



CHALMERS
UNIVERSITY OF TECHNOLOGY



International Project Management Strategy Applied by a Small and Medium-sized Consultancy in Oversea Cooperation

Communication. Risk. Cultural and Stakeholder management integrated in energy efficiency building projects between Swedish and Chinese partners

Master's Thesis in Design and Construction Project Management & International Project Management

LI HAIXI
ZHAO YIMIN

Department of Civil and Environmental Engineering
Division of Construction Management
Design and Construction Management & International Project Management
CHALMERS UNIVERSITY OF TECHNOLOGY
Gothenburg, Sweden 2016
Master's Thesis BOMX02-16-148

Master's Thesis BOMX02-16-148

International Project Management Strategy Applied by a Small and Medium-sized Consultancy in Oversea Cooperation

Communication. Risk. Cultural and Stakeholder management integrated in energy efficiency
building projects between Swedish and Chinese partners

*Master's Thesis in Design and Construction Project Management & International Project
Management*

LI HAIXI
ZHAO YIMIN

Department of Civil and Environmental Engineering
Division of *Construction Management*
Design and Construction Management & International Project Management
Chalmers University of Technology
Göteborg, Sweden 2016

International Project Management Strategy Applied by a Small and Medium-sized
Consultancy in Oversea Cooperation

Communication. Risk. Cultural and Stakeholder management integrated in energy
efficiency building projects between Swedish and Chinese partners

*Master's Thesis in Design and Construction Project Management & International
Project Management*

LI HAIXI

ZHAO YIMIN

© LI HAIXI, ZHAO YIMIN, 2016

Examensarbete BOMX02-16-148 institutionen för bygg- och miljöteknik,
Chalmers tekniska högskola 2016

Department of Civil and Environmental Engineering
Division of Construction Management
Design and Construction Management & International Project Management
Chalmers University of Technology
SE-412 96 Göteborg
Sweden
Telephone: + 46 (0)31-772 1000

Departement of Civil and Environmental Engineering, Göteborg, Sweden, 2016

International Project Management Strategy Applied by a Small and Medium-sized Consultancy in Oversea Cooperation

Communication. Risk. Cultural and Stakeholder management integrated in energy efficiency building projects between Swedish and Chinese partners

Master's thesis in Design and Construction Project Management & International Project Management

LI HAIXI

ZHAO YIMIN

Department of Civil and Environmental Engineering

Division of Construction Management

Design and Construction Management & International Project Management

Chalmers University of Technology

ABSTRACT

The international construction market has been significantly grown in the past decades, and it creates many overseas cooperation opportunities for construction firms to expand their business into a foreign country. Many Swedish construction firms experienced to have some construction projects abroad. Besides the large construction firm, there is a huge amount of small and medium-sized Swedish construction firm is involved in many construction projects abroad. Another factor is building technology progress has led to noticeable advancement, it requires more energy efficiency in the building life cycle. Some of those building techniques focus on high quality of environmental condition such as Green Buildings, some of them focus on energy saving and efficiency such as Passive House. Further, there may have different ways of doing energy efficiency building projects in different countries due to varieties of reasons. The purpose of this study is to explore how the small and medium-sized Swedish construction consultancy acted in an overseas energy efficiency building project and to find out if there would be the best appropriate project management strategy for doing such kind of project. It is a qualitative research, and the reference Swedish construction consultancy firm co-operated with a Chinese design firm to provide the energy solution for buildings. Two projects' case study from the reference company has been carrying out in the research. Both of the projects focused on energy efficiency design approach. The result shows there did not exist so-called the most appropriate international project management strategy that could fit all of the small and medium-sized Swedish consultancies since every project was unique, the real situation of the projects was not the same. However, as most of the projects should follow the project life cycle, so most of the projects' processes were similar. Therefore, although there indeed did not have two projects were the same, some same tools and strategy structures could be applied both in the two projects. This thesis found out and concluded some tools that could provide helps in improving project processes performance and decreasing the obstacles that appeared in the previous projects.

Keywords: Project Management, Construction, International Cooperation, Energy Efficiency Building

Contents

1	INTRODUCTION	1
1.1	Background Information	1
1.2	Objective	2
1.3	Research Question	3
1.3.1	Sub research question	3
2	LITERATURE FRAMEWORK	4
2.1	International Project Management	4
2.1.1	Project Life Cycle	5
2.2	Project Communication Management	7
2.2.1	Project communication plan	8
2.2.2	Communication in international project	9
2.3	Risk Management	11
2.3.1	Challenges faced on green construction projects	14
2.4	Stakeholder Management	15
2.4.1	Mapping stakeholders	16
2.4.2	Mapping stakeholders	17
2.4.3	Project partnering in the construction industry	18
2.4.4	Trust in project partnering	18
2.5	National Culture Difference	19
2.5.1	Lewis Model	21
2.6	Summary of Literature	22
3	METHOD	24
3.1	Methodology	24
3.2	Literature Review	25
3.3	Study of the Case	25
3.4	Interviews	25
3.5	Case Analysis	26
3.6	Conclusion	26
4	CASE STUDY	27
4.1	Description of Case Projects	27
4.1.1	HangXing Technology Centre Project	27
4.1.2	Ding Xiang Gu Green Hotel Project	29
4.2	Analysis of Cases	31
4.2.1	Project Life Cycle of the Cases	31
4.2.2	Communication Management	32

4.2.3	Risk analysis	39
4.2.4	National culture difference analysis	45
4.2.5	Stakeholder Analysis	49
4.3	Summary of Analyzing	53
5	CONCLUSION	55
	REFERENCES	57
	APPENDIX	60

Preface

This Master of thesis was conducted at the Department of Civil and Environmental Engineering at the Division of Construction Management. This thesis is the last assignment of our studies at the Master's program Design and Construction Project Management and International Project Management at Chalmers University of Technology. It has been carried out at ByDemand AB in Göteborg during the spring of 2016.

We would like to thank everyone involved in our Master thesis process for offering us support. At first, we would like to thank our supervisor and examiner at Chalmers University of Technology, Koch Christian and Sjouke Beemsterboer, for helping and supporting us with academic parts. Secondly, a great thanks to the interviewees that involved in our thesis, which are Charlotta Berggren from ByDemand AB and Dongmei from BCKJ for spending their time to guide us and offer helps. Finally, we would like to thank all the individuals that involved for helping and supporting us with our thesis work.

Göteborg November 2016

Li Haixi

Zhao Yimin

Notations

PMBOK – A Guide to the Project Management Body of Knowledge

HVAC – Heating, Ventilation and air conditioning

EU – European Union

1 Introduction

In this chapter, the author will present a general background information to provide readers a basic understanding of the relevant concepts. Further, the research questions will be conducted to the thesis after the background information.

1.1 Background Information

About more than 1000 years ago, Vikings dominated Scandinavia and developed a trading market on the sea to trade goods from one place to another. Today, with the development of transportation and technology, it is more convenient to trade in a global way. Solely trading goods are not able to fulfill people's needs (Lientz & Rea, 2003). Therefore, a significant and growing numbers of organizations and companies are seeking for cooperation with overseas customers or implementing international projects. The projects broad contain almost all kinds of projects that people can imagine so far. Such as car manufacturing, food producing, and construction industry even for some nonprofit organization to provide humanitarian assistance to people in some developing countries.

However, every coin has two sides. For almost all kinds of international projects. Different stakeholders may have differently expects from those projects. Usually, the stakeholders include sponsors, governments, customers, local partners and also whoever have interests in the projects. Further, they have different impacts on the projects and vice versa (Grisham, 2010). Take sponsors, for example, to operate an international project could expand their markets and increased sales, lower operation cost or any other benefits. On the contrary, the sponsors have to take the risk as the international projects are usually complex, the process or the result of the projects often shown not reach the stakeholders' expectation (Lientz & Rea, 2003).

Besides different effects from various stakeholders, it exists numbers of other factors that could influence the projects, such as different project types, different project management strategies, and different location. For instance, to have an appropriate international project management strategy is significant essential for the projects. A good strategy could help stakeholders to have an overview of the funds, resources, and schedule. To align the strategy when there occurs any change, this will keep the project on the right track (Maley, 2012). Different types of the international projects could have distinctive effects as well. Factors which will influence the project are always different between a car industry project and a construction civil engineering project. Even there are many differences from two construction projects, while one is for an office building and another is for an apartment. Thus, to define a clear direction of the project' type is necessary for this research.

Nowadays, building technology has been well developed in most areas of the world. Some of those building techniques focus on high quality of environmental condition such as Green Buildings, some of them focus on energy saving and efficiency such as Passive House. In different countries, there may have different ways of doing such kind of projects due to varieties of reasons. Further, besides large-scale technical consultancy firm it is interesting that huge amount of small and medium-sized construction consultancies is involved in millions of green building projects abroad. Thus, it becomes an interesting topic to study how those small and medium-sized

construction consultancies act in an overseas energy efficiency building project, what project management strategy they used in those project and what would be the best appropriate project management strategy for those small and medium-sized construction consultancies in the future.

Among those countries, China has a remarkable construction market. As a country which is the third biggest and own one-fifth of the world's population, the demand for the building projects are inestimable (Countries of the world ordered by land area, 2015). Further, with the China's pollution issues on the slide, people, and the government are eager for sustainable development in the future. Under certain circumstances, energy efficiency building has faded in people's sight. It has been concerned as a possible solution to decrease energy use in building life cycle. China welcomes overseas building technical consultancies to provide corresponding technologies and assistances in such kind of project (China Development and Reform Commission, 2015). Furthermore, those building technical consultancies are willing to cooperate with local projects in China and develop together. However, the processes of the overseas building technical consultancies accessing may face many challenges. Most of the energy efficiency building projects invariably have problems during the implementation. Those varieties problems compound the projects, ensuing adverse effects on the cooperation between the two sides (Xu & Greenwood, 2006). Hence, to ensure the processes of the projects can be progressed successfully, to conquer those challenges are imperative.

The aim of this thesis is to study a Swedish small and medium size building technology consultancy in Chinese energy efficiency projects. Take an overview of the project management through analysis how it acted and involved in overseas projects. Further, the author selects four key elements that influence the project management most in the international project. The selection criteria are based on pre-interviews and literature review before the thesis project. And then to provide the possibly appropriate project management strategy for such kind of international green building project. Enable to complete the research it is necessary to analysis what is the key issues, challenges and the possible solutions for those green building projects. However, since the selected size is a small and medium building technical consultancy, and the circumstance is the Chinese market, there are limitations that the study scope of this thesis could just carry out with the companies that accord with the research background.

1.2 Objective

The objective of this thesis is to explore and try to find the possible solution for the Swedish small and medium-sized construction consultancy to improve the project management in the future cooperation to be better adapt to the Chinese energy efficiency building project in Beijing. Moreover, the objective of this thesis is to identify the key obstacles when the Swedish small and medium-sized construction consultancy participated in the Chinese energy efficiency building project in Beijing.

1.3 Research Question

What kind of project management strategy could fit the Swedish small and medium-sized construction consultancy providing energy efficiency building solutions when involved in an energy efficiency building project in China?

1.3.1 Sub research question

- a) What kind of project management strategies are applied by Chinese small and medium-sized construction consultancies when involved in a Chinese energy efficiency building project, are there any differences to compare with the Swedish small and medium-sized construction consultancy?
- b) How does communication, risk, cultural and stakeholder management integrate into energy efficiency building project between Swedish and Chinese partners?
- c) What are the obstacles that the overseas small and medium-sized Swedish construction consultancy were facing when they were operating an energy efficiency building project in China?

2 Literature Framework

To achieve a relatively complete result, and to make this thesis much more persuasive and accurately, some relevant literature will be used and quoted to support the result. This chapter will introduce some basic information about project life cycle, communication management, risk management, stakeholder management and cultural analysis, which are involved in the international project management.

2.1 International Project Management

To figure out what is an international project, the definition of the project should be clearly understood. Based on Lientz and Rea (2003)'s state, a project is a focused work for achieving the goals with a budget and schedule which is defined. However, the international project has numbers of differences between a single project, to take expression literally, an international project should involve multiple organizations, locations, time zones, entities and business units, which means a project that some of the team members are in another country than the project manager. Further, the projects' stakeholders usually come from different countries. Due to the differences mentioned above, some factors need to be considered during an international project, such as national culture differences, politics and laws differences, languages differences, time zones, holidays, resources and more, which also agreed by Desmond(2013) and Grisham(2010).

