization's channels instead was believed to be a risk for loss of information, duplicate documents and working off outdated versions.

Another challenge is the storage of the computer-aided design (CAD) files. Currently in Finland a program called Novapoint is used to produce the CAD model files whereas in Sweden, Bentley Rail software is used. Final delivery of the design for Swedish

Transport Administration is required to be in Bentley Rail format. While it is possible to convert from Novapoint format to Bentley Rail format, the challenge lies in the storage and access of the CAD files when working in collaboration with other teams abroad. "The CAD-models need a project collaboration database which is international. Today all files are stored in one server in Finland" (Swedish firm, high level). The challenge is bringing in an integrated system that is a common data environment for the Swedish firm, the Finnish firm and project participants from other companies. In addition, the database must be compatible for collaborative work that allows for different types of CAD files.

3.4.5   Roles and responsibilities

One challenge identified for the two organizations was how to split responsibility. How to share risk, how to split the project profits, how to define bonuses for employees involved in Swedish projects and how to deal with losses were all areas that needed to be defined at the high level.

It was mentioned by a few interviewees that project management should come from the project location. This was because working cultures differed and being in the project location and having local knowledge would mean a better understanding of the Swedish client's requirements.

> I think that we really need Swedish project managers to lead the work and we can/should have Finish design managers for the Finnish input. (Swedish firm, high level)

A large number of the interviewees believed that roles needed to be better defined. In Project 1, roles seemed to overlap one another and there was some confusion about what responsibilities one had.

> Because it was our first time doing a Swedish job, it was challenging at the beginning because roles were fuzzy. Roles overlapped one another and there were responsibilities that no one knew they had. (Finnish firm, low level 1)

In addition, it was expressed that "roles should be very clear for what everybody is doing. In Finland, it's not clear who is dealing with the Swedish design work and for whom. It's not organized" (Finnish firm, middle level 2). There appeared to be confusion between project manager and design manager roles in Finland.

> There is a little bit of an internal problem between working as a project manager and head designer. Tasks for the project manager is economical and relationship with the client, things like that and the head designer is the leader for the discipline leaders. There might be a little bit of misunderstanding between them. (Finnish firm, middle level 2)

Furthermore, it was also mentioned that line managers at the Finnish organization should be involved with the resourcing for Swedish projects. Currently resourcing methods for Swedish design projects are seen to be unclear.

> I think the line managers should somehow be involved with the resourcing. Now only one person or some persons are dealing with resourcing for Swedish design projects. For example, the line manager in Tampere doesn't know anything. Will a Swedish design project need his design resources? I think this is not handled well right now. There should be someone in the organization between [the Swedish firm] and Finnish line managers. There should be one person between them and only one person who is discussing and dealing with the works between Finland and Sweden for Swedish projects. Now it is a bit messy. Everybody is doing something. Of course, it is the decision of the chiefs to decide who and how this is handled. (Finnish firm, middle level 2)

The challenges that come with sharing resources between the two companies is that currently Finnish resources are scarce for Swedish projects because language skills are required in addition to certain level of design experience. There is a small pool of designers to choose from and the problem comes when these designers have other projects to do. Involving line managers at the Finnish firm is believed to help make better resourcing decisions for Finnish designers on Swedish projects.

3.4.6   Processes

Establishing a reporting system to the client was a slow start for Project 1. There were no proper reporting systems set up at the beginning of the project. There appeared to be a gap in understanding the reporting style preferred by the Swedish client.

> The reporting was too vague and not frequent enough. Swedish Transport Agency demands much faster updates and more comprehensive reporting. Reporting to traffic authority needs to be set up. Be able to be more structured and updated. (Swedish firm, high level)

In addition, there were too many different systems for reporting and locating some of them was an issue for some members. Time reporting was done in an excel spreadsheet in addition to an online system called eTunti for the Finnish staff. It was

mentioned that "the hours never agreed much. Some extra work was needed to solve these differences" (Finnish firm, low level 2).

> We had too many different systems for reporting. We didn't really know where to store them or where to find everything. We started to have double copies and different platforms. That was really a challenge. I think it's best to have just one. (Finnish firm, low level 1)

A reporting system was established later in the project. This included monthly reporting before client meetings where the agenda summarized the reporting topics to be discussed during the meeting. These summaries included discipline designs, deadlines, financials of the project and upcoming submissions. The new established reporting system is seen to be working well, however the team "could have saved a lot of time if it was prepared from the start" (Swedish firm, low level).

> It was a slow start but now we have established a reporting process. I think it works very well because before, there was a lot of information changed during the meetings. Now I can see their report before the meeting and we can talk about what's important - so it worked out very well. I think I will adopt this manner to my other projects. (Client, middle level)

For Project 2, there are weekly and monthly reports to the client. The weekly reports come directly from the weekly meetings the Finnish team have in their offices. These reports include what tasks are being undertaken over a two-week period. Monthly reporting includes items like status on deliverables, economics related to progress payments and decisions that require answers from the client.

Reporting within the companies consists of the directing manager at the Swedish firm reporting to the vice president at the Finnish firm. These reports were at the corporate level while project related reports were relayed to the planning manager only. The planning manager transfers the information to the board of managers in their weekly meetings. This was established because the Finnish organization have their board of manager meetings in the Finnish language. This reporting system between the two organizations is seen to be "working quite well in terms information transfer" (Finnish firm, high level 2).

There were challenges with producing a complete checklist for Swedish projects. For Project 1, checklists were expected to be done however, the Finnish team didn't have them until later in the project. The challenge for the project team was identifying what to

include in the checklist as it was unfamiliar territory and their first exposure to Swedish projects.

> In the beginning of the project [the Finnish firm] had to write down their table of content on the project they were planning to deliver to us so I could check if they had everything in it. It was a challenge because they left a few things out and I couldn't see it from the beginning so we had a few things that fell in between and it was difficult to pick it up. It could have been done in a better way in the beginning. I think it is good idea to make a table of content early in the project and then follow the progress on each document but, unfortunately, we lost some of them in the beginning. (Client, middle level)

There were lists of deliverables required by the Swedish Transport Administration in tender documents but an overall checklist was something the project team had to establish. It was a challenge at the beginning however an overall checklist was developed later in the project that listed all requirements.

> We haven't really got any checklists for the Swedish projects. So it had to be done from the beginning and the customer expected us to have it. We didn't have any and it was a big challenge. I don't think we use very much checklists here in our company. But I think we probably should. Everything had to be done from scratch for this project and it was done in the end so it was quite rushed and probably not so good. (Finnish firm, low level 1)

For Project 2, a checklist was created based on information from tender documents and Swedish design rules and standards.

> We formed the checklist based on the different kind of documents available to us from the client. I don't know if the checklist is right or wrong but it's something that will improve as we do more projects for Sweden. I think it's working okay. (Finnish firm, middle level 2)

When it came to reviewing documents there appeared to be some issues. Reviewing documents were seen to take too long to get done. It was mentioned that "the challenge with the program is how much time it takes to do reviews in the end. Corrections and review takes a long time" (Swedish firm, high level). In addition, there appeared to be a need to redefine or update the way reviews were done at the Finnish firm because with the use of computer aided design tools, comes easier editing and modification of designs. It is much easier today to "cut" and "delete" information than it was with manual drafting many years ago. It was mentioned in the interviews that teams "should check together because there are more risks of missing information on drawings" (Finnish firm, middle level 1).

Comments about feedback processes were mostly positive. Majority of the interviewees expressed that feedback during meetings using Plus/Delta method was effective and beneficial. This method is described in section 3.4.8 Good Practices. This method was used in all meetings including internal and client meetings.

The main feedback from the client is done after project delivery where an evaluation of the project performance is undertaken and grading is provided. This is done during a feedback session at the end of the project. This process was seen to be a better feedback process than the way it is done with Finnish clients. For Project 1, having a good relationship with the client was seen to help with receiving immediate feedback. "We had a very good relationship with the customer so we got feedback immediately. Because of the good relationship it was easier to get feedback" (Finnish firm, middle level 1).

In Project 2, feedback that was received from the client was relayed back to the designers during weekly meetings and direct feedback from client was received in monthly meetings where discipline leads attended. Feedback that was needed from the client was also discussed during the weekly meetings.

> I think weekly meetings are a quick and good place to discuss about feedback for the whole group and also feedback we want from the client. When you have a fixed priced project, you need answers from the client quickly. (Finnish firm, middle level 2)

However, some felt that feedback from the meetings were "incomplete" and hoped for "email feedback for technical issues" (Finnish firm, low level 4). Furthermore, some felt that feedback was not as frequent or transparent enough.

> The feedback has not been often enough and it's been too late. There might be a little bit of feedback during the project but not too much, but I think some of that also has to do with, for example, within the company. Everyone doesn't know what everyone else is doing and they don't know, for example, if it's going well or if they've done a good job with it or not. There are only a few people that really know how it goes for everyone. (Finnish firm, low level 3)

For internal rewards schemes in the Finnish organization every designer has a project portfolio of all the projects they have worked on. These projects could be in profit or loss, so the sum of the results is used to determine the bonus from projects that did well. This is a new system which might explain why some of the interviewees hadn't heard about it.

> Not working well as incentives at the moment but we are starting to build this system because it's good to give bonus to people. We also show appreciation regularly and point out the positives in every meeting because of the Plus Delta feedback at the end. (Finnish firm, high level 2)

Collaboration related incentives, on the other hand, were mentioned to be a more positive aspect than bonus related incentives.

3.4.7   Work-culture

The Swedish and Finnish working cultures are mostly perceived to be very similar. Legislation and words when translating from Swedish to Finnish were believed to be the same. Some Swedish interviewees believed that the Finnish organization has a more hierarchal organizational structure while Swedish firms have flat structures. Finland was seen to place more importance to what managers say compared to Sweden, where employees' opinions and decisions from all levels are considered somewhat equal. In addition, reaching consensus appeared to be a key principle in Swedish work culture which is not the case for Finland.

> Sometimes, the Swedish people like to discuss things and they want everybody to have the same opinion. Everybody here is like 'no, this is the way' and everyone doesn't have to have the same opinion. (Finnish company, low level 2)

It was perceived by some Swedish interviewees that in Finland there is more respect for budget and schedule compared to Sweden. This might be explained by the lack of experience with fixed price projects in Sweden as majority of the work in consulting in the past has been time charged. In addition, Finns are seen to be more focused on solving technical problems and producing quality work compared to Swedes who are "more businessman-like" and spend the time communicating and also "try to make more money" (Swedish company, high level).

> I think in Finland we are thinking more technically. Finnish persons are not so social compared to Swedish persons and they could think that we are a bit impolite, but it's the way we are used to communicating. Of course, I think that in business, you can't always chat and discuss all the time, you need to get results. If you don't get the results, there will be budget problems. (Finnish company, middle level 2)

Moreover, the Swedish client wanting to be more involved in the process was something different for Finland. From the Finnish perspective, the Swedish client

wanting to be more involved in the design process, have more meetings, phone calls and reporting was different to the way it is done in Finland, especially different to their experience with Finnish clients.

Much of the comments regarding differences in work culture related to the differences in how work was executed and presented but the end results were seen as essentially the same. When working with different procedures and approaches the focus was on how the work was done even though the end result was thought to be the same. For example, going through the project manager for information and not directly to the client was perceived to be an ineffective way for Swedish sub-consultant.