As an international project has large numbers of elements need to be concerned, it is more complicated than a conventional project. So it is much harder to manage an international project than manage a common project. However, the number of international projects is still increasing in the modern world. Lientz and Rea (2003) mentioned that generally the benefits of the international project could be divided into two sides, which are of the global society's view and the organizations involved in the project's view. Lientz and Rea's points are suggested as below:

From the global society's side:

- Firms and companies can expand their size and sell their products and services to other countries. This phenomenon will further the advancement of the world economy and international trade.
- Governments can standardize the regulations and simplifications. It can make mergers and acquisitions becoming easier with the frequency of the international project. To make the global presence becoming viable. Including almost all of the industries, such as automobiles, pharmaceuticals, and banking.
- Worldwide manufacturing and distributions. One single product's materials could come from different locations.

From the organization's side:

- From economies of scale, to achieve the administrative economies of scale by having one headquarters. Centralizing manufacturing activities in the same type would decrease the additional economies scale and operation cost.
- To strengthen the organization size. Firms will gain lots of benefits by increasing the size.
- Entering into a new market and increasing the sales. To have new markets is a possible chance to sell more products, which means to have more sales.
- Access to human resources. A much broader range of labor selection by entering into another country.
- Maintenance and expansion of the company's brand competitive position.

All the reasons above are just some examples of the benefits from the international project in general. Some of the points may not fit all cases since international projects are complex, and the size of companies or firms involved in the international projects are changeable. Based on the type of the project and the different locations of the project, there exist different kinds of benefits to the different international project. Whatever what the benefits are, it already becomes the drive for most of the companies to go aboard to seek for potential international project opportunities. However, it also has its dark side, some disadvantages or challenges are suggested as below:

- The international projects are usually more complexity than the normal projects (Lientz & Rea, 2003).
- The problem of national culture diversity is much more severe than other conventional projects (Barinage, 2007).
- Due to its long distance and time zones, the communication within the project team is harder to control than traditional projects (Grisham, 2010).
- The project team may be unfamiliar with the unknown locations. It could form some obstacles due to the unknown information (Grisham, 2010).

Although it has such some disadvantages, as it has already become the trend all over the world, and the huge profitable that brought by the international projects, thus, international projects are preferred by most of the companies. Furthermore, in order to avoid or decrease its challenges or issues, to find out how to manage the international project properly to achieve the initiate goal is important.

2.1.1 Project Life Cycle

In order to well manage a project, it is insufficient to know merely what a project is, it is necessary to know what is going to happen in a project, what should happen and how could make them happen. Then to well define the project life cycle and project

phases is helpful for decision making appropriately in specific project stages. The project life cycle is made up of series of sequential steps that the project passes from its initiation to its closure. However, the phases' names can be determined by the project itself and the application area. So there always different names in different projects (PMBOK). Like Maylor (2010) stated a 4-D model for the project life cycle, which is "defines it, design it, do it and develop it." While PMBOK has another categorization, which is "initiating processes, planning processes, executing processes, monitoring and controlling processes and closing processes." Except those two, Maley (2012) and other authors also have their own categorization. No matter which kinds of categorization, they all sequential by time, and the entire content of the whole project which are quite similar.

In this thesis, PMBOK's definition is applied in the further case study. In PMBOK's definition, as figure 1 shows that the project lifecycle is going to be categorized into five phases:

- Initiating Processes: In this phase, the processes are regarded as to define a new project or a new step of an existing project through getting the authorization to start the phase or the project.
- Planning Processes: Establishing the scope of the project, the objectives need to be refined and set the actions that required achieving the objectives.
- Executing Processes: Complete the work that has been defined in the project management plan and the phases before to reach the project specifications.
- Monitoring and Controlling Processes: Track, review, check, regulate the performance and the progress of the current status of the project. Further, to adjust the project plan and decide if there needs to have some corresponding changes.
- Closing Processes: Finalize all activities through the project. Close the project or phase formally.

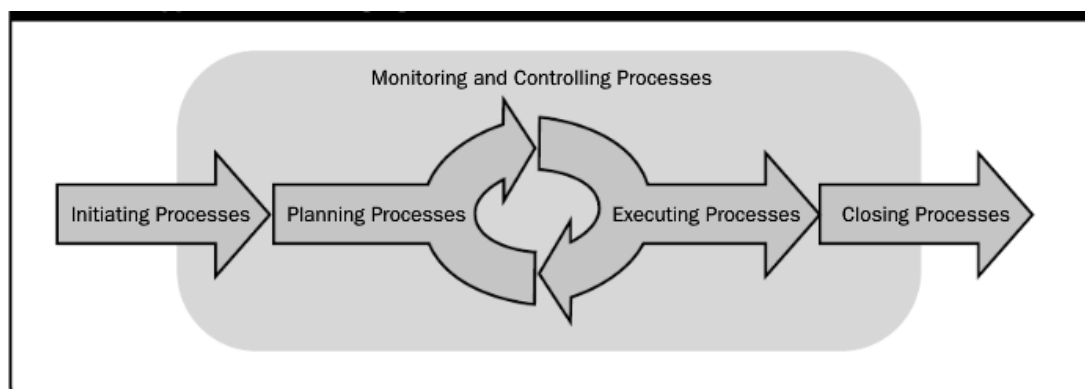


Figure 1. PMBOK Project Life Cycle.

Figure 1 just an example of a single-phase project. There also exist some projects that have two or even more phases in the project life cycle. Figure 2 shows a three phase's project life cycle.

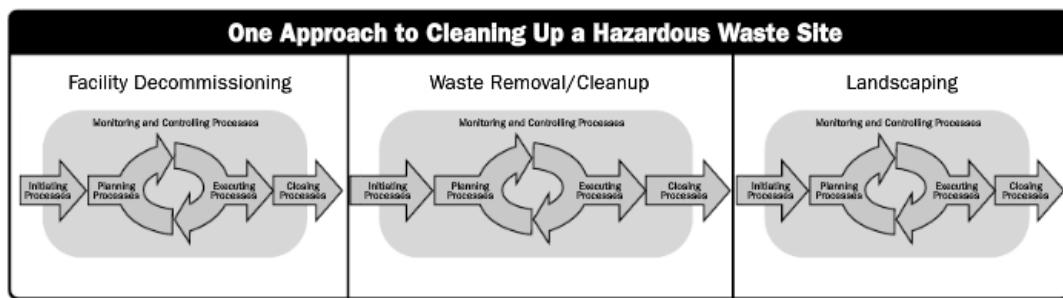


Figure 2. PMBOK Three-Phase Project Life Cycle

Among above two figures, the monitoring and controlling phases are in the shadow and as a background cover almost all of the other phases, that is because the whole project management needs the monitoring and controlling processes to interact and appear in all the other phases. This period occurred as soon as the project started formally (PMBOK). Certainly only to know what the five steps are of the project is not enough to well manage a project. It is necessary to understand what the content within each of the phase are and also how to handle them. Based on the PMBOK, there exist total 47 project management processes in a project life cycle, which can identify into ten separate groups. Those groups are: project integration management, project scope management, project time management, project cost management, project quality management, project human resources management, project communication management, project risk management, project procurement management and project stakeholder management. Not all of those groups will be studied in this thesis due to the related issues of the project cases. The author has only select issues that affect the projects the most. Next, the specific details of the main issues will be introduced.

2.2 Project Communication Management

As PMBOK mentioned, effective communication can deal with the communication between different stakeholders with a diverse national cultural background, level of expertise and interests effectively. Thus, communication takes a significant role in the whole project. Communication management is the key factor of the successful of the entire project and one of the hardest ones to control. It contains the processes that need to make sure the proper planning, executing, collection, decision, management, monitoring, controlling and almost all of the activities are following the schedule. Further, communication plays a significant role in our normal life as conveying information. It mainly located in four perspectives in a project, which are Formal communication, Technical communication, Informal communication and Personal communication. In the real project, to ensure the success of the project, three primary communication skills or responsibilities also need to be fulfilled which are: Provide people what they want; choose the right and appropriate communication channels and translating strategy to the team (Boddy, 2009). Further details about communication will be introduced.

Some key processes of communication are as following:

1. Communication management planning: On the basis of stakeholders' needs and requirements, and the available organizational budget, establishing an appropriate management for the communication.
2. Communication managing: To deal with the project information by following the communications management, including the processes of transferring information, creating information, collecting information, distributing information and all of the activities about the project information.
3. Communication controlling: Ensuring the project information fulfills the project stakeholders' needs and expectation by monitoring and controlling the communication processes.

As mentioned before, effective communication is one key factor to ensure the success of a project. While to further discuss, some advantages of good communication in the project need to be provided. Based on Suzanne and Ann (2013), effective communication could assist to develop a good relationship between the regulatory network and its environment. Besides, it will also assist in effecting the wider environment by informing and changing attitudes in different groups, which is from the external communication side. By contrast, from the angle of internal communication, effective communication would benefit the information flow, which means the information will be transferred in an efficient way from the top management to the shop floor, and vice versa. Moreover, the relationship among project team members, senior managers, and other stakeholders will be enhanced with good communication. Internal stakeholders involved in the project will share the appropriate information and have the same target to keep the project achieve its objective.

2.2.1 Project communication plan

In order to provide fluid information flow within the entire project, appropriate project communication plan is necessary. Usually, good communication plan includes the elements below:

- The objectives of communication
- Target audiences
- Communications key contents
- Communication method and frequency

Based on the Suzanne and Ann (2013), project communication plan will set up some questions as a guide to implement. Example of the questions is shown as following.

Focus on the following	Questions to ask
------------------------	------------------

- | | |
|---|---|
| 1. Objectives of communication | 1. What is the communication target in the project? |
| 2. Target audiences (Internal/External) and the constitute of each audience | 2. Following the established objectives for the project. Who are the target audiences that communicate with? Based on the stakeholder analysis. |
-

3. Audience communication purpose	3. Why communicating with them? Considering what audience wish to know from their side- “What’s in it for me?”
4. Communication key messages and the content	4. What are the messages that should be told? The reason that the audience would be interested in the project should be addressed in the content.
5. Sources of information	5. Where can the information that needs to collect for the communications is found? Searching information from official sources and project database.
6. Frequency of the communication	6. How often the communication would be delivered? Daily, weekly, monthly, at the end of a phase, etc.
7. Format and delivery mechanism for the communication	7. How does the target audience willing to receive this information and if the capability is available? Report, phone, website, Email, formal presentation, etc.
8. The messenger	8. Who is the communicator in charge? The project manager and project sponsor are often the main communicators, but it also depends on the size of project.
9. Milestones of communication and measurements of success	9. How to know the plan is working? Set up some performance indicators and evaluation measures to decide if the communication plan is effective. Example-use of a meeting evaluation form after a meeting.

2.2.2 Communication in international project

Communication management plan is the foundation of a project. Comparing with a common project, an international project needs to concern more communication relate factors. Meanwhile, there will occur much more issues about communication within an international project. Grisham (2010) mentioned that intercultural differences in communications often appeared due to cultural value and cognitive style difference. Except for the communication management plan, Grisham (2010) also offered some communication processes that need to be concerned with an international project communication, shows in figure 3 and the details are the following.

Encoding:

Source of message: Here the source is separated into the internal and the external source. The individual’s personality is the internal sources, also refers to individualistic, while the individual’s sensitivity to the team or group is an external one, which also means the collectivistic. If the people just make a little distinction between group and themselves, it is called low differentiation. China, Japan, Indonesia are belonging to low differentiation.

Style: Implicit meaning means that there is much more said by what is not said, often use the word “maybe” or “perhaps,” it always addressed by the collectivistic cultures. Such as China, Japan, and Thailand. On the contrary, individualistic cultures always address in an explicit way. What they mean is what they said. Such as Germany, Canada, and the United States.

Content: Content differences also occur between the collectivistic and individualistic cultures. Emotional often with the word they said in the collectivistic cultures, while individualistic often addressed in a logical or rational way.

Transmission:

Pattern: There exist differences between the high-context culture and the low-context culture on using patterns. A huge variety of patterns are used in high-context cultures, and it depends on how they communicated with, such as China and Japan. However, in low-context cultures, like Germany and Finland, they prefer to utilize as few patterns as they can in the communications to make it more generalized and abstract.

Channels: Formal channels are usually the favorite of the high power-distance cultures, like China and India. While, Germany and Canada, those low power-distance cultures prefer to use the most informal channels.

Receiving:

Listening actively: To listen actively is truly important in international communication. Since some of the cultures really care about the audience to be engaged in the communication, which means the audience can only pay attention to the communicator without texting messages, sending e-mails and any other things that are no response to the current communication.

Listening for ideas: Due to the national cultural differences, not all of the communicators are totally direct in communication. So be careful to what they are talking, focusing on every words and sentence to find out what is the critical information.

Decoding:

Framing: It is about the capability to understand the sender. To understand what the sender is meaning, it is crucial to adjust the frame to fit the senders’ frame. Often, to question the sender to clarification is necessary, and makes sure that both of the receivers and senders are in the same context.

Question: By questioning, it is good for the receivers and the senders are in the same context.

Feedback: The follow-up step ensures the messages are received in the correct way.

Except for the basic processes that mentioned above, some particular perspectives need to be considered as well, which are tones, rhythms, volumes, distances, rituals and deferential.

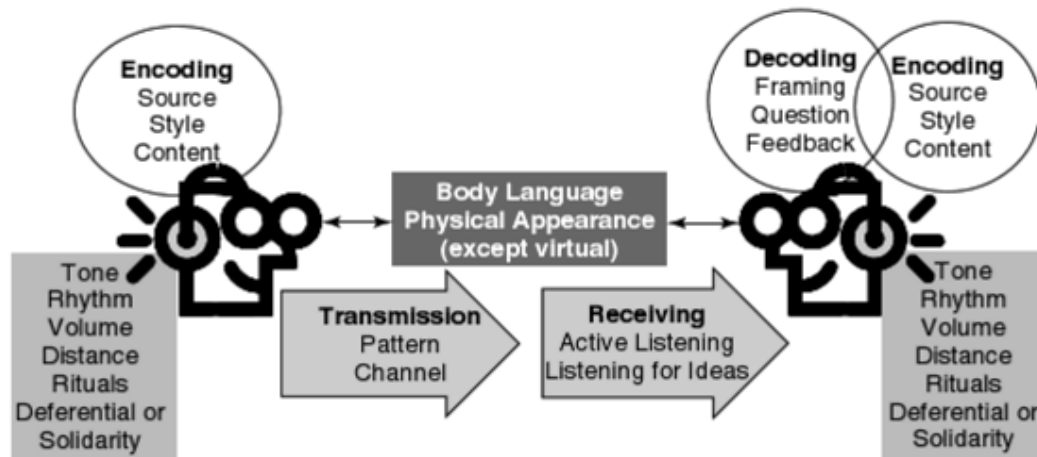


Figure 3 Communication in an international project

In addition, Grisham (2010) also recognized that e-mail is regarded as the most frequency-utilized tool within international project communication. Based on the different time, cultural and business, it is essential to establish regular contact intervals for the project team. However how to write an appropriate e-mail usually are not considered by most of the people. In this case, Grisham (2010) suggested some suggestions to help international project team to form their e-mails, some tips shown below:

- It is necessary to have an opening and closing.
- Make the subject line descriptive.
- Contact information must be included.
- The distribution should be kept to minimum.
- Keep the e-mail short (not longer than two paragraphs).
- Make it simple.
- Check and recheck the quality.
- Avoid long chain e-mails.
- Usually stop and think carefully before sending.

Except things stated above, Kai (2005) supported that in an international project team. It is easy for people to get lost in exchanging ideas, due to the difference in culture, background and languages. To explain everything carefully and in details is necessary. Ensuring that everybody in the project can understand the information entirely. Overall, communication in an international project is crucial and tough to manage. To manage communication well in an international project, it is not enough to just base on the theory that mentioned above, the practical situation must be considered in real international projects.

2.3 Risk Management

Project risk is an event, which is uncertainty, and if it appears, it may have the negative or positive effect on the project objective. To handle those risks and ensure them under control is crucial to the success of the entire project. The process of operating risk management are regarded to project risk management. Project risk management is including risk management planning, identification, analysis, handling

and monitoring the risks. The objective is to decrease the possibility of the negative events appearing. The specific the processes of project risk management based on the PMBOK is as following.

1. Risk Management Planning: Define how to implement the activities of risk management.
2. Risks Identifying: Identifying the risks that could affect the project and determining the characteristics of those risks.
3. Qualitative Risk Analysis Performing: Based on the processes of assessing and combining the possibility of the appearing and impact of the risks that identified already. To order and prioritize those risks for further action and analysis.
4. Quantitative Risk Analysis Performing: The processes of analyzing the influence of the identified risks on the entire project numerically.
5. Risk Responses Planning: To response to the risks that identified already and take actions to decrease the threats to the project goals, meanwhile, increase the chances to reach the final objective.
6. Risks Controlling: Controlling and monitoring the risks, risk response plans, new risk identification, identified risks tracking, and almost every steps that about the risks through the whole project.

As the complexity of an international project is much more than a normal project, the numbers of risks may much more than the common project, and more unpredictable. Grisham (2010) recommended to integrate risk management into the schedule, scope and budget of the entire project, and making the whole processes transparently and purposefully.

Risk identification

Risk cannot be ignored, risk and uncertainty could have potentially damaging consequences for a construction project. The quality of risk management will be improved if the risk is identified and evaluated in a systematic way and allocated to parties which able to control those risks. The initial step is identification and assessment of the risks associated with a proposed construction project. The risks, uncertainties will be formed and the strategies for control and allocate risks are established.(Potts&Ankrah,2014) However, it is significant to notice that risk usually be particular which mean different parties may manage and act differently and faced different risks depends on the project goal and interests. Some typical risks between main contractor and specialist contractors show as figure.4:

- Poor tender/briefing documents;
- client who will not commit;
- inexperienced client;
- non-standard contract documentation;
- ultimate client failing to sufficiently acknowledge and reward quality and value for money;
- poor design for construction, for example when 'buildability' is not addressed;
- unexpected problems relating to the site, such as contamination or unusual ground conditions;
- coordination problems – this could be a particular problem for specialists;
- component and/or materials suppliers unable to meet delivery and/or cost targets;
- faulty components and/or materials;
- accidents and injuries to staff;
- weather interrupting work;
- delayed payments;
- poor documentation of records;
- lack of coordination of documentation;
- poor guidance for operatives;
- poorly trained or inadequately trained workforce;
- Industrial disruption.

Figure 4, Particular risks for main contractors and specialist contractors (source: Constructing Excellence' Risk Management' Fact Sheet)

Risk analysis

Risk analysis aims to quantify the effects of the projects of the risks has been identified. There are the different analytical technique to quantify risk in the construction project, for example, price the risk and possible solutions. The choice of technique will usually be constrained by the available experience, computer software, and expertise. The next step requires the judgments from the impact of each risk and the probability of occurrence of each risk and the possible outcomes of the risk. Potential risks can be notice by, for example, interview key members of the project team; organizing brainstorming meetings with interested parties; using the personal experience of risk analyst; review past project experiences. Etc (Potts&Ankrah, 2014).

Risk register

The risk register is an iterative working document used by the construction project team to record project risks and associated actions. Correctly use of risk register will encourage competitive advantage for the project team member work together and solve problems together. The main reasons to use risk register is to monitoring and possibly correcting progress on risk mitigation measures and identifying new risks; closing down expired risks, and maintain existing risks; approving the drawdown of project contingencies by the client when required. (Potts&Ankrah, 2014) Risk register as a key control document has gained acceptance with the primary customers which lists all the defined risks and the results of the analysis and evaluation including information on the status of the risk. Further, risk register should be maintained collectively by the integrated project team and updated and reviewed during the project cycle. A typical risk register form:

Risk register

Date of risk review.....

Compiledby Date

Function/activity

Reviewedby Date

[illegible]

Figure 5 one example of risk register

2.3.1 Challenges faced on green construction projects

According to Hwang and Nq (2013)'s article, there exist some particular challenges during a green construction project.

1. The cost of green construction practices and materials are too expensive. In general, green projects costs much higher than regular conventional projects. The extra cost is utilized on the parts of complexity design, implementing green practices into conventional projects and some other parts which are related to green technology. Further, the green construction materials are used to cost from 3% to 4% more than the typical project materials.
2. The technologies during the construction process are complicated. The project managers' responsibility is to authorize the operation of projects' activities by following the project plan to make the project available to be delivered. However, on a green construction project, the green technologies usually required numbers of complex techniques and processes. If the authorizing communication is not addressed well, the project managers or the project's performance may be influenced. Therefore, the more complicated of the technology integrated into the project is, the more risks they will have in the communication process.
3. The risks caused by the different forms of the project delivery contracts. The contract type plays a significant role in ensuring the success of the green projects. Fully detailed information integrated into the contract is necessary. However, due to the differentiation among different countries' contracts type, it was difficult to control, and difficult to make a standard contract form.

4. The approval process of new green building technologies and material recycling may take too much time.

Some countries' market environment determined that it may take a lengthy time for gaining approvals for the new green technologies and recycled materials. The waiting time is uncertain. So the long approval process lead to a challenge that the project schedule and some payments must frequently be changed until the approval process is done.

5. Some of the team members may be unfamiliar with some of the green technologies.

According to Hwang and Nq (2013)'s statement, insufficient knowledge or techniques, and not familiar with the green materials, design, systems, technologies and products are forming the challenges to the developers, clients, and contractors. Due to the complexity of a green construction project is far more than a conventional project; thus the unfamiliarity with the relevant green construction information could affect the entire project outcome.

6. Difficult to keep good communication among all the project team members, and difficult to keep them interested during the entire project process.

Based on the complexity of the green construction project, communication is of particular importance for the project managers and their team members. Moreover, due to the team members could include large numbers of suppliers, subcontractors, and others, it's hard to keep good communication with all of the members during the whole project process. Further, except for the communication, the interest or the enthusiasm to the work is critical as well. With the project progressed, it is easy for the team members, like subcontractors, lose their initial enthusiasm for the separation of waste materials or other works.

7. The operation on-site of green construction practices required more time to get finished.

Due to the time pressures to complete the green project, the workers may ignore some sustainable practices only to speed up the project progress. Therefore, the random checks on-site become much essential for the project managers to ensure all the practices are getting done.

2.4 Stakeholder Management

Construction project comprises a series of complex activities. Stakeholders have different levels of interests in the project they are involved. Winch (2002) suggest that the project stakeholders are those actors who will incur a direct benefit or loss as a result of the project. The impact could be negative side or positive side. Project stakeholder management contains the processes that need to identify the stakeholders of the project, to analyze their expectations and also how they could influence the project to set up some relevant strategies to ensure the stakeholders have participated in an efficient manner.

Stakeholder analysis is usually divided into three steps: defining the aspects of a social and natural phenomenon affected by a decision of action; identifying individuals, groups or organizations that are affected by or can affect the selected

approach; and finally, prioritizing these individuals or groups into the decision-making process (Reed et.al, 2009). Further, Stakeholder analysis is regularly used during a project preparation phase to assess the attitudes of the stakeholders regarding the potential changes. Stakeholder analysis can be done once or on a regular basis to track changes in stakeholder attitudes over time. Some main processes and tools for stakeholder analysis will be introduced at below.

Step1. Stakeholder identification: The processes of identifying the stakeholders.

Step2. Stakeholder Management Planning: By analyzing the stakeholders' expectations, interests and potential impact to set up the appropriate strategies of the stakeholder management.

Step3. Stakeholder Engagement Management: Communicating and working with stakeholders to fulfill their needs and expectations, deal with the issues occurred.

Step4. Stakeholder Engagement Controlling: Monitoring and controlling the entire project stakeholder relationships and establish appropriate strategies to engage the stakeholders.