> A lot of information was given but it was not quite organized. We have to go through the project manager. Normally you can log into transport administration and load documents which is a good way and it is necessary as well. It is easier to go through transport administration so you don't have to worry about duplicate documents or latest versions. (Swedish sub-consultant, low level 1)

The Swedish guidelines and standards were different to the Finnish. Several Finnish interviewees expressed that the Swedish guidelines were stricter than the Finnish and the project requirements were much more detailed. They also expressed that organizations in Sweden worked in a more official way than what they were used to. The challenge was understanding and getting familiar with the Swedish Transport Administration's guidelines and instructions, the design process, what to include in design documents and how to present them. This was seen to have added significant amount of time to start the work.

> How they show results was different to how it is done in Finland. It took double the time to find out what those Swedish instructions and guidelines meant. (Finnish company, low level 4)

Getting acquainted with the Swedish requirements and standards required the necessary language skills but sometimes translations were also needed because of the language differences between Swedish in Sweden and the Finnish-Swedish dialect. In addition to this, navigating through the Swedish Transport Administration's databases for guidelines and documents required some time to get familiar with because it was a new tool for both the Finnish firm and the Swedish firm.

Furthermore, it was expressed by some interviewees that having partnerships in place between the Finnish firm and well established Swedish firms was important due to the

unfamiliarity of Swedish processes.

> I think it's been clear that it's very important to have partnerships in place because we can't do everything and it's something others need to understand; that it's good to have those partnerships in place and it's not so difficult to get. It's hard to do the bid when half the bid time is spent on finding someone to do the bid with together. (Finnish company, low level 3)

Most of the interviewees felt that working with the other team gave them valuable experience of the different approaches to ways of working. The Finns were seen to be open to new ways of working while the nature of Swedes were perceived to be easy-going and co-operative. Both of these traits were identified as to help collaboration.

3.4.8   Good Practices

The Finnish organization has adopted 'Lean' practices in their projects in Finland and also used them in the case study projects. Lean practices are tools that are derived from principles of a 'Lean' culture. In brief, Lean originated in Toyota's manufacturing shops in the 1990s where they used tactical methods to eliminate waste and solve problems. Toyota's success soon encouraged many companies to adopt these techniques and today they are known as Lean concepts and Lean thinking. The primary pillars of Lean culture include identifying customer value, working in value streams, maximising the flow of work, empowering the people in the company and pursuing continuous improvement. The Finnish organization has adopted three Lean tools and they are Plus/Delta, Last Planner and Five Whys and they were seen to be effective tools during the case study projects.

Plus/Delta method was introduced in all meetings with the Swedish firm, the client and sub-consultants in the case study projects by the Finnish team and was mentioned to be a great routine in meetings and for feedback. This was mentioned by almost everyone from the Swedish side.

> [The Finnish firm] came to us with ways we could continuously improve ourselves. We made this Plus/Delta in our meetings. We needed it, it's very good for us and we improved our effectivity in the meetings. (Client, middle level)

Plus/Deltas are typically done in the last 10 minutes of a meeting and it is listed as the last item in the agenda.   The Pluses are generally things that brought value to the

meeting while Deltas are ways the team can change or add to bring more value to meetings. The focus is on the process of each particular meeting and how it can improve.

Last Planner system in practice is a collaborative effort in planning the master schedule of a particular project. Participants, usually the project manager and discipline leaders, work together to identify which tasks need to be completed and when. The idea is to ask for commitments and promises from team members to meet the overall target schedule. This also involves working backwards from end to start which help team members break down all the steps in the project and better understand the resources needed. Moreover, Last Planner system involves 'pull scheduling' principle where only the work that can be done is promised by team members and this is done during weekly work plan meetings.

Using the Last Planner system, the Finnish team schedules the project timetable from end to start and has a two-week look ahead at every weekly meeting. Interviewees thought this technique was a good way to schedule the project work and manage risk, resources, and deadlines.

> This is a good scheduling tool because you follow a 2 week look ahead, then you check if you have done the work. You can find the risks of the project this way, discuss previous activities and new deadlines can be formed. (Finnish firm, high level 2)

The third Lean tool adopted at the Finnish firm is the Five Whys. It is a process that aims to find the root cause of a problem. When a problem occurs, by asking 'why' questions it helps uncover its nature and source. The first step in this process is to state the problem, usually a facilitator does this. Then the question 'why' is asked, meaning why did the problem happen? The group or person brainstorms answers based on direct observations and the facilitator asks 'why' again. This is done in an iterative process where 'why' is asked five times in total. It is believed that five is the typical number of time that allows for the root cause(s) to be revealed.

> We use the 'Five Whys' project feedback method to ask five times 'why' questions to find the root cause to issues so we can learn from them. (Finnish firm, high level 2)

Establishing these Lean practices in project work are part of the Finnish organization's

move towards a Lean culture. The company's RAIN project currently is using Lean principles and working towards implementing further Lean practices that enhance work flow, value, collaboration and efficiency in design work. The Lean concept and its practices are further described in Chapter 4.

3.4.9   Suggested Improvements

The most frequently suggested improvement to better enhance collaboration in the case projects was having more face-to-face meetings. This was believed to enhance collaboration, relationships, break down language barriers and help in the transfer of information between companies. It was also suggested to have more meetings in general, especially with sub-consultants and to include both Swedish and Finnish employees in meetings. Involving Swedish persons in meetings were seen to be important for communicating client needs. This is especially important when there are language barriers and when face-to-face meetings are not available.

In addition, there were suggestions about getting better microphones for Skype meetings which was thought to help when having internet meetings with multiple offices. Having more video meetings was also suggested and especially early in the project, however it appears an upgrade in video camera systems is needed for this.

> It could be better if we could have some video cameras for Skype so it is more visual and feels like more of a live meeting. (Finnish firm, middle level 2)

Another suggestion was implementation of code of conduct for virtual meetings using Skype to make them more effective. It was also evident to some that a plan was needed for face-to-face meetings that are held in Sweden as the meetings were not prepared together with the Swedish team when meeting the client.

> Maybe set rules or code of conduct for virtual meetings in Skype. Find ways to get people more involved in meetings so they are proactive and involved. (Finnish firm, high level 2)

When it came to traveling, it was suggested that traveling between countries should be made more convenient in a way that also reduces costs in the long run.

> Currently, it's quite cheap to get there but in the long run it gets quite expensive when you have to buy tickets for airplanes and hotel fees. When you add

> everything together it's quite a big sum. Maybe having an office there and some kind of flat where people can stay overnight instead of always taking one or more hotel rooms. That could be one solution if we get more projects there that require people to actually be in Sweden. (Finnish firm, low level 1)

Better planning for the start-up phase of the project was also one that was mentioned by many interviewees. The suggested improvements included setting up better templates and checklists, discussing common goals for the project, better defining roles and responsibilities, being acquainted with everyone in the project team and setting detailed scope.

> A lot of effort needs to go in to the start-up phase. Need to know exactly what to do and how to do it, set up templates, requirements list and list of deliverables. (Swedish firm, low level)

In terms of ways of working it was suggested that designers be more vigilant in recording decisions and reasons for design changes which appeared not to be common practice in the Finnish organization.

> Designers should record and write everything down, especially design decisions and reasons for changes. This is not done so much in Finland and it is good to get used to doing it for Swedish projects. This way you can identify problems before they happen. (Finnish firm, middle level 1)

Other improvements included how tasks were given to sub-consultants via Skype.

> We should improve the way we are giving the task to them as it is difficult with Skype because you can't see their faces. Are they a little bit surprised, or is everything okay? They could say they understand but is it really understood? It's easier to share the same room than it is to share the same Skype meeting. (Finnish firm, middle level 2)

Start partnering up with a consultancy in Sweden who are already established and start getting used to the system. They could show us that there are ways to solve technically more difficult questions so they can get to the information they need to finish the project and complete it in a good way. (Finnish firm, low level 3)

3.5   Summary of Current Business Environment

The following Table 3 summarizes the findings of the current state analysis. It highlights the interviewees' perceived good practices that are currently in place and the

challenges that came from virtual and cross-cultural work.

Table 3:   Summary of current business environment – the good practices and challenges

	Good Practices	**Challenges**
Communication	▪ Getting acquainted with everyone involved in the project at the beginning, especially face-to-face ▪ Using Skype when small audience	▪ Audio issues when using Skype for larger audience ▪ Language barriers
Meetings	▪ Plus/Delta in the meetings ▪ Weekly discipline meetings ▪ Frequent face-to-face meetings	▪ Effectivity and engagement when using Skype
Collaborative Tools	▪ Webforum appeared to be a good document control and project management tool	▪ Multiple people cannot work on same document in Webforum ▪ Not an integrated system for CAD files
Project Start up	▪ Video meeting at the start to be better aware of who is involved in the project. ▪ Face-to-face meeting with introductions	▪ Technical issues with video meeting ▪ Unaware of other's roles in the project ▪ Lack of templates set up
Reporting	▪ Monthly reporting prior to monthly meetings	▪ Establishing reporting system to suit Swedish client.
Feedback	▪ Plus/Delta method	▪ Not frequent enough or incomplete for individual performance
Checklists & Scheduling	▪ Last Planner method	▪ Unfamiliar with Swedish requirements for checklists
Roles & Responsibilities	▪ Having a local presence in Sweden.	▪ Resourcing in Finland for Swedish project may be difficult as designers could be on other projects and small number to choose from ▪ Unclear responsibilities
Working Culture	▪ Having the "right attitude" and being open to new structures and ways of working.	▪ Getting familiar with the requirements, guidelines and ways of operating with the Swedish client

Overall, the case study projects were seen to be a positive experience. Even the with challenges and lack of understanding of how things were done initially in each country, the attitude in general was that of an openness to explore new ways of working. The Finnish team were motivated by the challenges to improve themselves and hoped to engage in more Swedish projects in the future. The experience was also regarded as a good opportunity for both Swedish and Finnish organizations to learn from each other and adopt different ways of working that were more efficient.

4 Existing Knowledge on Enhancing Collaboration

The aim of this chapter is to form an understanding, based on existing research, on how to collectively define: (1) the common goals between cooperating companies, (2) the key processes that affect collaboration, (3) the roles and responsibilities, and (4) find best practices to support the enhancement of collaboration. The content in this chapter works towards the conceptual framework for building an operating model for the Finnish and Swedish collaborative working relationship. Towards this, it would critically research secondary literature and examine selective peer-reviewed articles.

4.1 Defining goals for cross-cultural organizations

The importance of shared vision has been sighted in many papers. Klaus et al. (2014), in their empirical study on inter-organizational collaboration processes, argue that goal finding towards a shared vision is the critical point and a necessary step towards successful collaboration and successful partner formation. The authors state that goal finding leads to developing a shared vision in collaboration, which an early alignment with all members involved, can positively affect the collaboration dynamics as it supports a common understanding and promotes commitment between collaborating partners. They also discovered that the opposite is true, i.e. a lack of shared vision ends in less commitment between the collaborating partners (Klaus et al., 2014). Goal setting, on the other hand, does not happen first but rather becomes a recurring task as part of the collaboration process (Klaus et al., 2014). Beyerlein (2002) indicates that misalignment of team goals with business goals, or having wrong goals in the first place and a lack of shared vision, mission and values lead to virtual team failure. That is, not meeting expectations, goals, or achieving full potential (Beyerlein et al., 2008). Furthermore, Patel, Pettitt and Wilson (2012) in their research about factors affecting collaboration state that "underspecified goals are a potentially negative factor in a group's effectiveness" (Patel, Pettitt and Wilson, 2012).