2.4.1 Mapping stakeholders

Stakeholder mapping is defined as a process and visual tool used in strategy and in particular in stakeholder analysis. The aim of stakeholder mapping is to clarify and categorize the various stakeholders by drawing further pictures of what the stakeholder groups are, which interests they represent, the amount of power they have, whether they represent inhibiting or supporting factors for the organization to realize its objectives or methods should be dealt with. Stakeholder maps will be conducted to visualize the relationship between the stakeholders, in the case study of the thesis. Further, mapping stakeholders will make it easy to understand how the stakeholders are interacting with each other. Before conduct to visualize the relationship between the stakeholders, the stakeholder maps, it is essential to identify the stakeholders that are involved.

The first step in managing the stakeholders is to map their interest in the project. Based on Which (2002), stakeholders can be considered as having a problem or issue with the project mission, and as having a solution that will resolve that problem. The solution proposals are inconsistent with the client's proposal which means being in opposition to the project. The most important part of stakeholder management is to find ways enable to accommodate more explicitly their proposed problem solutions. Once the stakeholder map has been drawn, the power interest matrix/map can be used to develop a suitable strategy for different stakeholders.

Table 1 some project stakeholders (source Winch (2002))

Internal stakeholders		External stakeholders	
Demand side	Supply side	Private	Public
Client	Architects	Local residents	Regulatory agencies
Financiers	Engineers	Local landowners	Local government
Client's employees	Principal contractors	Environmentalists	National
Client's Customers	Trade contractors	Conservationists	Government
Client's tenants	Material suppliers	Archaeologists	
Client's suppliers			

Power-interest matrix/map

The power-interest stakeholder matrix/map shows how different stakeholders should be handled based on where they end up in the square. For example, stakeholders having both high power and interest should be handled with care and managed closely. A stakeholder ending up in the lower left corner should only be monitored since they will have no larger effect.

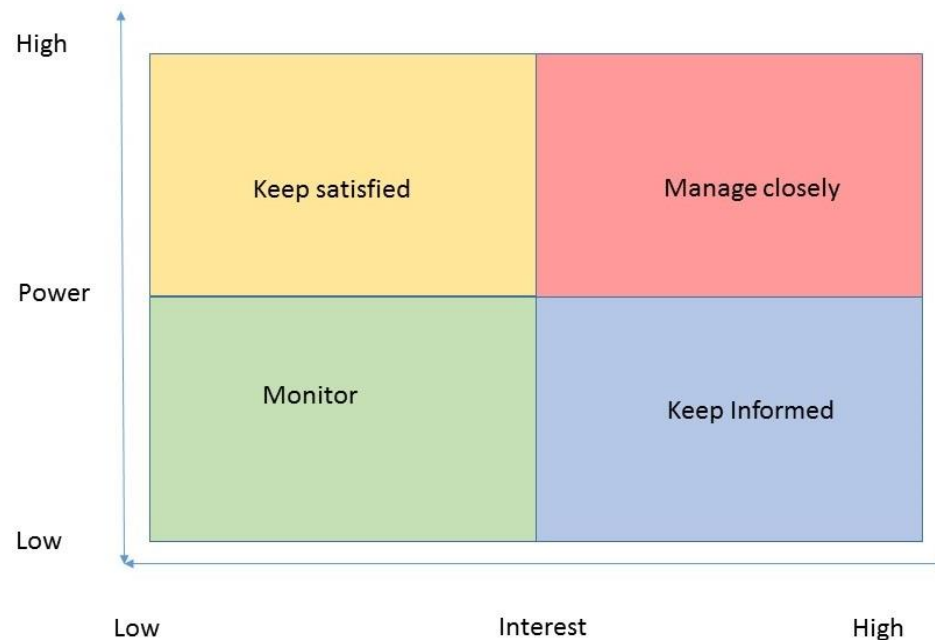


Figure 6 Power interest matrix/map

2.4.2 Mapping stakeholders

The building and construction area took a crucial part in the project management. The roles involved in a construction and building project are significant in a huge number. Based on the Ottosson (2012)'s statement, they can be sorted as below.

- The owner: The organization of the client.
- Users and end-users: People who use the products.
- The project owner: The person who operate an investment by the board's order, also called sponsor.
- The client or customer: The representative of the mandating organization who orders services and work.
- The project manager: The project manager of the clients.
- The task leaders: The project managers of the architect and consultant.
- The site manager: The representative of the client who is on the building site.
- The contracts manager: The project manager of the main contractor.
- The installations managers: The project manager of the installation contractors.
- The designs manager: The subproject leader who is responsible for all the work of design.
- Project members: The people who work on the project.
- The steering committee: The management team which in charge of supporting the project owner and project manager in all of the matters that regarded to the project. Usually, the president of the steering committee is the project owner.

- The reference group: A consultant group of experts and interested parties.

Above are the roles which have often appeared in a construction and building project. To manage a construction and building project in a right way, to clearly define those roles involved in the project is essential.

2.4.3 Project partnering in the construction industry

Recently study in China shown that many researchers have embraced the strategy of partnering to integrate diverse project delivery activities enable to meet all project participants' requirements. The market is more and more flexible for the contractor to choose where and who to procure. Thus, engineer-procure-construct today has been increasing growth in the Chinese construction market. Project partnering can directly facilitate organizational capability and risk management as well as exert its influence on risk management through enhanced organizational capability, thereby to improve project performance. However, at the same time the contractors need to have sufficient capabilities in dealing with a broad range of risks in a complex project environment which involves various stakeholders. Recently study also has been insights suggest research and practical emphases on combining risk management with partnering principles to assist in both internal and external organizational activities, and contractors' appropriate linking with interested stakeholders to obtain necessary resources and efficiently transfer them for successfully delivering international projects. To see the relationship clearly in the case study of this thesis some common ways of collaborating and the general construction project partnering model in will be shown at below.

Ways of partnering in construction (Kadefors, 2015)

1. **Project partnering:** closer collaboration between client, consultants, and contractors in a single project
2. **Strategic partnering:** professional client establishes long-term relations with one or more suppliers
3. **Strategic supply chain integration:** long-term collaboration between suppliers. Framework agreements
4. **Joint ventures** – horizontal or vertical

Further, it is significantly important to notice the common goal in partnering of construction or building project. It is divided into two parts. The Project goals usually count as the user and owners' values, time, costs, and quality expectation. The process and relational goals often count as to collaborate, share knowledge, be committed, help each other, solve problems, and have fun, etc. in the project. The project goal formulation process is also a part of project team building. Goals have often been written down during a partnering charter signed by all of the participants (Kadefors, 2015).

2.4.4 Trust in project partnering

A core concept in the literature of partnering and cooperation is trust. Trust is an ambiguous and complex phenomenon and, depending on disciplines, and the problems researchers have concentrated on diverse aspects of trust and processes of

trust development. Rousseau et al (1998) formulated the following definition: Trust is a psychological state comprising the intention to accept vulnerability based upon positive expectations of the intentions or behavior of another. In general, trust is a psychological state comprising the intention to accept vulnerability based upon positive expectations of the intentions or behavior of another (Rousseau et al, 1998).

The participants' behavior and general knowledge of the project will influence the team-building process and communication in the early phases of a project. Further, trust-based collaboration is to arise and persist. Proper management of relations and conflicts may prevent problems and reduce misunderstanding which has been distrusted before. However, trust built is not just one activity, and it is a process which is dynamic, complex and sometimes even contradictory that trust can be developed and the effects of partnering can be vary substantially. Then, trust theory cloud helps with improves understanding of different factors. The various dimensions of trust cloud contribute to design different systems in different partnering practices. The development of trust and a propensity to collaborate may be strongly influenced by instinctive and emotional reactions and sensitive to behavioral aspects such as shown respect and concern. Trust build supports the empirical observations that also single project partnering can be successful (Kadefors, 2004).

2.5 National Culture Difference

National cultural differences can be referred to the most common issue in the current international project states. It impacts on how people behave in their work and also many other parts of the international projects. Thus, it is important to notice and understand the national culture difference are able to work together well. According to Gesteland (2013), there exist five divides of people's behaving all over the world depending on the place they come from.

- Deal-focused vs. Relationship-focused
- Direct (low-context) vs. Indirect (high-context) Communication
- Informal (egalitarian) vs. formal (hierarchical) Business behaviour
- Rigid-Time (monochronic) vs. Fluid-Time (polychronic)
- Emotionally Expressive vs. Emotionally Reserved Business behaviour

Following part will explain what they are and what need to consider when cooperating the people that from these areas. However, national culture is complex it includes too many things that need to take into consideration. The aim of this part is to provide the readers a general guide of the national culture difference and awareness.

Deal-focused vs. Relationship-focused

The relationship-focused people are the people who are often avoiding doing business with strangers, they prefer to choose the people from their personal network of contacts to get things done, such as Latin America, Asia/ The Pacific region, most of Africa and the Arab world.

Deal-focused people are the people who found the co-operators based on the competencies, and is a natural thing to work with strangers. Including Europe, North America, Australia and New Zealand.

The problem regarding this categorization is how to make initial contact with the business partner. The formal introduction is not needed in a deal-focused country,

while usually started with “cold calls.” However, in relationship-focused countries, an introduction is usually necessary. Gesteland (2013) also advised applying an indirect approach to building up the relationship of business in the relationship-focused countries. The indirect approach refers to find a third party to work as a recommended between the two business potential partners. A high-status person is an ideal person to introduce as a third party.

After the introduction part in relationship-focused countries, it is necessary to spend time establishing the business relationship. This is the reason that why it usually takes a longer time for the negotiations in relationship-focused countries than it in deal-focused countries. Except that, the face-to-face meeting is recommended in the communication with relationship-focused countries, since they always feel it is not polite to discuss important issues in writing or phone calls (Gesteland, 2013).

Direct vs. Indirect communication

This part discusses the different communication manners of the relationship-focused and deal-focused people. It is one of the greatest causes of the misunderstandings. Deal-focused people usually say what they mean without any implicit meaning, while the relationship-focused people always have some implicit meaning by using the word “maybe” or “perhaps.” Therefore, it should be carefully when two people coming from two different kinds of countries (Gesteland, 2013).

Informal vs. Formal business behavior

With other words, this is the distinction between hierarchical and egalitarian cultures. Hierarchical countries take most of the world. In these countries, showing respects and addressing people formality is significantly important, such as some Europe countries, Asia, Arab World and Latin America. By contrary, the egalitarian countries including Nordic countries, Australia, New Zealand, USA, Canada and The Netherlands. Therefore, when egalitarian countries need to have business with hierarchical countries and aware of this phenomenon is necessary.

Rigid-Time vs. Fluid-Time Cultures

In these two kinds of cultures, they have different awareness about time. The schedules are usually fixed and highly valued punctuality in rigid-time cultures. Germany, Northern Europe, North America, Czech Republic, Hungary, and Japan are included. On the other side, it is much less strict on schedule and time in fluid-time cultures, such as Africa, the Arab World, Latin America, South and Southeast Asia. Besides, there also exist some countries that belong to the part that between the rigid-time and fluid-time cultures, which are Australia, New Zealand, China, and Russia, most of East-Central Europe, Southern Europe, Singapore and South Korea.

Emotionally Expressive vs. Emotionally Reserved Cultures

Except for the language that is using words, body language also plays a crucial role in how people communicate. There are three ways of communication which are verbal, paraverbal and nonverbal. The verbal part is usually easily to be understood, while the paraverbal and nonverbal part often has large distinct in two kinds of cultures. Paraverbal is regarded to how loudly of the talking and the meaning of silence, and the nonverbal means the body language. There exist a possible problem when an expressive businessman is communicating with a reserved non-expressive cultural person. In the latter person’s perspective, the attitude of expressive may be seen as a

hostile attitude. Therefore, the negotiations in reserved cultures usually spend a longer time since they are not in the same context of attitude with the emotional cultures, and the negotiators may take turns in talking. It is only a little connection with verbal language, but have much more responses to paraverbal and nonverbal parts. Further, four elements need to consider when talking about the nonverbal language, which are personal distances, touch behavior, eye contact, and gestures. Overall, when a negotiation or a project communication occurs in an international project, it is not enough to just concern what the words that going to say, or if the counterparts could understand. It is also crucial to think about something that out of words, such as paraverbal and nonverbal parts. It is significant to ensure that all of the people involved in the project team are satisfied.

2.5.1 Lewis Model

Based on Lewis (2006)'s opinion, there exist three types of national cultures all over the world, which are Linear-active, Multi-active, and Reactive. He categorized the national culture to avoid the unnecessary offend caused by national cultural distinction and also to predict different people's behaviors. The Lewis model is shown in figure 7.

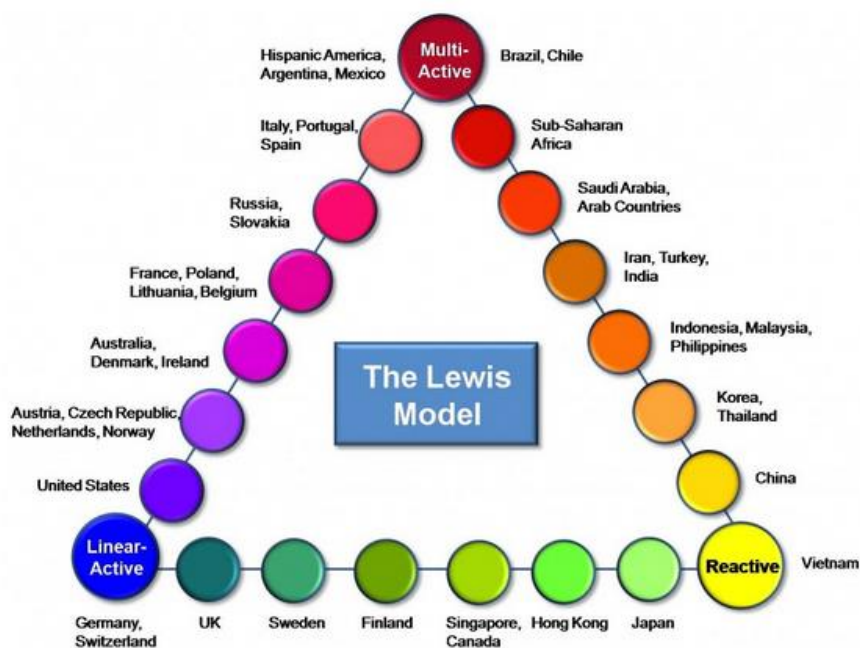


Figure 7. Lewis Model

Linear-active cultures

Usually, a person who is always quite, patient and introvert minding their business can indicate that he/she is from the linear-active culture (Lewis, 2006). To connect to the Gesteland (2013)'s categorization, they have some similar features with the rigid-time culture people. For instance, they all have a rigid-time schedule, working within fixed hours and so on. The competence of the work and the attitude about the work are the most valuable parts as they thought. "Strictly" could be a proper word when people talk about the linear-active cultural people. They require that almost all of the procedures need to be correct and the information should be from the statistics, reference books or databases which can be traced (Lewis, 2006).

Multi-active cultures

Based on Lewis (2006)'s states, impatient, extroverts, gregarious and not strict about time are the main features of multi-active cultural people. Usually, these kinds of individuals are not punctual, do not have a stable schedule and work on several things at the same time. The plans are always changed, and the timetables are unpredictable. To connect to the Gesteland (2013)'s categorization, it is the same with emotionally expressive cultures. Personal relations are far more important than other things as the multi-active cultural people thought. The work should be interweaved with personal social life in an appropriate way. Further, the information collection is always done through the orally or in first hand since they are people orientated. When they are working, they tend to find out who is the key person instead to seek out which is the key department (Lewis, 2006).

Reactive cultures

As Lewis (2006) mentioned that patient, quiet, introvert and respectful are the core characteristics of reactive cultural people. In their opinions, time could be both flexible and rigid, but it should be arranged in a proper way. Punctuality is still played a crucial role, while it could be flexible for the working hours (Gesteland, 2013). Reactive cultural people have a form of communication is "monologue-pause-reflection-monologue." Due to this unique dialogue form, reactive cultural people also are regarded as the best listeners all over the world. They could react appropriately during the communication based on this form. They prefer to delegate work to reliable people, and they do not want to make their counterparts lose face. However, this features also brings lots of misunderstanding during the cooperation with some other cultural people. It always makes the conversation more complicated since they need to take care of others emotion (Lewis, 2006).

2.6 Summary of Literature

Overall, international project management was far more complicated than general project management. In order to have a clear view on which international project management strategies could be applied appropriately by small and medium-sized consultancies in oversea collaborations and what kinds of obstacles they have met so far, the literature parts had provided some basic information and knowledge to help to analyze the cases. The knowledge that shown in the literature parts were following some order. At first was the basic information about international projects and international project management. It impressed what was an international project, the advantages and disadvantages of the international project and the project life cycle. After that were the four parts of introducing the four detailed group managements, which were communication, risk, stakeholder and national culture sections. Although based on the PMBOK, there existed ten kinds of management, just three of them, which were communication, risk, and stakeholder management was chosen to introduce. Those three were selected was on the basis of the specific features of the international project management and the cases that we are going to analysis. Except those three, since the international projects usually contained large numbers of countries' people, thus, the national culture factor has appeared in the literature part as an additionally essential factor. The specific steps of how to choose the four sections will be introduced in the Method chapter.



Figure 8 Literature Framework

In summary, the literature parts were just quoted as references, since in the real circumstance, the issues and the conditions might be different due to the different places, weathers, people and so on. The literature parts just provided some fundamental information to analysis the cases below. The cases will be analyzed by combining the above information and the real situation, to figure out the specific issues, categorized them and try to find out the possible solutions.

3 Method

The research methodology and the research process of the thesis are presented in this section. It includes the philosophy of why it is important to study the project management, as well as interview and analysis structure of the data obtained during the project. Both advantages and disadvantage of action research.

3.1 Methodology

Due to the purpose of the thesis is to realize the possible project management strategy could fit the Swedish small and medium-sized construction consultancy providing energy efficiency building solutions when involved in Chinese project. The author had pre-research and interviews before the action research to make the research question more accurate. Further, the aim of this is to find the core issues to study. Different sources and relevant scientific data will be used. Databases provide a significant amount of scientific and valid data in the form of articles, e-books, journals, etc. Two case projects study will be introduced in this thesis; this is conduct to the empirical study. For detailed data collection of the projects, interviews will be carried out to have a better understanding of the big picture from the projects work and process. However, it will not be possible to interview all the people involved in the project due to the time limit and other reasons, but the Key person in the project will be interviewed. The interviews can be done in person and other possible ways.

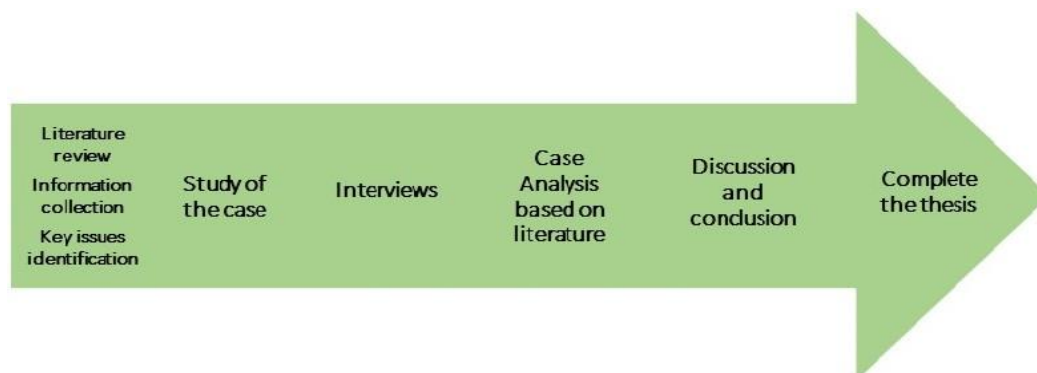


Figure 9 the study process

Figure 9 described the study process of this thesis. The study process started with fundamental knowledge and information collection in the targeted research area. This part is a focus on presenting the background knowledge in project management and the following relevant issues select by the author due to the thesis topic limitation. Before the interviews, the author spends time on study the project case materials. The aim of this part is to clarify the information base and plan the interviews in next research phase. For example, what questions to ask in the interviews and who to ask? What information is missing from the project case material? Etc. After the interviews, the author has the case analysis based on the literature, the study of the case and the supplement information received from the interviews. The discussion and conclusion are the last part of this thesis to provide a complete empirical research.

3.2 Literature Review

Before writing the literature review, the author has been working on valuable information collection and critical issues identification for a clear research and study objective. In order to have a sufficient knowledge background of the targeted topic, a systematic literature review is significantly important (Bryman, 2012). The practical theory framework of this thesis is supporting the reader to have an overview of the knowledge base. Several literature studies have been conducted on the research topic. Further, enable for more precisely and the logically way to show the theory the author select the main literature source to follow, as well as much other literature sources to supplement the primary literature source. Thus, the literature review has been organized as the following structure without unnecessary repeating. Meanwhile, they are the key words of this thesis.

- International Project Management
- Project communication management
- Risk management
- Stakeholder Management
- National culture difference

The literature has been chosen mainly focused on books, published scientific articles, scientific journals, under a tendency of the construction environment. All the literature source was found from databases through Chalmers library or other databases for scientific research with thesis's supervisor and examiner's recommendations. Further, to provide an entirely empirical study, the literature part of the thesis is conducted by the whole research process through the case analysis and conclusion as well.

3.3 Study of the Case

Case projects' material and documents were provided, includes case project tender, contracts, design, work emails, and all necessary relevant documentations. etc. provides authors from overview of case projects to detailed case projects' information. The authors have gone through all those materials to have a comprehensive understanding of the case projects which is a base for analyzing the case projects. The study of the case also followed the research questions, objective and the key elements selected by the authors. Further, the authors were keeping good communication with the reference case project manager in Sweden and China for necessary answers of questions which are also a part of pre-work before the formal interviews.

3.4 Interviews

Interviews as an important part of the research help to answer the research questions of the thesis and also a supplement of the case studies (Bryman, 2012). The structure of the interviews was followed the literature background of the thesis from general questions of the case projects to deeper and detailed questions conduct to each of the case projects. Further, some other relevant information for the thesis research questions were also asked. Enable to understand the relationship between the project participants etc. The key player of the case projects has been interviewed. Due to the circumstance reasons, the authors cannot reach the clients and the main contractors of

the case projects. However, it is not a problem for answering the research question with other supplements. The interviews were processing well and covered almost all the relevant issues of the thesis topic.

3.5 Case Analysis

This part was built upon the theoretical background, case study and interviews. Relevant selection of issues was analyzed here under project case description. The aim of the case analysis is to complete the empirical research of the thesis topic and discuss on the four selected element of international project management. Each element was analyzed and discussed through the case projects. The structure of the analysis was followed the theatrical framework of the thesis as well to provide a clear view to readers.

3.6 Conclusion

The conclusion is aim to accomplish a comprehensive empirical research upon two case study and the literature review. To reach the research objective, some relevant literature reviews, and cases studies were accomplished in the conclusion part. The conclusion indicates the research result and the answer to the research questions. Further, some personal understanding of the research topic from authors are presenting in conclusion as well.

4 Case Study

This chapter included two cases' descriptions and the related analysis by literature framework. The two cases description were based on the interviews with Charlotta (The Swedish representative) and Dongmei (The Chinese representative). The interviews contents were in the Appendix. Then, an analysis of two cases by following the literature information will be shown below to find out the issues of the cases and as well as some recommendations for how to improve in the future.

4.1 Description of Case Projects

The following are two projects cases. The authors choose an illustrative method for the case projects description. The projects' description will provide including the general information for the building projects, the issues have been selected based on the theoretical part, the project process activities between two parties between the companies in Sweden and China and how both sides deal with the project management issues, etc. The overall information is based on the interviews and projects' document including email communication details. However, the authors only select key issues appeared during the project to describe.

BCKJ is a Chinese architectural design firm. BCKJ believes that the project from the planning to the construction of the overall grasp of the whole process of the architects of control, tailored for each project and seek the most appropriate way to create practical and individual care space contribute to sustainable development in the future.

DELTAte was a Swedish technical consultancy firm in HAVC focused on indoor climate system design with a wealth of experience in natural ventilation. DELTAte cooperated between architects and engineers for reaching optimal climate solutions with low energy consumption, meaning environmental protection.