The importance of shared understanding as a common goal was also found to be a key factor that affected successful outcomes in virtual organizations. A comprehensive understanding of the team's capacities and objectives is needed, including knowledge of the expertise each member possesses and how they plan to interact in order to realize the team's overall strategic goal (Liedtka 1996; Peters and Manz, 2008;

Beyerlein et al., 2008). Peters and Manz (2008) found that by having a shared understanding of the "bigger picture", all members of the team can feel more accountable as they see the importance of their input and how it fits into the broader objectives.

It is important to take into account the culture and the differences it poses across countries in the conduct of business. Problems arise when cross-cultural practices conflict with one another, even when the same business is run in different countries. While there is little to doubt that cultural differences have to be considered as an important determinant in the formulation and achievement of goals, according to Malhotra, Sivakumar and Zhu (2008), Morschett, Schramm-Klein and Swoboda (2009) and Omar and Porter (2011), there are better chances to succeed in the chosen objective if the cultures of the home country and target market(s) are similar to each other and physical distance between them is lesser.

Another popular factor among existing research, when considering collaborative organizations, was the importance of creating a knowledge sharing culture. Ardichvili (2008) stresses the growing importance of the practice of virtual online sharing of knowledge. The author identified a number of motivational factors and they were value-based, belongingness to the community, play of interpersonal influences, and cultural norms to promote and sustain virtual sharing between business entities and to realize their goals. Huysman and De Wit (2011) identify three critical components, namely, (1) managing knowledge, (2) learning from the sharing of such knowledge and (3) the information, communication and technology (ICT) support and warned against ignoring any one of them as it would lead organizations into pitfalls and prove to be detrimental to their success.

In his paper, *Design Principles for Successful Virtual Teams*, Harwood (2008) suggests that an essential building block for designing virtual teams is to help people become part of the vision. He punctuates the importance of clear vision and purpose, and that the opposite would make work processes and measures of success impossible to set up. He proposes some measures to take when forming a vision for collaborating organizations: drafting a vision statement, educating and enrolling people in the vision, and involving people to create ownership.

4.2 Defining key processes

Best practices in collaborative team building within traditional team environments can be applied to virtual teams. Gratton and Erickson (2007), in their research on team dynamics, found two HR methods that aided teams to perform better. Although the type of reward system had "no discernible effect on complex teams' productivity and innovation", however "training in skills related to collaborative behavior, and support for informal community building" improved team performance (Gratton and Erickson, 2007). According to Rosen, Furst and Blackburn (2007), apart from the tangible processes of having in place the computer systems, the ability and willingness of individuals, deemed as 'intangible' would have to be present to make collaboration behaviour such as knowledge sharing in a virtual environment successful. Shin (2005) sees the reasons for this to be in the lack of informal relationships and physical encounters, which reduces the scope for 'conflict resolution' and 'cohesiveness'. Lee-Kelly and Sankey (2008) have identified among other things, project management competency, cultural and interpersonal awareness, being endowed with networking capabilities as key attributes that would have a bearing on projects. Even though their research pertains to the banking industry, it has significant use to this research, as first, it relates to a service industry, and second, being a case study has practical significance for firms that engage virtual teams in dispersed geographical regions.

Kim and Lee (2016) point out that almost all modern physical and informational artefacts require the implementation of a collaborative design process. This process is performed by multiple participants in the so-called design space and relies on the solutions to interdependent design issues. Such issues include the shared resources limits, spatial separation requirements, timing constraints, geometrical fit, and so forth. Thus, the collaborative design process itself is an important one to consider by all organizations, especially those with dispersed teams.

The importance of shared understanding and clearly defined processes was emphasised by many researchers. In Hertel et al. (2004) study, they found that effective teams possessed higher "quality of goal setting processes and task interdependence compared to less effective teams" (Hertel et al., 2004). Meaning, teams that have clear set goals, rules and requirements for how information, materials and expertise will be shared between members are more successful than those that do not. Furthermore, in the collaboration process the first step is developing a shared

understanding as it promotes team members looking to each other in decision-making situations, helping to enhance the collaborative abilities of the team (Peters and Manz, 2008; Beyerlein et al., 2008).

Knowledge sharing abilities and processes appeared to be an important attribute in successful virtual organizations. In a rare study carried out by Lawson et al. (2009) where it was based on a sample of 111 manufacturing organizations in the United Kingdom, the authors reported evidence to the effect that informal socialization practices, for example informal conversations and social events produce positive outcomes by facilitating sharing of knowledge in the companies. Furthermore, based on an extensive case study of fifteen industries, with reference to their findings on knowledge sharing patterns, Cummings and Teng (2003) have identified the following factors to impact cross-border collaboration either positively or negatively.

Sharing and transfer of knowledge becomes increasingly successful when:
- a higher importance is attached to project practices
- the number of attempts to increase the transfer activities to the recipient partner company increases
- an importance is given to learning
- the communication flow is smoother

Knowledge transfer tends to decrease when:
- knowledge becomes 'hidden knowledge' that resides with individuals
- the organizational distance and relationship between the collaborating parties increase (to this, one dimension is added, which is the nature of the relationship between the partners)
- there is a knowledge gap between the source and recipient firms, in terms of technical competence and even general knowledge
- there is dissimilar business and/or belief practices between the parties

Harwood (2008), in his study of virtual teams, suggests that clearly documented processes increases the chances of desired outcomes consistently being realized. In addition, it facilitates "periodic review of results to identify process improvement opportunities" (Harwood, 2008; Beyerlein et al., 2008). The author suggests several steps which organizations can take to enhance virtual team collaboration among them being "a 'playbook' which acts as a handy reference guidebook" (Harwood, 2008; Beyerlein et al., 2008). This reference guidebook is for everyone in the network and it

forms the basis for measurers and continuous improvement.

4.3   Defining roles and responsibilities

Negotiating the responsibilities and accountabilities that each member of the team will assume is critical at an early stage of the team formation process (Peters and Manz, 2008; Beyerlein et al., 2008). Peters and Manz (2008) show that understanding all team member's contribution to the project, gaining confidence in others competencies and commitments takes time to develop. Trust and shared understanding are closely related as "team members develop a shared understanding of their roles and what they expect to contribute based on their expertise" (Peters and Manz, 2008; Beyerlein et al., 2008). In addition, trust is likely to increase if teams assume responsiveness and follow through on commitments. Thus, clearly defining interdependencies between tasks and elaborating the roles and responsibilities for team members early on becomes critical in avoiding conflict related to role ambiguity.

The online environment is likely to complicate the process of role assignment due to the obstacles outlined by Heriberto, Pinzon, and Esparragoza (2008) and Soetanto et al. (2014). Kabiri, Hughes, and Schwebber (2012) have reviewed the challenge of role assignment and possible role ambiguity in the context of construction projects. The authors have emphasized the importance of role theory in project development and speculated that a project manager is a person who influences the mechanism of role assignment the most in the construction industry. Kabiri, Hughes, and Schwebber (2012) pointed out that the main challenge of role assignment in the process of collaborative design originates from formal and informal sources of role expectations, and that the task of the chief project manager is to balance such expectations. In other words, functional managers must clearly understand not only formal but also informal consequences of their roles to avoid role ambiguity. Kabiri, Highes, and Schwebber (2012) argued that roles can change during the lifecycle of any given project, and it is possible to infer that the frequent reassignment of roles occurs especially often at the initial stages of the project if the project manager fails to accurately identify the strengths and weaknesses of different team members. Thus, the paramount role of the project manager in the proper assignment of roles identified by Kabri, Hughes, and Schwebber (2012) as well as by Anantatmula (2012) becomes apparent even at the initial stages of project development.

The importance of manager's role has been highlighted by several studies in the area of collaboration. Ebrahim, Shamsuddin, and Taha (2009) attempted to unify the research on how the virtual teams are built and what are the main success factors that influence them. As a result, Ebrahim, Shamsuddin, and Taha (2009) have arrived at conclusions that the impact of the team manager on the successful assignment of roles is the most significant. Additionally, Ebrahim, Shamsuddin, and Taha (2009) mentioned that it might be beneficial for such a manager to shift "from traditional controlling into more coaching and moderating functions" (p. 2663). One common factor affecting the assignment of roles across different industries is the leadership and management style of the team manager. Therefore, it seems logical to identify the qualities of the most effective project manager in virtual environment and entrust the task of role assignment to him/her. Anantatmula (2010) outlined the responsibilities of such a manager in relation to collaboration as follows: to assign leadership roles and responsibilities without ambiguity, to be able to resolve conflicts and promote mutual respect, trust, and communications across organizational lines (p. 15). However, the management of virtual teams has its own peculiarities, which is why project managers must learn to mitigate the following factors outlined by Ebrahim, Shamsuddin, and Zahari (2011): lack of physical interaction, challenges associated with the distance between team members, challenges associated with the determination of proper technology fit, cultural and functional diversity, occasional technophobia, work process and cultural diversity, and the possible necessity of special training and encouragement.

While not all activities and tasks require collaboration across teams, however, "identifying roles and responsibilities in decision making is important in any work design, and especially in virtual collaborative work where real-time face-to-face discussions are not always possible" (Harwood, 2008; Beyerlein et al., 2008). Some steps to take in identifying roles and defining responsibilities include: involve all or representatives for a given process, create a matrix, identify functions, units, locations that are involved in the process, work through each task and determine each role (Harwood, 2008).

4.4   Enhancing collaboration in virtual teams

Before building the model, it is important to understand the positive and negative factors affecting collaborative organizations. The following sections focus on factors

affecting collaboration, including the challenges and successful traits.

4.4.1   Factors affecting collaborative organizations

In their book, *Collaborative Imperative*, Ricci and Wiese (2011) subscribe to the notion that the "biggest barriers to collaboration are not technical", but rather "cultural and organizational in nature" (Ricci and Wiese, 2011). Petal et al. (2012) suggest that the overarching factors affecting collaboration are trust, conflict, experience, goals, incentives and constraints while Ricci and Wiese (2011) claim that successful collaboration depends on culture, process and technology. Ricci and Wiese (2011) suggest, in order to transform one's organization to a collaborative one, companies need to: "replace internal competition with a culture of shared goals, and encourage sharing and other collaborative behaviors; put collaborative processes in place, such as a common vocabulary and team charter, to help people work better together; assemble a portfolio of integrated technologies that facilitates collaboration; and assess business objectives as well as assets, strengths and weaknesses to institute the changes that work best" (Ricci and Wiese, 2011).

According to Zain and Ng (2006) for internationalization to be effective at least three factors need to be present and these are business networks, knowledge acquisition and strategic management. The reason for this is that present day businesses operate in a complex environment and inter-disciplinary skills have to be present to retain the competitive edge and promote business capabilities.

4.4.2   Challenges and success factors for virtual teams

What makes a virtual team work efficiently? How do organizations interested in having such groups proceed and what principles must they keep in mind while forming groups of people from different backgrounds? These are some of the concerns that relate to the current study in hand and are also systematically explored in the existing literature on globalization and virtual teams. In essence, virtual teams are different from other teams in many aspects and thus they have many drawbacks too (Bergiel et al., 2008). For instance, Nunamaker Jr et al. (2009) while exploring the key challenges faced by virtual teams argued that contemporary virtual teams are struggling to overcome the; "1) loss of many non-verbal cues, 2) reduced mechanisms for informal conversation, 3)

reduced opportunities to build friendships, 4) time zone differences, 5) complicated, unreliable technology, 6) building consensus at a distance, 7) establishing shared meaning at a distance, 8) different work processes and 9) different cultures (Nunamaker Jr et al., 2009; Weber, Lehr and Gersch, 2014). Other scholars argue that what also hinder the performance of a virtual team are factors such as various time zones, language/communication, and different tactics to conflict determination (Ford et al., 2016).

Gratton and Erickson (2007), in their research on team behaviour from 55 large teams across 15 multinational companies, pinpointed eight factors of success. These are "1) having practices that build bonds among the staff, 2) role models of collaboration among executives, 3) establishing a "gift culture," where managers support employees by mentoring them daily, 4) training in relationship skills, such as communication, conflict resolution and other collaborative behaviour, 5) a sense of community, which corporate HR can foster by sponsoring group activities, 6) ambidextrous leadership, or leaders who are both task-oriented and relationship-oriented, 7) good use of heritage relationships, by populating teams with members who know and trust one another, and 8) role clarity and task ambiguity, achieved by defining individual roles sharply but giving teams latitude on approach" (Gratton and Erickson, 2007).

Studies in this stream of research also argue that almost all of the best practices in conventional teams are also applicable to virtual teams. The literature suggests a list of factors that when combined makes an effective virtual team which plays a crucial role in the success of any project led by a virtual team. The list is exhaustive and includes but is not limited to communication (Anderson et al., 2007), trust (Nesbitt and Bagley-Woodward, 2006, Forester et al., 2007, Lawley, 2006), leadership (Malhotra et al., 2007), and technology (Bergiel et al., 2008).

The widespread development of informational technologies and the growth of transnational corporations have shifted the design space into virtual reality, and Brunn (2011) pointed out that "cloud collaboration has allowed projects of previously unimaginable scale and scope to be constructed" (Brunn, 2011). However, in spite of numerous advantages of online collaboration, such researchers as Soetanto et al. (2014) and Heriberto, Pinzon and Esparragoza (2008) identified the following issues associated with the virtual collaboration of engineering teams: transactional distance, language differences, time and date differences, and the access to technical resources.

Soetanto et al. (2014) described transactional distance as "the psychological distance that exists between people when communicating, and is noticed particularly in online environments because it can be increased by the lack of responsiveness of the environment and transparency of the medium" (Soetanto et al, 2014, p. 26).

Studies concerned with non-technical elements such as individual capabilities that contribute to successful virtual team work also documents interesting insights. Relatively new knowledge comes from a study by Collins et al. (2015). The author set to explore whether non-technical factors, namely human factors, hold any influence in the functioning as well as the success of any virtual team in Taiwan, Indonesia, and Vietnam. Drawing insights from a mixed method, the authors indicate that "critical human factors, including individual cultural intelligence, cultural openness, and self-efficacy, significantly influence a team member's knowledge sharing willingness in cross-national virtual teams" (Collins et al., 2015).

Success to any entity in the corporate world, be it a business or a team, also depends on many other factors including collaboration. Research in this stream argues that success of virtual teams highly depends on successful collaboration. Key to innovation in any field is cooperation and new development in the area of knowledge, or services-based industries are perhaps mainly driven by effective collaboration (Gressgård, 2011). Thus, there is a difference between simply "working together" and effectively collaborating with others when it comes to modern knowledge-based industries. Essentially, the true collaborative action is the "key ingredient" that permits teams to come up with ground-breaking creativity. The literature on antecedents of virtual team collaboration suggests that it includes decision-making between inter-reliant parties that comprises of combined possession of choices and shared duty for consequences (Pasi, 2009). Existing scholarly work indicate that the experiences of collaboration in virtual teams include factors such as trust, depth of relationships and mutual understanding (Linda and Charles, 2007).

4.4.3   Support mechanisms

How to promote collaboration and how to make it effective for promising results is also well documented. An exhaustive review of literature points out some strategies that can best achieve effective cooperation in the virtual world. For instance, while sharing first-

hand insights from working with many virtual teams, Ferrazzi (2012) lists some strategies to get the right degree of collaboration in virtual teams. Ferrazzi's analysis enlists many lessons learned while working with multi-faceted virtual teams. The list includes strategies such as adjusting for size, use of social media for finding the right fit, playing games for virtual collaboration, training workers for collaboration, and have role clarity but task uncertainty as it helps when the roles of the team are flexible.

Peter and Manz (2008) presents many practical suggestions for organizations and individual members in building successful virtual collaboration. To build trust, organizations should be responsive to team members, establish deadlines for various benchmarks and institute a training program for virtual team (Peters and Manz, 2008). Individuals are recommended to take responsibility for getting to know other team members as much as possible and keep lines of communication open in order to deal with intra-team conflict more efficiently (Peters and Manz, 2008; Beyerlein et al., 2008)

Numerous accounts of existing literature exist over what fundamental principles make virtual teams a success story. Few interesting insights come from Nunamaker Jr et al. (2009) who argued, based on decades of their experience with virtual teams, that many key principles together form an effective virtual team. The author's list of key effective principles includes the following nine components: "realign reward structures for virtual teams, find new ways to focus attention on the task, design activities that cause people to get to know each other, build a virtual presence, agree on standards and terminology, leverage anonymity when appropriate, be more explicit, train teams to self-facilitate, embed collaboration technology into everyday work" (Nunamaker JR et al., 2009; Weber, Lehr and Gersch, 2014).

4.5   Gap in the literature

Even though the research in this area has been witnessing a growth, there are some dissenting views as well. For instance, the linkages between the characteristics prevailing in different geographies and their impact on the performance of business enterprises have not been fully understood (Christiansen & Jakobsen, 2012) and the very concept of firms or entities are vaguely interpreted (Taylor & Oinas, 2006). In light of the aims of the thesis, which is to explore the forging of the relationship between Finnish and Swedish organizations, the observation of Blomstermo & Sharma, (2006)

may be relevant. According to these authors, there is lesser research on 'foreign market' entries for service related companies, when compared with manufacturing ones. This is the case especially for engineering service related organizations (i.e. engineering consulting firms).

It has been difficult to pinpoint specific research studies that have dealt with collaboration of engineering design consulting companies working in virtual teams. Camarinha-Matos and Afsarmanesh (2007), attribute this to the complexities involved in the design, implementation and management of computer mediated collaborations (CMC). Moreover, Šmite et al. (2010) focused on software engineering consultancy firms collaborating across the borders in their review of empirical studies and they point out that most of the research concentrate on intra-organizational collaboration and not on inter-organizational collaboration. Moreover, such research seems to be addressing micro issues, as for instance, managerial problems and not on finding out the best practices in an environment having relevance on geographical or cultural separation.

4.6　The Conceptual Framework

By creating "an operating model where solutions are tailored to each pressure point" (i.e. strategic challenges), it enables companies "to balance integration of its units with healthy local autonomy", rather than "standardization of processes which could erode local strengths" (Girod, Bellin and Ranjan, 2010). Thus, by getting a better understanding of the current challenges in the case study in Chapter 3 and the factors that affect collaboration positively and negatively from existing research, this chapter presents a conceptual framework for an operating model to enhance collaboration for a new virtual cross-border business environment as shown in Figure 3.

SUCCESS FACTORS

- Having the ability to communicate expectations and manage outcomes (Anantatmula, 2010)
- The removal of ambiguity in the identification of roles and responsibilities (Anantatmula, 2010)
- Establishing trust (Nesbitt and Bagley-Woodward, 2006, Forester et al., 2007, Lawley, 2006)
- Effective leadership (Malhotra et al., 2007)
- Role models of collaboration among executives (Gratton & Erickson, 2007)
- Having cultural intelligence, cultural openness and self-efficacy (Collins et al. 2015)

Set Goals → **Identify Key Processes** → **Define Roles & Responsibilities** → **Customize Support Mechanisms**

Collectively develop a shared vision with all involved as it can positively affect collaboration, support common understanding and promote commitment between collaborating partners (Klaus et al. 2014).

Clearly defining processes increases the likelihood of continuous success (Harwood, 2008). Important processes for collaboration to consider are: (1) training in skills related to collaborative behaviour, (2) support for informal community building (Grattan and Erikson, 2007) and (3) virtual online knowledge sharing practices (Ardichvili, 2008).

Gather all involved or representatives, identify functions, units, locations in the process, identify essential tasks, work through each task & determine each role, make periodic review to check for adjustments (Harwood, 2008). Project managers have an important role in collaboration (Ebrahim et al., 2009)

Some examples of support tools include: realign reward structures, design activities for people to get to know each other, agree on standards and terminology, be more explicit, embed collaborating technology into everyday work (Nunamaker JR et al., 2009). Set up communication platforms for teams to familiarize theselves with overall project goals as well as individual and other's roles and responsibilities (Harwood, 2008).

CHALLENGES

- Loss of many non-verbal cues (Nunamaker Jr et al. 2009)
- Different time zones (Ford et al., 2016)
- Communication and language (Ford et al., 2016)
- Cultural differences (Malhotra et al., 2008, Morschett, et al., 2009, and Omar & Porter, 2011)
- Complicated and unreliable technology (Nunamaker Jr et al., 2009)
- Building consensus at a distance (Nunamaker Jr et al., 2009)
- Establishing shared meaning (Nunamaker Jr et al., 2009)

Figure 3: Conceptual Framework for an operating model to enhance collaboration

The conceptual framework presents four key steps in building an operating model for new collaborative business environments. First by collectively setting goals, it can affect collaboration positively and promote commitment between collaborating partners (Klaus et al., 2014) and form a shared understanding of the common goals. Then key processes that affect daily work between the collaborating organizations can be identified. This can further be defined and well documented because clearly defined processes increases the likelihood that there will be successful results. Thirdly, the roles and responsibilities can be defined by gathering all members involved, or representatives, and collectively identify functions, units, locations in the process, identify essential tasks, and work through each task to determine each role (Harwood, 2008). Thus, as suggested by Harwood (2008) periodic reviews can be made to check for adjustments. Furthermore, defining the project manager's role explicitly is important as the project manager's role is significant in promoting collaborative behaviour among team members (Ebrahim et al., 2009). Finally, the support methods can be defined and customized to suit the particular organizations' needs, keeping in mind the existing challenges and success factors.

5 Building the Collaboration Enhancing Operating Model

In the previous chapter, the conceptual framework of the operating model for this thesis was introduced in detail. This chapter customizes the conceptual framework by presenting a proposal for an operating model which was co-created with representatives from both case companies. The operating model is grouped into sections based on the conceptual framework outlined in section 4.6 and detailed with tailored definitions to suit the needs of the case companies. These definitions were formed during workshops with both Finnish and Swedish organization representatives.

An operating model is the first key deliverable in any organizational design. Thus, this operating model describes in broad terms how the two organizations will operate and interact with each other in a collaborative way. The objective of the operating model is to define the common goals between the two organizations, highlight the key processes, define the roles and responsibilities and define support mechanisms to foster a culture of collaborative development. The following sections describe the results from the workshops for each of the areas shown in Figure 3 above.