4.1.1 HangXing Technology Centre Project

This energy efficiency construction project is called Hangxing Technology Centre (HXTC). HXTC is defined as a new office building, and the owner of HXTC is Hangxing Machinery Manufacturing Company. BCKJ was responsible for the building's architectural and HAVC system design. Hang Xing Technology Centre located in Beijing which has a surface of 33.500 m² was the first project to obtain an EU green building certificate in China. HXTC provided an air handling ventilation system with heat recovery. Cooling machines will be used when the natural ventilation capacity is not enough to cool down the building to reach 26 C° in the summer time; the lighting system is based on fluorescent lamps (T5). Further, HXTC installed several energy-efficient control systems were as day-light responsive control, time scheduling control, occupancy linking monitoring and sound control in corridor and stairs.

Customer: Hangxing Machinery Manufacturing Company

Suppliers: DELTAte and BCKJ Architects

Table 3 Project Organization for HXTC Project

Project Organization	
Project manager	Torkel Andersson& Charlotta
Consultant	Marcus Torell
Consultant	Louise Lilja
BCKJ Architects	Guan Hui long & Dong mei
HAVC engineers	Guan Hui long

Service scope:

DELTate and BCKJ Architects were working together to provide indoor climate system design solution for HXTC. The Service for HXTC was valid for EU Green Building Certification, Energy Controlling and Ventilation, Heating and Cooling Systems' management for HXTC office. Service in the contract was divided into three steps in the whole project.

First step: Design and Construction phase

Suppliers would make application for European Green Building certification to European Commission and related consulting works for this building. BCKJ was in charge of the primary material preparation and explanation. DELTate was in charge of HXTC's application, translation, and related consulting works.

Second Step: Adjustment phase (building complete)

Consulting serviced on energy control and adjustments and optimizing ventilation, heating and cooling systems of HXTC.

Third Step: Operation phase

Energy management by remote controlling of ventilation, heating, and cooling systems. Specific solutions to particular problems of operation management for HXTC office building

General project process:

HXTC project started with a workshop for about one week in Sweden, Dongmei, a colleague of her, and two HAVC engineers came to Sweden for a study visit trip. They set together discussed the climate and the natural ventilation system for HXTC. Charlotta only involved as the DELTate's project manager to provide the general suggestion for HXTC. Because the Swedish consultancy did not know the Chinese regulation, Dongmei as the design manager with two HAVC engineers came from China were responsible for the whole indoor climate system design part, and they cooperated with each other in the project. After the workshop, they worked separately in Sweden and China for their responsible part of the project.

Most of the communication during the project was through emails between two side of the project team from Sweden and China. There was one Chinese consultant named Liu who could speak both Chinese and Swedish worked in the Swedish team and was responsible for help with the communication in between. Sometimes online meeting and phone call were also used as the communication tool. Based on the interview, the

communication through email worked well as they wished. But they did not have a chance to communicate with the site workers which was a significant issue that the Chinese site workers were not able to read the drawing and made some mistakes.

Not much of the national culture issues that appeared during the project. Further, there was one big challenge to maintain and be qualified the design with Chinese regulation. Dongmei as the design manager for the Chinese side took the most responsibility to work with this issue and explained the design for the related administration department since HXTC was the first building to apply the European green building certification. However, the biggest challenge for HXTC project was to negotiate with the building's user because of the insufficient communication between the building owner and its end user. The end user of the building refused to apply the indoor climate system designed for the building. They did not trust the system and wanted to change back to the old indoor climate system. In the end, the designer refused to change anything that designed before which made the building owner not satisfied with this action. After the construction, the building owner refused to do the project follow up work. Thus, the design team did not have the chance to measure and checked if the system worked as they designed even the building had been certified the European green building certification.

Project Stakeholders

Sweden:

DELTate (Service Provider)

China:

Hangxing Machinery Manufacturing Company (Client)

BCKJ (Service Provider)

Construction Contractor (Contractor)

Construction Site Workers

HVAC Engineers (Supplier)

Nokia (Building User)

IBM (Building User)

Beijing Planning and Construction Bureau (Regulation Agency)

Beijing Architect Design Institute (Regulation Agency)

Other:

European Green Building Council (Regulation Agency)

4.1.2 Ding Xiang Gu Green Hotel Project

Ding Xiang Gu Green Hotel Project (DXGH) project located at Badaling Beijing which surrounded by the forests. The whole project is including hotel rooms, service center, and entire area's planning and design. All the hotel facilities are mostly made of wood and can be used in the all four seasons. DXGH has the European Green Building Certification for the hotel rooms, not including the service center.

Customer: Badaling Tourism Company (Local government Subordinate Company)

Suppliers: DELTate and BCKJ Architects

Table 4 Project Organization for DXGH Project

Project Organization	
Project manager	Charlotta
Consultant	Marcus Torell
Consultant	Zhang Qingyuan
BCKJ Architects	Guan Hui long & Dong mei
HAVC Engineers	Guan Hui long

Service scope:

The project strategy was to create a smart and comfortable eco-building model for China with EU green building standards, mainly used recyclable building materials in this project. The project goal was to increase energy efficiency close to 100% renewable energy and low CO₂ emission. Further, using organic waste and energy systems with the solid waste and waste water recycling system.

DELTate and BCKJ Architects were working together to provide the technical design solution for DXGH project. BCKJ was responsible for the whole project's space design and planning. DELTate only involved in the project early phase to provide general solutions for the entire system. BCKJ was responsible for a detailed solution based on DELTate's technical suggestion and the calculation result.

General project process:

DXGH project started in 2013 and located in the Badaling Forestry Center surrounded by the forests. Dongmei invited Charlotta for cooperation because the client of DXGH also wanted to get the European green certification. The location was exceptional, and the customer wanted to build the hotel that made of wood and can be used in the all four seasons with good capacity. At the same time, Dongmei was cooperating with Charlotta on another project in Sichuan province China. In DXGH project the cooperation was in two parts, one was the integration of the systems, the same as what has been done in HXTC project, DELTate provided the initial design, while BCKJ completed and adjusted based on DELTate's design. Another part was to get the European Green Building Certification for the hotel part, not including the service center or any other building in the valley. The whole process was pretty smooth. During the entire project, DELTate and BCKJ did not have so many issues in processing than HXTC project. Based on the interview, the communication through email worked well as other projects they had done together. Dingxianggu project has already got the certification even the project still not completed yet. Charlotta and her team did not need to take responsible for the delay of the project because it was the financial problem between the contractor and the project client.

Project Stakeholders

Sweden:

DEALTate (Service Provider)

China:

Badaling Tourism Company (Client)

BCKJ (Service Provider)

Construction contractor (Contractor)
 Construction Site workers
 HVAC engineers (Chinese)
 Beijing planning and construction bureau (Regulation Agency)
 Beijing Forestry Association (Regulation Agency)
 Local government (Government)
 Beijing architect design 1institute (Regulation Agency)
Other:
 European Green Building Council (Regulation Agency)

4.2 Analysis of Cases

The project case analyzing is based on the literature framework, interviews, and case materials' conclusion. The structure of the analysis is following the thesis's literature context to provide a clear view. Further, the relevant project management issues will be analyzed based on the theory.

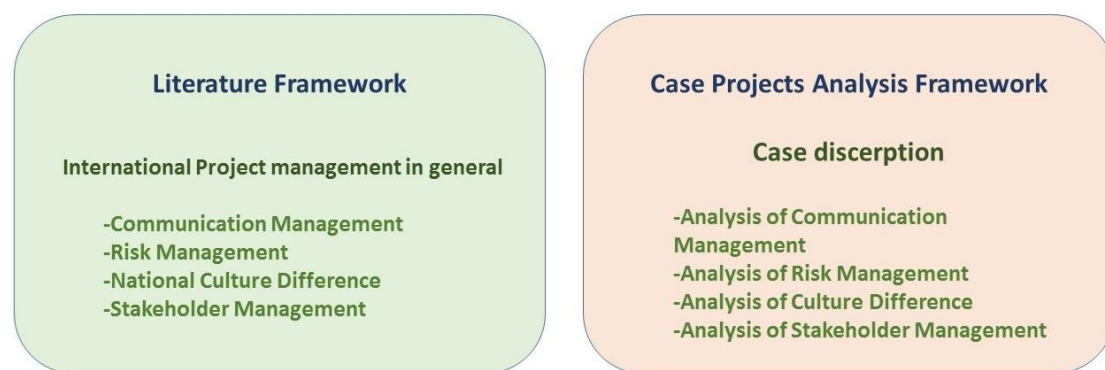


Figure 10 Comparison between Literature Framework and Case Projects Analysis Framework

4.2.1 Project Life Cycle of the Cases

The project life cycle of the cases will be shown below to have a clear view of each case project to describe the processes had been done during the specific project phases, and provide the basis for analyzing the case.

HXTC Project

Initiating processes: In this phase, the workshop could be the only process that mentioned during the interviews. After Dongmei and her team had got the project, they went to Sweden and sought for a potential partner, which was Charlotta's group. Then they discussed and defined the project during the workshop.

Planning processes: It contained part of the workshop. After two teams made, agreed during the workshop. They also established the scope, the objectives and some specific details in the workshop time. However, Dongmei and her teammates could not stay in Sweden for an extended period, so the Swedish team and the Chinese team had to work separately in different countries to finish the planning steps.

Executing processes: In this phase, Dongmei's team took most of the responsibilities of the project, since the project was in China, while Charlotta's team kept providing technology supports from Sweden. Due to they were in two countries, all of the executing processes were done separately and delivered by emails or other communication tools.

Monitoring and Controlling processes: This could be the hardest phases in this project because all of the monitoring and controlling processes that between Swedish team and Chinese team had to be done through phone calls, emails or any other long-distance communication tools. Particularly for the Sweden side, they almost could only rely on the communication tools since the project was in China. They usually sent messages or information to the Chinese partner, and then all they could do was just wait for their response. In other side was the same, when the project faced a problem that Chinese team was not able to solve that, Chinese team had to send questions or information to the Swedish side. Further, they almost could not do anything until they got the feedback.

Closing processes: The closing phases of HXTC project was not such completeness. Because of the customers refused both Chinese and Swedish teams to execute the follow-up processes. So the project was closed without a follow-up activity.

DXGH Project

Initiating processes: In this phase, as Charlotta's team was cooperating with Dongmei's team at the time that Dongmei got the DXGH project. Then Dongmei found Charlotta to ask her for another cooperation in this project. As they had several good collaboration experiences before, they decided to work together again.

Planning processes: In this part, they refined the project and set up the objectives which designed the whole system of the building and helped the project got the European green certification.

Executing processes: As the HXTC project, they worked separately in two countries. In this case, Charlotta's team took charge of the fundamental design part and the Chinese team completed and adjusted the design to the real situation. Communication tools were the only way to communicate, while in this case, they had much more experiences on handling these kinds of issues.

Monitoring and Controlling processes: All of the monitoring and controlling processes were done by long-distance communication channels, as described in the HXTC project life cycle.

Closing processes: The whole project had not been completed due to some financial reasons. However, both of the two teams had no responsible for that.

4.2.2 Communication Management

As mentioned in the theoretical part that an effective communication was the key factor in ensuring the successful of a project, especially in an international project. The same answer has been got from the interviews as well. The interviewees all

mentioned that communication was significantly important to influence the result of the project. However, there always existed various problems when they were implementing the projects. In this part, some analysis based on the theoretical part will be shown. Further, a relative communication plan will be suggested as well.

Communication issues within an international project management

In order to find out what kind of issues that occurred in the international projects and what caused them happened, some questions relevant to the communication within the two cases were answered by two interviewees. According to their statements, communication problems were found to be regarded as the most difficult part that could be controlled in an international project. All the issues about communication that mentioned in the interviews will be categorized by following the Grisham (2010)'s communication processes, which stated in the theoretical part above. Following part is the details.