5.1 Goals

Collectively defining goals with the representatives of the two organizations entailed, firstly, to agree on the shared vision as an overarching target for both companies. The shared vision was defined as *"we are the best Nordic multi-skilled infrastructure design company."* By brainstorming goals that would affect both parties and that would further realize the vision, the common goals were defined. These goals included:

- Align cross-border business targets
- Share support and resources across borders
- Enable transparency and flow of information
- Focus on customer value enhancing solutions and project delivery oriented work
- Have similar and seamless procedures and protocols across borders that support continuous improvement
- Ensure shared understanding of project processes by describing them in detail
- Attract the best employees by being an attractive employer:
  - Have a flexible and modern way of working in ideal office locations
  - Provide opportunities and challenges in interesting, well planned projects
  - Have an attractive brand that is known and respected
  - Support employees by appointing high quality managers
  - Offer competitive salaries
  - Have smooth management and project systems that support collaboration across borders

▪ Utilize employees in the best way and enable them to develop and show their strengths

Having a clearly defined shared vision and common goals between the two collaborating parties can provide a basis in which to define collaboration strategies and targets for collaborative projects. This works as a common ground for structuring processes and for better communication.

5.2   Key Processes

Prior to the workshop for defining key processes, the goals and the summary of the current state analysis were revisited. This enabled the workshop session to focus on the important processes that affected both parties, keeping in mind the current challenges and the newly defined goals. The outcome of the workshop resulted in identifying six key process that were deemed to affect the operations between the Swedish and Finnish organizations. These key processes included: the bid process, project start-up, managing multiple projects, design process and review process.

Activities involved in each of the processes were observed and are outlined in Appendix 1. The defined bid process activities are presented below, as an example.

Bid process
- Database, register of previous bid competitions – results and information from other bidders
- Interaction with clients on upcoming bids
- Follow up – sharing lessons learned
- Developing tender documents
- Technical assistance
- Storing bid information – references from previous projects
- Planning bid strategy – how to make this bid, which part of company need to be involved, partners to involves, what are the possibilities, risks (contract), incentives
- Review for compliance with company and client requirements, checks against pre-bid plans
- Sign off

5.3   Key Responsibilities

When defining roles and responsibilities it was particularly evident the importance of

clarity and agreement of definitions. Negotiations took place over two workshops and it was soon realized that a different approach was needed for defining roles and responsibilities. It was difficult to capture the different definitions of roles for the two different organizations over a brainstorming session. For example, the bid manager in the Finnish company does not have the same responsibilities as the Swedish company. Therefore, some roles were location based and this was seen as an important differentiation to make in order to avoid confusion. By allowing for separate contributions to the definitions of roles, each party was able to review and comment in a systematic manner, thus coming to an agreement for the definitions. Roles and responsibilities were defined for each of the key processes identified which are detailed in Appendix 1. The following is an example of definitions of roles for the bid process:

Bid Manager (Sweden): Solely responsible for price and risks of all the bids in Swedish projects. Instructs Project Manager for the bid, is responsible for market analysis, strategic bid preparation, data collection of market prices and pre-bid contacts, maintain a strategic bid plan for Projects which is, on a regular basis, communicated to the Finnish and Swedish organizations.

PMO Manager (Sweden): Appoints PM for bid and contract awarded projects.

Project Manager: Enforces collaboration, WBS, introduces the project to the bidding team, delivers the responsibilities, sums up workload of all disciplines and calculates first draft of price, presents to Bid Manager and reviewers, and ensures bid information is documented, is the contact person for partners and sub-consultants. Project Manager (PM) planned for in the bid (if appointed, in some cases the plan is to hire a PM if contract is awarded) must be involved so they have buy-in to the plans and bids.

Contract Manager (Finland): Signs off on bids that are in his/her price category.

Head of Design or Head of Group (Finland): Acts as resource manager for the Finnish organization, nominates Project Manager, promises the resources including resources for quality checking, and helps allocate resources.

Discipline Lead Engineer (Finland): Defines the scope of work, allocates the resources and estimates the workload for his/her discipline.

There is a strong opportunity for the new organization to be more agile, creative and address role ambiguity from the onset. Defining roles and responsibilities in the early stages allows the organizations to improve working methods and clarify the division of labour across the two organizations.

5.4   Support Mechanisms

There is no doubt that communication is an important element to address when it comes to enhancing collaboration for the two organizations. Each key process requires communication systems in place for effective work between the two organizations. Apart from the obvious need to integrate IT systems, a communication plan including virtual meeting protocol should be established early in the process or project to make Skype and other forms of communication more effective. As Peters and Manz (2008) pointed out, shared understanding of procedures and protocol is important for successful outcomes in virtual environments. Thus, agreeing on standards and terminology to further enhance understanding becomes an effective factor in enhancing virtual collaboration. These standards and terms of procedures, and the communication process itself, can be incorporated into a plan, which can be done collectively to get commitment by all parties involved. Furthermore, in addition to a communication plan which is usually set out for projects, there should be a "rule book" of some sort that acts as a handy reference guide to vision, goals, process and critical performance behaviour, as pointed out by Harwood (2008). This is a reference that everyone in the virtual team network should have access to in order to understand the agreed codes of conduct so they may follow and measure their performance against it for continuous improvement.

One of the major inefficiencies surrounding human resources is employees not understanding the tools they are using or what is involved in the processes they are working in. Training can help in these areas. Likewise, if employees do not understand what collaboration means, or how to collaborate, training is a solution. Coaching for skills related to behaviour of collaboration and also providing for informal community building are important factors to consider to enhance collaboration. Since cross-border collaboration differs somewhat to collaboration within one location, extra attention is needed in building up the capabilities of those involved in interacting with others that are abroad. Currently, the Finnish organization focuses training predominantly on technical related skills. Therefore, training staff in collaborative behaviour such as communication, cultural awareness, and conflict resolution would benefit future cross-border projects.

Bringing members of the team together, physically, early in the project to facilitate the development of comfortable relationships is recommended as it forms a basis for trust

which is needed for better collaboration. Less face-to-face meetings were viewed to hinder communication and this was the most frequently mentioned issue among all interviewees. Therefore, it is important during the initial stage of a project to allow for face-to-face interaction to occur. If that is not possible due to distances and costs, frequent communication using Skype or similar online communication tools is suggested in order for team members to get to know one another. Furthermore, capitalizing on relationships that already exist by maintaining same teams from project to project can aid in developing depth of relationship.

Teams should collectively define the project goals early in the project, whether it be a bid project or contract awarded project, and individuals should take ownership for team goals instead of only applying one's own expected contribution. In addition, members should take it upon themselves to understand the roles of others in the project. This is important in understanding how every member will contribute to overall project goals. By doing this, members are better aligned with one another's responsibilities and can resolve issues more efficiently by seeking help from other members. By focusing on common goals and understanding other member's contribution towards the goal, teams are likely to succeed and collaborate better.

Moreover, employing LEAN practices such as Last Planner System for managing the planning and scheduling of projects, can contribute to improving the scope while increasing the efficiency of the team's work. Scheduling for the whole project can be done with all the main players, including client, stakeholders and partners, creating buy-in and potentially reducing any re-work or changes further down the line. The Finnish organization is already adopting this method and it is recommended that the Swedish organization also adopt this, along with other LEAN practices.

5.5   Summary of Proposed Operating Model

The proposed operating model follows the conceptual framework presented in section 4.6 with customized definitions. It is presented below in Figure 4.

GOOD PRACTICES

- Getting acquainted with everyone involved in the project at the beginning
- Face-to-face meeting with introductions
- Weekly discipline meetings
- Video meeting at the start to be better aware of who is involved in the project.
- Using Skype when small audience

- Using LEAN tools such as Last Planner and Plus/Delta methods
- Monthly reporting prior to monthly meetings
- Having a local presence in Sweden
- Having the "right attitude" and being open to new structures and ways of working

Shared Goals

- Align cross-border business targets
- Share support and resources across borders
- Enable transparency and flow of information
- Focus on customer value enhancing solutions and project delivery oriented work
- Have similar and seamless procedures and protocols across borders that support continuous improvement
- Ensure shared understanding of project processes by describing them in detail
- Attract the best employees by being an attractive employer

Key Processes

Bid process
Project start-up
Managing multiple projects
Design process
Review process

Roles & Responsibilities

Bid Manager (Sweden)
PMO Manager (Sweden)
Project Manager
Project Engineer (Sweden)
Contract Manager (Finland)
Head of Design or Head of Group (Finland)
Discipline Lead Engineer (Finland)

Support Mechanisms

- Have in place a protocol for communication and sharing information
- Get early acquainted with the project team, especially face-to-face if possible
- Keep team members as constant as possible
- Use LEAN tool to promote efficiency and continuous flow of work
- Share and document lessons learned from previous jobs
- Performance reviews to include evaluating collaboration effectiveness
- Rewards should be based on group effort

CHALLENGES

- Communication challenges including technical issues in virtual meetings for larger audiences and video conferencing
- Language barriers
- Potential resourcing difficulties

- Effectivity and engagement during online meetings
- No integrated system for CAD files
- Unaware of other's roles in the project
- Unclear responsibilities

- Getting familiar with the requirements from abroad especially the client guidelines and ways of operating
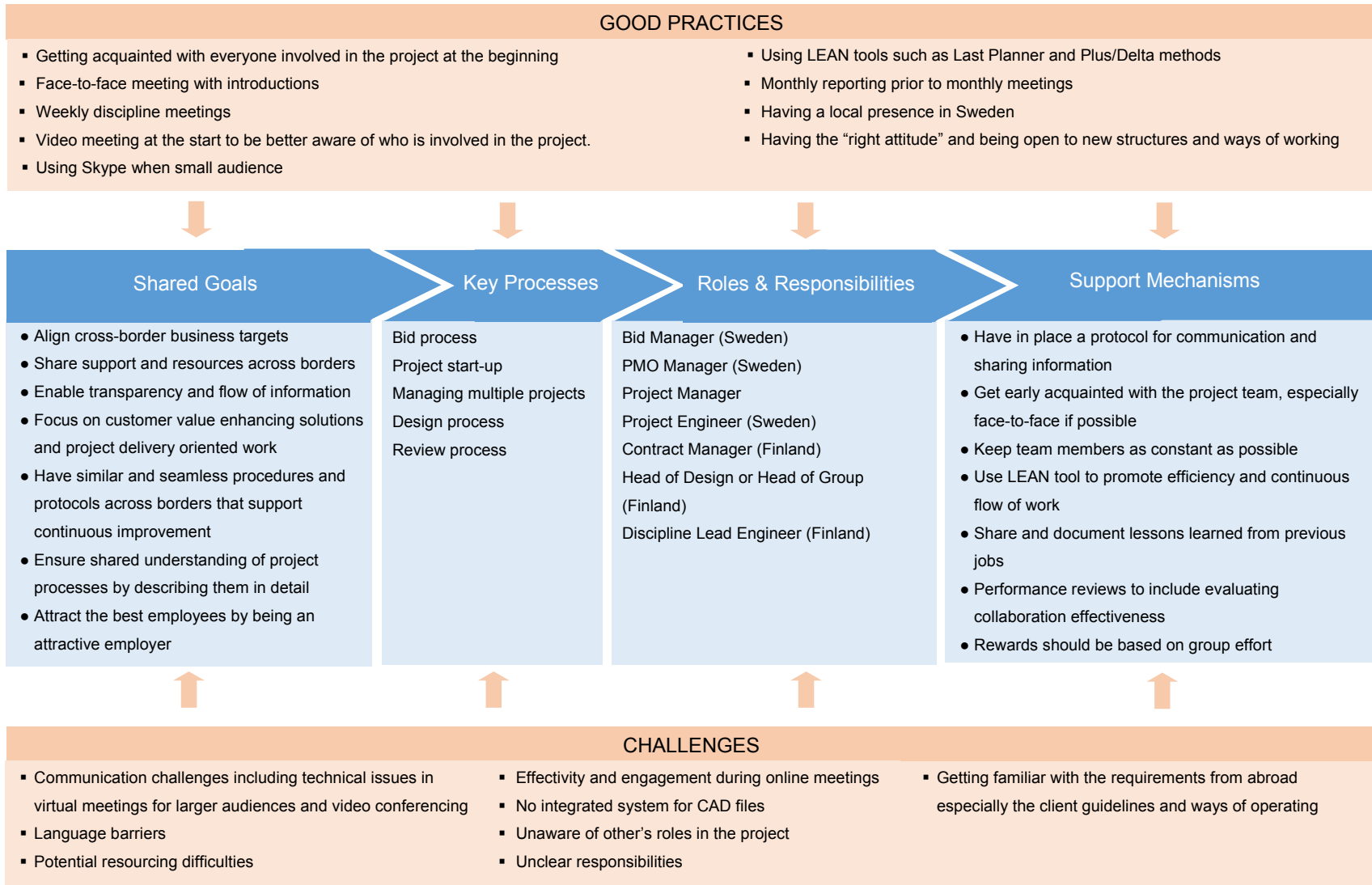
Figure 4: Summary Outline of the Proposed Operating Model to Enhance Collaboration in a New Virtual Cross-Border Business Environment