Encoding:

Source of message: As shown in the theoretical part, here was most about the difference between individualistic and collectivistic. China was a typical low differentiation country according to Grisham (2010). People always adjusted themselves to the whole team or group. Because of this kind of characteristic, some of the companies' leaders in China were not willing to make new changes. It could be shown in the Dongmei's interview. This phenomenon led to the tough situation of implementing the advanced technology in China, especially for those new technologies to China. Based on the interviews, it was hard to say that if Sweden was a collectivistic culture or not. Most of the Swedish companies did not understand why Chinese companies refused to apply those advanced technologies that the Swedish thought was superb. That usually caused the communication problems during the negotiation part.

Style: "Maybe," "perhaps" and some implicit meaning words were often used by Chinese people. Usually, when these kinds of words appeared, it addressed that the speaker was refusing or rejecting to the question or topic. However, it was not absolutely meant "no" in all of the occasion, sometimes it also meant what the words took literally, which meant "not sure." On the contrary, Swedish usually be more directly than Chinese to address their opinion. Swedish people might be confused when a Chinese partner, especially when the word "perhaps" and "maybe" came out.

Content: Based on the Grisham (2010)'s theory, if the emotional with the word they said was the key factor to distinct collectivistic and individualistic culture. Usually, the individualistic cultural people preferred to talk in a logical way and hiding their real emotion. Most of the Swedish and Chinese belonged to this kind of culture. However, according to our interviews, both Dongmei and Charlotta did not belong to this categorization. They all not dared to express their emotions to each other in their work. Further, they said that it was hard to tell what kind of expression was proper to neither individualistic nor collectivistic culture. It depended on the audiences, while according to the interviews, they suggested that it was better to show your partner in a more logical way.

Transmission:

Pattern: According to Grisham (2010)'s opinion, the times of using patterns during the communication was the difference between the high-context (Indirect) and low-context (direct) culture. China as a high-context culture was favor of using patterns, while Sweden was not. However, during our interviews, both of our interviewees did not notice this situation. They thought that the difference of using patterns did not influence the communication. Nothing was more important than language factors.

Channels: In China, e-mail and telephone were usually used in the project within China, which can be regarded as a formal channel. However, in Sweden, except e-mail and phone, some informal channels were also used in a broad way, such as Facebook. Based on Charlotta's interview, that Swedish usually communicated through Facebook, even for a business communication. It also could be used in most of the international projects, except China. Because of the restriction of using some social communication tools within China, such as Facebook. It was hard to communicate through these kinds of tools in an international project that had China involved. Further, informal channels were not the Chinese favor as well. But through the Dongmei's interview, she recommended WeChat, which was a Chinese communication tool that could be used aboard conveniently. It could be categorized into neither informal nor formal communication channels. She made this recommendation since there existed varieties of issues by using other communication tools, such as the restriction of Facebook in China, language barriers through e-mail, and hard to make phone calls.

Receiving:

Listening actively: Both of the interviewees from China and Sweden were not talking about this part since they lacked face-to-face meeting and most of the communication were through e-mails and phone calls. Therefore, this kind of situation was never happened in the cases.

Listening for ideas: Chinese, as an indirect culture, they did not always talk about the business directly. Sometimes they always said something else that were not relevant to the business, which was entirely different to compare with Swedish people. This phenomenon was more like the content that we expressed in the "style" part. Sometimes, the Swedish people thought they got the meaning, but actually they were not. They might just catch something that was not important in Chinese people's conversation. Therefore, to pay attention to each of the speaker's word and sentence were significant critical during the international communication.

Decoding:

Framing: Based on the Grisham (2010), to understand sender's meaning was crucial in communication. In our case, when Dongmei and her team came to Sweden for the workshop, she let her teammates asked as many questions as they want, and tried to figure all of the problems out in Sweden. However, when they came back to China and tried to implement the technology, they found there existed more issues than they thought. That was because the context of Sweden and China were different. The Chinese regulation was far behind the Swedish one. So when they wanted to operate in China and following the Chinese rule, they found out that some problems could not be solved based on the Chinese regulation, but could be solved based on the Swedish one. Therefore, in this part, to ask and understand all the questions were not enough, to make sure the context of Sweden and China were same was essential.

Question: According to our interviews, as mentioned above, only questioning could not solve all of the issues. The most significant factor in question part was to choose what kind of questions to ask. Therefore, a comprehensive investigation of the different countries' background before doing the international project was necessary.

Feedback: Feedback could be regarded as follow up as well. Based on the interview to Charlotta, she said that to be follow-up was significantly important for ensuring the successful implementing of a project. However, they never followed up any project they operated in China. According to Dongmei's interview, the reasons were: The customers were not willing to have this activity since it might cost too much; The customers were not the end users, so they did not care the feedback of the project; The end users did not think that the feedback was valuable in China. The customer did not that satisfied with the project. Because of those kinds of reasons, it made the feedback or follow-up activities hard to proceed in China. So sometimes, when there a problem occurred, it was hard to define who should take responsible to the problem. Therefore, they got some feedbacks from the customers, while they did not get the feedback of the projects, and to persuade the end users and clients to proceed follow-up activities and got some feedback on the project was crucial.

Above were the issues that happened in our cases based on Grisham (2010)'s communication processes. However, all above were just the issues that happened through the communications, which meant that some background issues were not being considered, such as:

Languages: Language has been regarded as the most crucial part within an international project, and the language barrier was the hardest issue to be solved. It also happened in our cases. Both Charlotta and Dongmei mentioned about this issue. Although they all could speak English, there still existed some kinds of language barriers in their communication. Such as, some terminologies were hard to be translated and understood; the distinction of English level between different people and some contracts were only in Swedish or Chinese. These reasons formed the challenges of language barriers, which also could exist in their own organization since they had some international employees as well.

The possible solution could be to hire some staff that could speak either countries' language, or one countries language and English. Especially when cooperating with some countries that the English were not so widespread. For example, in our case, the Swedish company used to have a Chinese employee who could speak both Chinese and Swedish. It helped a lot in the communication, while when the Chinese employee left, there occurred lots of problems and the contact times were not as frequency as before. Therefore, to have at least one translator was necessary for an international project.

Time Zone: As Sweden and China had a 6 or 7 hours' time zone difference, it could be difficult to keep both sides in contact all the time. Based on the interviews, both of two interviewees needed to adjust their own schedules to fit the cooperation meeting time, and they were not able to contact each other unless within the scheduled time. Further, according to the time zone difference, the schedule meeting time could only

have few hours or even less. It was not enough, but they had not found out the solutions.

Time zone issues were significantly difficult to handle. One suggestion could be changing the communication tools from Emails to some other more private tools, such as WeChat and Facebook, which were also used by people during their non-working time. Furthermore, since Facebook was not available to be used in China, so WeChat could be a better choice to take for solving the problem.

All of the issues within two cases that connected to the communication had already been analyzed above. After that, it showed that before operating an international project, a deep investigation was necessary. Therefore, a communication plan was needed to help the project managers manage the communication management, which will be shown below.

Project Communication Plan

1) Introduction

This communication plan aimed at providing an effective and detailed information flow between the co-operators and stakeholders. Further, it also could provide basic information to communication engagement and communication strategy. The people who are in charge of this communication plan would better be the project managers.

2) Project Team Representatives

Project Sponsor: xxx (China)

Project Coordinator: xxx (China)

Project Manager: xxx (China and Sweden)

The following table gives the basic information of the representatives (Just some examples).

Table 5 Project Representatives

Name	Division/Position	Nationality	Email	TEL.
-----	Project sponsor	-----	-----	-----
-----	Project Coordinator	-----	-----	-----
-----	Project Manager	-----	-----	-----
-----	Operation and Facilities Management	-----	-----	-----
-----	Design and Procurement	-----	-----	-----
-----	Staffing and Training Programme	-----	-----	-----

-----	Project Information Management	-----	-----	-----
-------	--------------------------------	-------	-------	-------

3) Target audience and purpose of communication

Table 6 Communication Purpose

Target Audience	Communication Purpose
Project customer	Project Deliverables
Project sponsor (may the same person as project customer) User (may the same person as project customer)	Project plans, project progress, project issues Project Deliverables
Project Coordinator	Project plans, project progress, project issues
Project Manager	Project Strategy, impact due to changes in procedures or policies, project deliverables, project progress
Project Core Team	Project direction, project deliverables, clear direction and delegation of tasks
Construction Contractor	Project deliverables, clear direction and delegation of tasks
Local administration and Government	Project deliverables, clear direction
Local People/Media	Clear direction

Note: The target audiences above may not completely the same as the real situation, it should be carefully categorized based on the practices.

4) Communication Methods

Based on our cases, face-to-face meetings were not realistic between the Chinese representatives and Swedish representatives because of the geographic distance, and it also the common situation in most of the international projects. Some virtual meetings through the internet could be the best way of communication. As the differentiation of the time zone, an appropriate report time needs to be arranged by the project managers. Further, to let all of the internal stakeholders involved in the project is also necessary, so some status reports are also needed and ensure they are available to the relevant stakeholders. One suggestion is to publish on the internal website and keep updated could be a better choice. However, this solution needs more resources like time to invest in the project. Meanwhile, to keep in touch with some local

administrations and medias also could provide help to the project if can get their supports.

5) **Communication Technology**

As mentioned in the “communication methods,” face-to-face meetings were not able to be taken most of the time. Then to choose some proper communication tools were necessary. Except for Emails and telephones those regular tools. It is a need to plan what kind of tools and communication methods are going to be inserted in the project. If it is possible, Facebook is a useful tool to communicate. But based on the cases situation. WeChat is recommended to be applied as a communication tool in an international project, especially when one partner is from China. Meanwhile, an internal communication system is needed as well. So all of the employees can know about the information and process of the current status of the projects by accessing an internal website.

6) **Communication Message and Delivery**

Table 7 Message and delivery

Stakeholders	Message	Communication Methods	Frequency	Communicator

7) **Message Content**

Project plans

Target, scope, issues, detailed plan, deliverables

Status Report

Status summary, budgets, schedules, milestones, issues, next steps

Project Briefing

Project status, issues, accomplished tasks

8) **Summary of communication plan**

By following the communication plan above could improve the current situation of communication and solve most of the issues that caused by inappropriate communication. However, it just an example and project manager should refine and adjust it and the entire process based on the particular situation in reality.

Conclusion of communication management

In conclusion, as a key factor in an international project. Communication management indeed had numbers of issues during the implementation of the project and also hard to deal with them. All the issues that analyzed above were just the issues or challenges that be found through the two cases. It could be insufficient since every project was unique. Further, there only involved two countries in the cases which were China and Sweden, while in most of the international projects, the participators might come from more than two countries, then the situations might more complicate. However, no matter how complicated it was, if a communication plan that according to a comprehensive investigation of the participators’ background, national culture

features, and some other characteristics could be provided, to solve or even avoid the communication issues were not impossible.

4.2.3 Risk analysis

Except for the issues that caused by communication, there also existed varieties of challenges or issues that were resulting from different factors during the project. Except for the communication issues, the other particular problems that occurred in the two cases will be analyzed in this part. Further, the issues are going to be sorted into several categorizations enable to provide a clear view of those problems.

National Cultural difference issues

Within an international project, national cultural difference issues might be one of the most common problems, as there might exist people from as many national cultures as they could. Each of that national culture all had their specific features, which integrated into their life and work. Except communication issues between different national cultures, there also existed other matters that caused by the national cultural differences. Further, except for the communication issues that discussed before. The following list is going to list all of the items that found from the two cases that relevant to national cultural differences.

Different thinking about proposal

When Swedish and Chinese people first got a project and started to make the proposal, they had different minds and expressions, which based on the interviewees from the two cases. Usually, Swedish people wanted to know more detailed information before they committed to the customers. They thought they must take responsibility for the entire project and its result, while before got sufficient information they could not make any promise. However, for the Chinese people, when they got a project, they could make a commitment as soon as possible. They would tell the customers if they could take the project and also provide a possible result of the project while the Swedish still analyzing the statistics and information.

What made this kind of differentiation was the customer's attitudes and wishes. Chinese customers always wanted to get the possible results when they offered a project. So the people who were going to take the project, they must provide a possible relevant result to the customers to let them satisfied. However, it was not the same in Sweden. So Swedish people then had more time to collect information and do the analysis. Therefore, to get a project in another cross-cultural country, to fully understand their attitude to the proposal is an essential characteristic.