The proposed operating model highlights the jointly defined shared goals among the two organizations. Among these goals were shared support and resources across borders, transparency and flow of information, focus on customer value enhancing solutions and having a shared understanding of project processes. The key processes that affect collaboration among both organizations were identified to be the bid process, project start-up, managing multiple projects, design process and the review process. Definitions of the responsibilities of team members is stated and whether the role belonged to the Finnish or Swedish organizations was differentiated to further eliminate ambiguity. Then an array of support mechanisms is presented to help facilitate collaboration in such a business environment, taking into account the current challenges and good practices already in place in the organizations, as identified earlier in the research. For the fully detailed operating model refer to Appendix 1.

6   Feedback on the Proposed Operating Model

This chapter describes the received feedback of the representatives of both case organizations and discusses the final additions to the operating model.

6.1   Received feedback

Use of this operating model for practical collaborative work implementation will require that it is acceptable to both the Finnish and Swedish companies. The feedback received is a vital part of this study to assess the usefulness of the model as piloting and testing cannot be performed due to time constraints of the study. There was generally a positive reaction for the proposed operating model from the Finnish and Swedish representatives where significant changes were not required. Thus, it was accepted by the Finnish and Swedish firms and was thought to be "very pedagogical and reflects the situation this summer very well" (Directing Manager, Swedish firm). When the project manager for the RAIN project was asked about how useful or what improvements it could use, it was suggested that risks and prevention be included to further the usefulness.

> "The model is very good. By adding the risk management, I think the model is more useful. Otherwise this is good work" (RAIN Project, Business Development Manager, Finnish firm)

This is a worthwhile point and would be especially useful to include in the operating model. Thus, it has been included in the appropriate area and further discussed in the next section.

6.2   The final operating model

The final operating model outlines the defined goals, key processes, the roles and responsibilities, and support mechanisms to enable collaborative partnership between the Finnish and Swedish organizations. The structure of the model and methodology was outline in chapter 5 and there are no further changes to this aspect of the model. There is, however, an addition of the risk factors and countermeasures to further enhance the usefulness of the operating model. Figure 5 below depicts a summary of

the addition of risk factors and countermeasures included in the operating model after the final feedback.

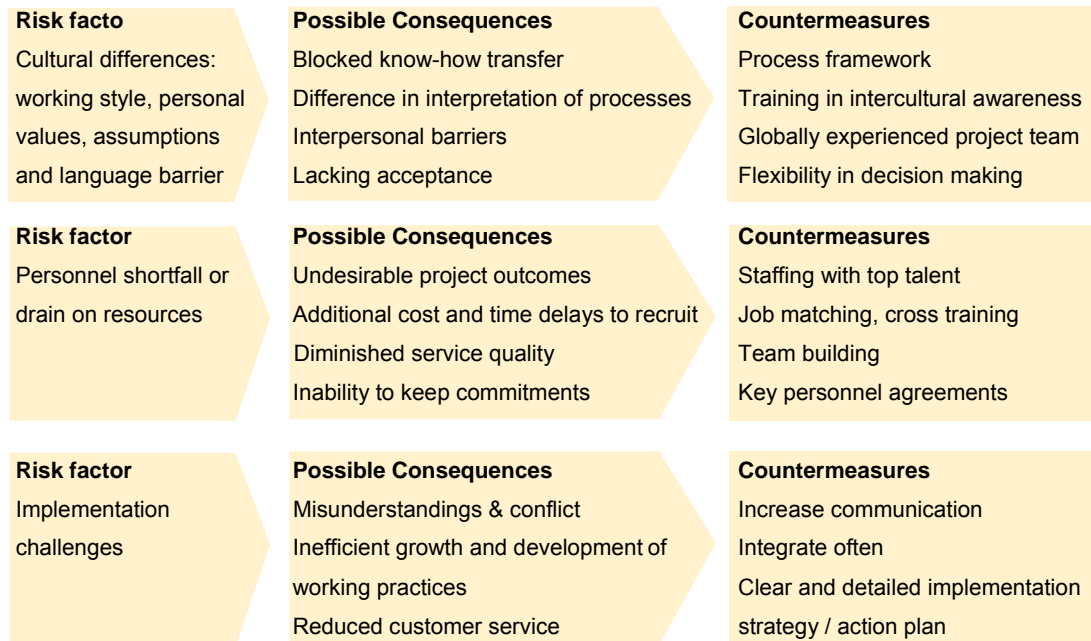| Risk facto	Possible Consequences	Countermeasures
Cultural differences: working style, personal values, assumptions and language barrier	Blocked know-how transfer Difference in interpretation of processes Interpersonal barriers Lacking acceptance	Process framework Training in intercultural awareness Globally experienced project team Flexibility in decision making
Risk factor Personnel shortfall or drain on resources	**Possible Consequences** Undesirable project outcomes Additional cost and time delays to recruit Diminished service quality Inability to keep commitments	**Countermeasures** Staffing with top talent Job matching, cross training Team building Key personnel agreements
Risk factor Implementation challenges	**Possible Consequences** Misunderstandings & conflict Inefficient growth and development of working practices Reduced customer service	**Countermeasures** Increase communication Integrate often Clear and detailed implementation strategy / action plan

Figure 5   Risk factors, possible consequences and countermeasures

This has been included in the appropriate place in the operating model. The final operating model is shown in Appendix 1.

Building an operating model collaboratively is an opportunity for the well-established company to assess the developmental needs of their existing processes and for the new company to offer new process methods. It is particularly useful to build a high level operating model that defines the common goals in this case. The work processes are yet to be integrated between the two companies, so it is important to identify the key processes that are needed for the integration. The current state analysis showed that there was role ambiguity in the case projects thus, defining roles and responsibilities for the key processes is also important to form clarity and understand each company's interpretation of responsibilities. Finally, based on the identified challenges in the case projects, the need for defining support mechanisms to enhance collaboration and integration is also a much needed step in the operating model.

7   Conclusion

This last chapter of the thesis report summarizes the whole project, discusses the findings, practical recommendations, the credibility of the research and the limitations of the study.

7.1   Summary of the whole project

The aim of this thesis was to produce an operating model that defined the common goals, the key processes, the roles and responsibilities and support mechanisms to enhance collaboration between the Finnish and Swedish organizational branches. A number of existing good practices were identified and they included: using LEAN tools such as Plus/Delta for feedback and development, face-to-face meetings periodically, using Skype for small audiences and having a local presence in the project country. Some challenges that were identified included communication difficulties such as audio issues using Skype, language barrier, IT tools not integrated, technical issues with video meetings, unestablished practices for reporting and checklists, and unclear roles and responsibilities. The findings from the literature review resulted in a conceptual framework in which to build the operating model. Existing literature in this category of study showed the importance of developing a shared vision early on, clearly documenting processes, defining, as a priority, the responsibilities of the project manager among many other practices that would improve collaboration. The literature presented ways in which to create trust, a shared understanding and depth of relationship all of which are factors of success for collaborative working environments.

Furthermore, the operating model resulted in identifying the common key goals which included: aligned cross-border business targets, sharing resources and support across borders, focusing on the customer value and project delivery, having seamless procedures across borders that support continuous growth, ensuring shared understanding of project processes and attracting the best employees by being an attractive employer. There were five key processes that were identified: the bid process, project-start up, managing multiple projects, design process and review process. Roles and responsibilities were defined for each of these key processes where the roles were differentiated between Swedish and Finnish roles. A number of support methods were recommended in order to support the roles and enhance

collaboration. These included: documenting and sharing lessons learned, development of a communication plan, having a common project portal, getting acquainted early on with the project team, ideally face-to-face, frequent communication via computer mediated tools, using LEAN tools where appropriate as they promote collaboration, efficiency and continuous flow of work. In addition, training in collaborative behaviour and new tools or processes is also suggested.

The overall feedback for the operating model was positive and resulted in addition of risks and countermeasures. These included risk factors of cultural differences, drain of resources and implementation challenges. The possible consequences of these risks are blocked know-how transfer, differences in interpretation of processes, lacking acceptance, diminished service quality, inability to keep commitments, and misunderstandings and conflict. Countermeasures for such consequences where highlighted to include: developing process frameworks, training in intercultural awareness, building up a globally experienced project team, being flexible in decision making, staffing with top talent, job matching, team building, cross training, increasing communications and integrating often. A discussion of the findings is presented below together with recommendations.

7.2   Discussion and recommendations

The awareness of how to work within virtual environments and the ability to collaborate across national borders is vital for successful project execution. There is a need to clearly describe the processes, the expectations, the roles and competencies required to be a successful virtual team player. Therefore, in order to facilitate the collaboration and minimize the risk of misunderstandings, it is important to consider aspects such as culture, education level, and the offshore business environment when building up the competencies, either by providing training or mentoring on the job.

One aspect of training could be in the form of sharing lessons learned. It is clear that the case companies have learned that there were challenges that needed addressing in order to positively affect future project outcomes. Many of the Finnish team members involved in the Swedish project had limited experience in working in such environments. This is the case also for the Swedish team working with Finnish designers situated abroad. It is therefore suggested that lessons learned be recorded

in a systematic manner, shared across both companies and be available for future reference. While maintaining same team members is advantageous for numerous reasons, such as building trust among virtual and offshore teams, there may be cases where new staff members join the team or new partnerships are formed. Therefore, it is important that lessons learned become shared knowledge and a common practice across both organizations.

Work processes, standards, roles and norms have to be explicitly defined and explained so each member of the team is aware of how to work and are aware of the expected outcomes. It was evident in the case study that roles and responsibilities needed clarity. High level management need to ensure the right members are receiving the right information and have the knowledge of one's own responsibilities and of others, especially who the decision makers are. Implementing this will mean more efficient work and fewer misunderstandings. Therefore, it is important that decision lines are clear and followed when information is communicated and when decisions are taken. While open communication between the engineering disciplines are favoured, the findings suggest that communication would work better if there is a detailed and clear plan that all members follow. This can be in the form of a communication plan for individual projects, which could be included in a project execution plan or something less formal such as a virtual team "rule book" that explains the norms and expected behaviour of team members working in virtual environments on cross-border projects.

Language differences have been a hurdle in the case projects even though a lot of effort has been put into making it succeed by all members. It is clear that the language barrier for some affects knowledge and information flow. This was noticed when meetings were held in the Swedish language and the Finnish members that lacked the language skills did not understand what was discussed and thus had to rely on others for information. These issues are important to address since the strategy to expand operations across borders, namely the Nordic countries, is to strengthen competency and thus increase operations in other countries. If language differences and knowledge transfer issues are not addressed, the strategy loses its advantage. The Finnish team are undergoing Swedish language training, however, high level management need to ensure that Swedish taught is the Swedish spoken in Sweden, and not the Swedish spoken in Finland as they somewhat differ and this was pointed out during the interviews. It is further recommended that employees are transferred in both directions to enrich language learning and cultural awareness. It also gives members a chance to

gain knowledge about local standards. This would improve communication, information flow and collaboration.

As described by Cullen ad Willcock (2003, p. 197) deep drivers that influence the behaviour within business relationships are those that are attitude oriented, communication oriented, conflict resolution oriented, relationship oriented, strategic and value oriented. The Finnish and Swedish firms are using contract documents as a means to define the terms of partnership. While there are benefits in doing this, good collaborative relationships stem from trust and both organizations should be wary of not using contracts as a pressuring medium. By avoiding this, it would mean that the companies benefit from having an open relationship that fosters trust, sharing and learning and that focuses on fairness, quality and long term investment, resulting in mutual benefits.

It is advantageous that Sweden and Finland are neighbouring countries, so cultural differences may not be significant, however, they are worth mentioning as it was evident during the current state analysis that some differences may affect project outcomes such as language differences, interpretation of processes and style of communication. Furthermore, since the strategy is to move operations to other Nordic countries and possibly beyond in the future, it is recommended that respective countermeasures are initiated at an early stage such as conducting intercultural training to establish cultural sensibility. This is important for implanting similar operating model frameworks for setting up other future companies or partnerships abroad.

Although the Swedish firm stems from the mother company, the Finnish firm, in essence it is like cooperating with a new foreign partner. With every new partnership, whether it be a joint venture with competing companies or bringing together departments for common projects within a single organization, companies need to be able to cope with new requirements, including integrating IT systems. In addition, the cooperation between the two companies require a higher communication effort. In order to ensure an appropriate level of communication between all parties, it is recommended that a clear communication strategy be developed. This could be in the form of implementing a communication plan for individual projects or, in general, team interactions including virtual practices. Although this thesis studied the communication needs between the case organizations, and touched on stakeholder communication, knowledge of the diverse communication needs, IT related or not, of the different

internal and external stakeholder groups need to be further assessed due to the limited project cases studies. In addition, there are additional employees joining the Swedish company who will act as project managers for future jobs. This means that the team dynamics and responsibilities will have been shifted more towards the Swedish firm. In addition, new project partners may be formed in the future. Thus, following this thesis should be further studies on communication needs including outside parties involved in projects or at least consideration of external stakeholder communication needs should be taken when developing communication strategy.

This research project sets the foundation in addressing some of the challenges relating to working collaboratively between dispersed team members on common projects across borders. The proposed operating model is a high level model which acts as a blueprint of a wider project of enhancing collaboration. The need for definitions of shared goals, key processes and clear roles and responsibilities and the support tools was much needed for both organizations as a starting point. The next phase of the wider project for these companies would be to investigate one of the defined areas in the model at a deeper level. For example, building on or re-engineering the key processes to enhance co-operative working in the new environment or building implementation schemes for some of the suggested support methods. Furthermore, defining meaningful performance measures to achieve the goals outlined in this study is important. To ensure continuous growth, the collaborative performance over several projects, start to end, should be measured. By measuring the service performance, quality of products and profit of every shared project in a systematic manner, the collaborative relationship can be measured, painting the path for growth to help reach shared goals and vision.

7.3   Credibility argument

Shenton (2004) argue that there are four main criteria for creating trustworthy research and these include credibility, transferability, dependability and confirmability. The following Table 4 describes how these traits of trustworthiness is applicable in this research.

Table 4:   Research measured against trustworthiness criteria

Criteria	Measure (source: Shenton, 2004)	Applicability in this study

Credibility: the degree to which the findings of the qualitative research make sense	Adoption of appropriate, well recognized research methods	Qualitative research followed a semi-structured interviewing method.
	Development of early familiarity with culture of participating organizations	Interviewees and company representatives involved in the research, including researcher were either employed by the case organizations or involved in the case projects. Thus, all the stakeholders within this study are familiar with the culture of the case organizations.
	Random sampling of individuals serving as informants	Not applicable. Targeted interviews to ensure that interviewees have best possible knowledge on the case projects. All interviewees included from both Swedish and Finnish case organizations, representative of client and sub-consultants were chosen.
	Triangulation via use of different methods, different types of informants and different sites	Interview data used and company documents used. Informants from both case companies, outside companies involved in case projects, at varying management levels representing heterogeneous group.
	Tactics to help ensure honesty in in-formants	Ensuring that interviewees understand that their responses will be anonymous.
	Iterative questioning in data collection dialogues	Semi-structured interview questions allowed for iterative questioning during the interview sessions.
	Negative case analysis	Not used.
	Debriefing sessions between re-searcher and superiors	Face-to-face meetings, e-mail exchanges and over the phone discussions.
	Peer scrutiny of project	Group seminars at university, review by company representatives before final release.
	Use of "reflective commentary"	Provided in chapter 5 Building the operating model and chapter 6 Conclusion
	Description of background, qualifications and experience of the researcher	Not applicable
	Member checks of data collected and interpretations/theories formed	Transcriptions of interviews were provided to interviewees before utilizing them and key persons involved in workshops and advisors regularly checked results and provided feedback and commentary.
	Thick description of phenomenon under scrutiny	Provided in chapter 1 Introduction, chapter 2 methodology and chapter 4 Literature review
	Examination of previous research to frame findings	Documented in chapter 4 Literature review
Transferability:	The number of organizations	Two main organizations taking part in the

	taking part in the study and where they are based	study. One in Finland, the other in Sweden. Sub-contractor and client company participated in interviews for current state analysis.
generalizability of the quantitative research, it is assured by describing thoroughly how the data collection has taken place.	Any restrictions in the type of people who contributed data	Restriction to case project participants only for the current state analysis.
	The number of participants involved in the fieldwork	Described in section 2.2 Interview
	The data collection methods that were employed	Semi-structured interviews, company documents, workshop discussions and written feedback.
	The number and length of the data collection sessions	12 interviews approximately between 30-60 minutes and 4 workshops, about 2 hours each.
	The time period over which the data was collected	July-September 2016 for interviews September-December 2016 for workshops February 2017 for final feedback July-February regular feedback
Dependability: reliability, consistency and accurateness of the qualitative study, increased by reporting the research process in detail, so that other researchers would be able to conduct similar research and receive similar results.	The research design and its implementation, describing what was planned and executed on a strategic level	Described in chapter 2 Methodology
	The operational detail of data gathering, addressing the minutiae of what was done in the field	Data collection plan shown in chapter 2 Methodology
	Reflective appraisal of the project, evaluating the effectiveness of the process of inquiry undertaken.	Discussed in section 7.4 Limitations of the study
Confirmability: the objectivity of the researcher and assurance that the findings originate from the informants only in the qualitative research.	Triangulation to reduce the effect of investigator bias	Regular feedback was used as a method to reduce investigator bias and confirm the received perception from company documents and interviews.
	Admission of researcher's beliefs and assumptions	Discussed in section 7.4 Limitations of the study
	Recognition of shortcomings in study's methods and their potential effects	Discussed in section 2.3 Delimitations, 4.5 Gap in the literature, and 7.4 Limitations of the study
	In-depth methodological description to allow integrity of research results to be scrutinized	Described in Chapter 2, the research approach, process and data collection plan
	Use of diagrams to demonstrate	Summary table or diagrams used throughout the report to illustrate the

	"audit trail"	findings. The research plan is illustrated in section 2.1

Based on the evaluation carried out for this study, it can be concluded that this study fulfils majority of the trustworthy traits outlined by Shenton (2004). Thus, it implies that this study has reached a satisfactory level of trustworthiness.

7.4   Limitations and further studies

This section describes the major limitations of this study together with suggestions of further studies. One major limitation to this master thesis is the limited time frame to conduct the study. An extension of the time frame would have been preferred in order to study the case projects during a longer time period to get a more complete picture of the underlying issues. During the time of the interviews for the current state analysis, case project 2 was still on going. Interviewing after the completion of the project would have further enriched the study. In addition, more external members may have been available to participate in the study. It is important to note that the case projects of this study were the first two projects to undergo a collaborative venture between the Finnish and Swedish firms. This is in addition to the Swedish firm being a completely new firm with only two staff members at the time of the interviews. It is therefore suggested that further studies focus on a number of projects during a longer period of time in order to establish a complete picture to assess the overall collaboration and outcomes of projects.

Furthermore, due to the limited time available it was not possible to measure change or stability over time after implementing the operating model. As a means to assess effectiveness of the operating model, feedback was sought throughout the research process. However, piloting the model would have been beneficial. The next step to further this research would therefore be to implement the proposed operating model and measure the results over time.

The varying fluency in language should be acknowledged as a possible limitation of the study as interviews were conducted in English. Although a lot of the interviewee's command of the English language were sufficient for this study, it was not their first, or even second, language. There may have been some challenges in fully expressing

their meaning. Transcribing and going over their responses with each individual member was one method to ensure that their meaning was correctly recorded and this did not affect the results of the thesis. However, future studies could benefit from taking interviews in the interviewees native language, where necessary, and then be translated.

As described in section 4.5 Gap in the literature, there is little prior research on engineering infrastructure consulting firms that reflect the unique position this study lies in. That is, newly formed engineering consulting company without established working processes forming a partnership-like arrangement with it's larger established mother company abroad. Due to this, findings presented in this study cannot directly relate to partnership companies as the Swedish company is a branch of the Finnish company. However, many of the findings can relate to business units within an organization and specifically can add to companies that are expanding service operations by establishing daughter companies abroad. The suggested collaborative methods, although are somewhat universal and derived from other industries, is yet to be confirmed on how beneficial they are in engineering consulting firms.

References

Anantatmula, V. (2010). Project Manager Leadership Role in Improving Project Performance. Engineering Management Journal, 22(1), pp.13-22.

Anderson, A.H., McEwan, R., Bal, J. and Carletta, J., 2007. Virtual team meetings: An analysis of communication and context. Computers in Human Behavior, 23(5), pp.2558-2580.

Ardichvili, A., 2008. Learning and knowledge sharing in virtual communities of practice: Motivators, barriers, and enablers. Advances in developing human resources

Arikan, A.T., 2009. Interfirm knowledge exchanges and the knowledge creation capability of clusters. Academy of Management Review, 34(4), pp.658-676.

Barney, J.B., Ketchen, D.J. and Wright, M., 2011. The future of resource-based theory revitalization or decline? Journal of management, 37(5), pp.1299-1315.

Bergiel, B. J., Bergiel, E. B. & Balsmeier, P. W. 2008. Nature of virtual teams: a su mary of their advantages and disadvantages. Management Research News, 31, 99-110.

Blomstermo, Anders, D. Deo Sharma, and James Sallis. "Choice of foreign market entry mode in service firms." International Marketing Review 23, no. 2 (2006): 211-229.

Brown, M. K., Huettner, B. & James-Tanny, C. 2010. Managing virtual teams: Getting the most from wikis, blogs, and other collaborative tools, Taxes, Jones & Bartlett Publishers Inc.

Brunn, S. (2011). Engineering earth. Dordrecht: Springer.

Camarinha-Matos, L.M. and Afsarmanesh, H., 2007. A comprehensive modeling framework for collaborative networked organizations. Journal of Intelligent Manufacturing, 18(5), pp.529-542.

Christiansen, E.A. and Jakobsen, S.E., 2012. EMBEDDED AND DISEMBEDDED PRACTICE IN THE FIRM–PLACE NEXUS: A STUDY OF TWO WORLD-LEADING MANUFACTURERS OF SKI EQUIPMENT IN THE LILLEHAMMER SKI CLUSTER. Geografiska Annaler: Series B, Human Geography, 94(2), pp.177-194.

Collins, N., Chou, Y.-M., Warner, M. & Rowley, C. 2015. Human factors in East Asian virtual teamwork: a comparative study of Indonesia, Taiwan and Vietnam. The International Journal of Human Resource Management, 1-24.

Ebrahim, N., Shamsuddin, A. and Taha, Z. (2009). Virtual Teams: a Literature Review. Australian Journal of Basic and Applied Sciences, [online] 3(3), pp.2653-2669. Available at: http://cogprints.org/7814/1/2653-2669.pdf [Accessed 22 Oct. 2016].

Ebrahim, N., Shamsuddin, A. and Zahari, T. (2011). Virtual Teams and Management Challenges. Academic Leadership Journal, [online] 9(3), pp.1-7. Available at: http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.174.5808&rep=rep1&type=pdf [Accessed 22 Oct. 2016].

Ferrazzi, K. 2012. How Successful Virtual Teams Collaborate. Harvard Business Review. Brighton: Harvard Business Publishing.

Ferrazzi, K. 2014. Getting Virtual Teams Right. Harvard Business Review. Brighton: Harvard Business School Publishing.

Ford, R. C., Piccolo, R. F. & Ford, L. R. 2016. Strategies for building effective virtual teams: Trust is key. Business Horizons.

Forester, G. L., Thorns, P. & Pinto, J. K. 2007. Importance of goal setting in virtual project teams. Psychological reports, 100, 270-274.

Gazor, H. 2012. A Literature Review on Challenges of Virtual Team's Leadership. Journal of Sociological Research, 3, 134-145.

Ghosh, M. and John, G., 2012. Progress and prospects for governance value analysis in marketing: when Porter meets Williamson. In: Lilien, G.L., Grewal, R. (Eds.), Handbook of Business-to-Business Marketing. Cheltenham, UK: Edward Elgar

Girod, S., Bellin J.B.,and Ranjan, K.S. 2010. Operating models for a multipolar world: balancing global integration and local responsiveness. Journal of Business Strategy. Vol. 31 No. 6, 22-27

Gratton L. and Erickson T. J. 2007. Eight ways to build collaborative teams. Harvard Business Review [online] November Issue. Available at: https://hbr.org/2007/11/eight-ways-to-build-collaborative-teams (Accessed17.10.2016)

Gressgård, L. J. 2011. Virtual team collaboration and innovation in organizations. Team Performance Management: An International Journal, 17, 102-119.

Heriberto, M., Pinzon, R. and Esparragoza, I. (2008). International Collaborative Learning Experience through Global Engineering Design Projects: A Case Study. Springer-Verlag Berlin Heidelberg, [online] pp.212-215. Available at: https://pdfs.semanticscholar.org/2ecb/433f82b6c79915d5fef5060b5f7f621c6e4a.pdf [Accessed 22 Oct. 2016].

Howells, J. and Bessant, J., 2012. Introduction: Innovation and economic geography: a review and analysis. Journal of economic geography, 12(5), pp.929-942.

Hunsaker, P. L. & Hunsaker, J. S. 2008. Virtual teams: a leader's guide. Team Performance Management: An International Journal, 14, 86-101.

Huysman, M.H., and De Wit, D. 2011. Knowledge sharing in practice. Dordrecht, Springer.

Ipe, M. (2004). Knowledge sharing in organizations: a conceptual framework. Human Resources Abstracts. 39.

Kabiri, S., Hughes, W. and Schwebber, L. (2012). Role Conflict and Role Ambiguity in Construction Projects. 1st ed. [ebook] Edinburgh: Association of Researchers in Construction Management, pp.727-736. Available at: http://www.arcom.ac.uk/-docs/proceedings/ar2012-0727-0736_Kabiri_Hughes_Schweber.pdf [Accessed 22 Oct.

2016].

Kim, K. and Lee, K. (2016). Collaborative product design processes of industrial design and engineering design in consumer product companies. Design Studies, 46, pp.226-260.

Kirkman, B.L., C.B. Gibson, and D.L. Shapiro, 2001. "Exporting" teams enhancing the implementation and effectiveness s of work teams in global affiliates Organizational Dynamics, 30: 12-29.

Lawley, D. 2006. Creating trust in virtual teams at Orange. Knowledge Management Review, 9, 12-17.

Lawson, B., Petersen, K.J., Cousins, P.D. and Handfield, R.B., 2009. Knowledge sharing in interorganizational product development teams: The effect of formal and informal socialization mechanisms. Journal of Product Innovation Management, 26(2), pp.156-172.

Lee-Kelley, L. and Sankey, T., 2008. Global virtual teams for value creation and project success: A case study. International journal of project management, 26(1), pp.51-62.

Lichtenstein, S. and Hunter, A., 2008. Toward a receiver-based theory of knowledge sharing. Current Issues in Knowledge Management, p.86.

Linda, M. P. & CHARLES, C. M. 2007. Identifying antecedents of virtual team collaboration. Team Performance Management: An International Journal, 13, 117-129.

Malhotra, A., Majchrzak, A. & Rosen, B. 2007. Leading virtual teams. The Academy of Management Perspectives, 21, 60-70.

Malhotra, S., Sivakumar, K. and Zhu, P., 2009. Distance factors and target market selection: the moderating effect of market potential. International Marketing Review, 26(6), pp.651-673.

Martins, L.L., Gilson, L.L. and Maynard, M.T., 2004. Virtual teams: What do we know and where do we go from here? Journal of management, 30(6), pp.805-835.

Morschett, D., Schramm-Klein, H. and Swoboda, B., 2010. Decades of research on market entry modes: What do we really know about external antecedents of entry mode choice? Journal of International Management, 16(1), pp.60-77.

Nesbitt, P. & Bagley-Woodward, E. 2006. Practical tips for working with global teams. Intercom, 53, 25-30.

Nooteboom, B., Vanhaverbeke, W., Duysters, G., Gilsing, V. and Van Den Oord, A., 2005, August. OPTIMAL COGNITIVE DISTANCE AND ABSORPTIVE CAPACITY. In Academy of Management Proceedings (Vol. 2005, No. 1, pp. L1-L6). Academy of Management.

Nunamaker JR, J. F., REINIG, B. A. & BRIGGS, R. O. 2009. Principles for effective virtual teamwork. Communications of the ACM, 52, 113-117.

Ojasalo, J., 2008. Management of innovation networks: a case study of different

approaches. European Journal of Innovation Management, 11(1), pp.51-86.

Omar, M. and Porter, M., 2011. Reducing risk in foreign market entry strategies: standardization versus modification. Competitiveness Review: an International Business Journal, 21(4), pp.382-396.

Pasi, P. 2009. Virtual collaboration in knowledge work: from vision to reality. Team Performance Management: An International Journal, 15, 366-381.

Patel, H., Pettitt, M., Wilson, J.R. 2012. Factors of collaborative working: A framework for a collaboration model, Human Factors Research Group, Faculty of Engineering, University of Nottingham, Applied Ergonomics Journal, Volume 43, Edition 1, 1-26

Pazderka, M. & Grechenig, T. 2009. Project management maturity models: towards best practices for virtual teams. 2007 IEEE International Engineering Management Conference, 29 July-1 Aug. 2007. IEEE, 84-89.

Peters, L.M. and Manz, C.C., 2007. Identifying antecedents of virtual team collaboration. Team Performance Management: An International Journal, 13(3/4), pp.117-129.

Reginato, J., and Alves, T. da C. (2012). "Management of Preconstruction Using Lean: an Exploratory Study of the Bidding Process." Proceedings for the 20th Annual Conference of the International Group for Lean Construction, 1–10

Reginato, J.M. and Graham, S.T. (2011). "Implementing the Last Planner^{TM} System in Large Public Lump Sum Bidding for Building Projects". Intl. Proc. of the 47th Annual Conference, ASC, University of Nebraska, Lincoln, NE, 8pp

Ricci, R., and Wiese, C. 2011. The collaborative imperative [online] Available at: http://thecollaborationimperative.com/wordpress/wp-content/uploads/2012/01/584_CiscoBook_Final-01-copy.pdf   [Accessed 13 Sep. 2016]

Rosen, B., Furst, S. and Blackburn, R., 2007. Overcoming barriers to knowledge sharing in virtual teams. Organizational Dynamics, 36(3), pp.259-273.

Rönkkö, M., Eloranta, E., Mustaniemi, H., Mutanen, O.P. and Kontio, J., 2007. Finnish software product business: Results of the national software industry survey 2007. Helsinki University of Technology, Software Business Laboratory.

Shao, Y., Chen, S. and Cheng, B., 2008. Analyses of the Dynamic Factors of Cluster Innovation-A Case Study of Chengdu Furniture Industrial Cluster. International Management Review, 4(1), p.51.

Shin, Y., 2005. Conflict resolution in virtual teams. Organizational Dynamics, 34(4), pp.331-345.

Šmite, D., Wohlin, C., Gorschek, T. and Feldt, R., 2010. Empirical evidence in global software engineering: a systematic review. Empirical software engineering, 15(1), pp.91-118.

Soetanto, R., Childs, M., Poh, P., Austin, S. and Hao, J. (2014). Virtual collaborative learning for building design. Proceedings of the Institution of Civil Engineers -

Management, Procurement and Law, 167(1), pp.25-34.

Taylor, M. and Oinas, P., 2006. Understanding the firm: spatial and organizational dimensions. Oxford University Press.

Weber, P., Lehr, C. and Gersch, M., 2014. Improving Virtual Collaborative Learning through Canonical Action Research. The Electronic Journal of e-Learning, Volume 12, Issue 4 (pp.326-338).

Widén-Wulff, G., 2014. The challenges of knowledge sharing in practice: a social approach. Elsevier.

Zain, M. and Ng, S.I., 2006. The impacts of network relationships on SMEs internationalization process. Thunderbird international business review, 48(2), p.183.

Zenun, M.M.N., Loureiro, G. and Araujo, C.S., 2007. The Effects of Teams' Co-location on Project Performance. In Complex Systems Concurrent Engineering (pp. 717-726), Springer London.