Trust issues

Trust has been regarded as the basement of the people's relationship, particularly in one team. Through the two cases, trust issues had been mentioned by both of Charlotta and Dongmei. In their opinion, most of the Swedish people trusted each other, while Chinese people were not. In the Dongmei's interview, she mentioned that the Swedish lavatory technology company refused to sell their products to Chinese companies by following the Chinese contracts. It was afraid that Chinese companies would steal their technology rather than followed the contracts. Dongmei said that would not happen in Sweden. It was caused by the experiences of the Swedish

company to cooperate with Chinese. However, she also mentioned of course not all of the Chinese had the credit problems, and not all of the Swedish people were worth to be trusted. It depended on. Anyway, trust issues had indeed influenced the project in some way, such as it was hard to have an agreement, hard to hand the job because nobody was worth to be trusted and so on.

It was significantly hard to solve this kind of problem. All you can do was to show your own sincere to your co-operator and trust others from yourself. Then expect your co-operator could trust you as well.

Hierarchical vs. flatter organization

Gesteland (2013) had mentioned that China was a hierarchical country and the Sweden belonged to the egalitarian country. It was confirmed both by Charlotta and Dongmei. Dongmei said that usually in a meeting, Chinese employees were afraid to suggest their ideas, so she had to force them to ask, and if they had questions, they had to think about if the question was proper to be asked. Charlotta agreed that, and she also mentioned that Swedish organization was a much flatter organization and everyone involved was free to say and ask any question. No matter who you were, you can say anything you want to say without considering other factors. That always led to that Swedish people thought that Chinese people understood everything, while Chinese people just not dared to say or to consider if it was proper to say.

It was impossible to judge which one was better. However, when the people came from different national cultures and sat together to have a meeting, some misunderstandings and confusions were inevitable. Therefore, to decrease this kind of problems as much as possible, those two national cultures people needed to try their best to fit each other. For instance, Swedish people need to prepare as detail information as they could in case of the Chinese employees dared to ask. The Chinese people needed to try their best to ask questions and show their ideas. Although it was so hard for most of the Chinese people, they needed to have a try.

Different quotation system

How to quote the price was an essential item in the contract. If it could not make an agreement with the customers, then the project could not continue. In order to make a deal, then each of the items needed to be carefully considered based on the customers' expectation. In China, as Dongmei said, the price would be quoted as how much the customers paid after the entire project done, no matter when it would be done. However, Swedish quotation system was based on the processes. It was like how much the customers would pay when a particular process had been done, and then next process and so on. These were two different systems. Chinese did not trust Swedish system because of they afraid the price would go up. On the contrary, Swedish people did not take the Chinses system since they needed to know more before next move, so it was hard to quote for the entire project.

Each of the national cultural customers was not willing to applying another national cultural system since they were already adapted to their own system. So how to deal with this kind of situation. The people who wanted to get the project must make some changes to the quotation system. They could not only follow their own habits to set the contract. They had to know what their customer preferred and made the proper adjustment.

Different design phase

There also existed some distinctions between China and Sweden in the design phase. Based on the two interviews, Chinese design departments always dealt with all of the design drawings including the construction structure, the civil engineering drawings, while in Sweden, those parts were construction companies' responsibility. That was because most of the construction workers and employees were not able to draw those drawings, and even most of the workers could not read or understand the drawings. However, almost every Swedish worker could read and understand the drawings.

Because of the education level was different, the ability of reading and understanding drawings was different as well. One of the solutions could be the Swedish design company could take part in the construction drawing part and wrote as detailed as possible. Another one could be to set up some education courses for the building workers and even designers before the project. It aimed at to provide some basic information about the project and let everybody could understand the project and the technology integrated into the project. However, since usually one Chinese construction site might contain hundreds of workers and the workers' exchange was frequency and unpredictable. Therefore, to choose which solution need to be considered carefully.

Ambiguity contract in China

As Gesteland (2013) mentioned that China belonged to indirect communication culture, it also integrated into its business, its contract. When Charlotta talked about the contract that made by Chinese, there always existed some words, such as "might," "perhaps," "about" and so on. It always confused her about what was the real meaning that behind those words. The contract was such ambiguity that made her not sure about what was going to do next.

Trying to avoid using those ambiguity words when Chinese set up a contract with those direct communication culture countries seemed the only way to solve the problem. It was not only doing the business smoothly, but it also referred to show the respect to each other.

Overall, almost all of the issues that referred to the cultural differences could be avoided and mitigated if all of the participators were willing to take some time to know each other and respect each other.

Green construction specific issues

Except the issues caused by the cultural differences, as both of the two cases were about the green building technologies, some challenges caused by the green building technologies' features were also found during the cases studies. The issues will be analyzed below:

Cost issues

Based on the interviews, the green projects' materials indeed cost a little bit higher than conventional project', while not too much. The costs of the processes were also more expensive than regular ones'. For example, the following or the reviewing part usually had some extra costs on the projects. As a consequence, most of the Chinese customers or users refused to let the consultancies continuing doing the follow-up part.

They thought it would cost too much on the project. However, as they lack relevant knowledge, they did not recognize that how important this part took in the entire project was. Further, although the materials and processes of green projects would cost much more than normal projects', after the project completed, as the energy efficiency buildings, the money that saved on the energy would be much more than the other normal projects'. So in fact, the green project would cost much more than normal projects, but in the future, it will save not only the energy but also the cost of the energy will be saved.

Technology issues

According to Hwang and Nq (2003)'s article, the technical part of the green projects usually complicated than other projects. Further, the customers and users were a lack of this kind of knowledge, that led to that clients and users did not understand some processes of the projects, like discussed in the cost issues part. Here was most about how to communicate with the customers or other stakeholders. The solution here was the same as the cost issues. All the jobs that project managers need to do were to find an appropriate way to persuade the stakeholders to support the projects but not to interrupt or disturb the projects.

Different countries' contracts

The contracts of the green projects were different between China and Sweden. Usually, the Swedish contracts were based on the project processes and time. Such as based on how many hours the workers had worked or how many processes they had done. However, for the Chinese customers, the contracts always like how much the customers will pay when the project finished, not as detailed as Swedish one. Furthermore, the customers were usually not willing to change their habits, so what the project managers could do was changing their contracts' styles to fit the customers'. Except for the contracts' contents, the language that used on the contracts were usually their mother language, so a translator was necessary as well.

Approval Time so long

The approval time was also regarded as one issue. In China, if the green project involved some overseas companies, then the approval time will be uncertain. One reason was some foreign suppliers' products were not being recorded in the Chinese documents, which might take some time for the relevant departments to check the products. Another reason was the different regulations between China and other countries. Take our cases as examples. Chinese regulation was similar to the regulation of Sweden in 70s. So it was not as advanced as Sweden now. When the Sweden handed the design, the relevant departments would take some time to check if it was correct and also might have some arguments. That was the main reason that caused the long approval time. There almost nothing could do for those overseas companies without just waiting.

Some team members may unfamiliar with green technologies

Was all of the team members of the green projects were familiar with the green technologies? It was a hard question to answer that. In Sweden usually, it was "yes," while in China, it was always "no." It was because of the different education levels of the construction workers. In Sweden, the workers needed to have some relevant skill courses and also had some extra training sessions before a project start, particularly in a green project. While in China, the workers were usually not being educated and could not read the drawings. There were no training courses as well. That made more

obstacles to the project proceed. Especially the overseas companies also had some language barriers when communicating to the workers. Therefore, providing some training courses to the employees before the beginning of the projects was necessary. Moreover, the participators could also include the designers and project managers when it came to some special projects, such as some green projects.

Communication related before

The communication had been mentioned again in this area. To compare with the theoretical part, the communication was especially important for a green project, which was also confirmed in our cases. Both of the interviewees told that since the complexity of the green technology and the features of the international project, the communication in a green international project was significantly hard to control. However, as what showed in the chapter 4.2.2. If there existed an appropriate project communication plan, then it would make the communication much easier and clearer.

Some processes were forgot or ignored by the on-site workers

As a project that involved some specific green technologies, the processes of the projects were usually more complicated than other conventional projects. Meanwhile, since most of the Chinese workers lacked relevant knowledge and there were no any kinds of training courses before the project implementation in China, it was hard to ensure that all of the processes were actually practiced or practiced in the correct way. Further, sometimes the workers did not just forget the processes, they just ignored those processes for speeding up to catch up the entire project schedule.

That were totally wrong, due to the workers were not familiar with the green projects, so they had no idea how it would influence the whole project result. Therefore, some training courses about the project were necessary to be set up before the project to let the workers aware of how important the processes were. Furthermore, the project managers should attend to the site regularly and frequently to confirm that all of the processes proceeded in the right way.

The issues and recommendations that related to the specific features of green projects were discussed all above. However, since all the problems and recommendations were just based on the cases that were shown in the case studies, so when the issues occurred in the real situation, then a combination of the recommendations above and the actual status were needed rather than just follow what had suggested above.

Other issues to be concerned

After analyzing the communication, national cultural differences, and green technologies' issues, there still existed lots of issues that not belonged to any of the three above. Here, some analysis about the rest of the issues is going to be shown in the following part.

The first green project got European Green Building certification out of Europe without considering about risks.

This issue was a special issue that might only appear in our cases. It was special because of the particular context. In the first case, it was the first project that got the European Green Building certification out of Europe, which meant that it could not happen again. However, it could be regarded as an example when there exists another project that may be implemented in another country for the first time. In Hangxing case, the Swedish consultancy started the cooperation with Chinese company without

a full consideration of the risks that may happen during the business cooperation and project.

Although all of the issues that occurred in the project were not all due to this reason, it still could avoid or mitigate some problems if they set up a risk management before. Therefore, a suggestion could be having a rather comprehensive investigation about the background of the cooperation company and the potential location and considering about some possible issues or risks could happen during the business, then evaluated and set up some relevant solutions.

End users are not customers and always changed

In Sweden, the customers for a construction project were usually own the project or the customers built for themselves, while in China, it was different. The customers often rented their buildings to some end users, so the end users also acted as an important role in a project. They had to participate in the project and made most of the decisions. The issue here was the end users usually attended into the project after the project had already started. Then if they had any suggestions, the construction workers, and the designers usually had to change their initial designs or schedules. That was a significant challenge that influenced proceed with the project. Further, the end users were usually being not known before the project started and always changed during the project. Therefore, it was hard to design the project based on the end users' opinions, because they did not exist in the design phase, and even they were, they may change during the project.

This issue was tough to be solved based on the specific characteristic of Chinese context. In this case, communication and initiation marketing investigation were especially important. An excellent communication could enhance and stable the relationship between end users and the project. Further, an appropriate marketing research could be helpful to know which kind of building technologies could be accepted by most of the people easily, then adjusted to the design. Well, it also needed to be depended on the fact.

Lack of contact person in China

Based on the interview with Charlotta, she mentioned that she already had a plan to establish a sub-company in China to strengthen the contact with her Chinese co-operators. According to her opinion, it was significant necessary if she was willing to have a long-term cooperation with China, which was also confirmed by Dongmei. In Dongmei's opinion, since there existed numbers of challenges, such as time zones, languages, communication tools and so on. Sometimes, she could not contact the responsible person in Sweden to help her. If there existed some kind of person that lived in China and belonged to Charlotta's company, then this person would provide help anytime when Dongmei needed him or her. Further, if this person was a Chinese and could speak at least English, it would provide a huge help in the communication as well. Therefore, to establish a sub company or at least had a contact person in China was a significant necessary strategy if Charlotta wanted to continue the cooperation with a long term strategy.

Chinese market changed so fast that there was no time for the review

The speed of the Chinese market growth and need was so fast, which had been confirmed by both Charlotta and Dongmei. Based on Charlotta's speaking that one

Chinese architect's five years' workload were equal to one Swedish designer's workload in his or her entire life. That was a huge number. It certificated the huge amount of the Chinese market demand. Thus, there almost no time for the Chinese architects to review their own works and got feedback. They had to move on since there were a lot of demand that need them to work on and they choose to ignore the process of review and getting feedback. However, in Charlotta's mind, feedback and review were crucial not only for checking the works before, but also to ensure that the same mistakes were not going to have occurred in the future. When she mentioned this suggestion to the Chinese customers, they rejected. The reasons that they rejected were complicated. One of them was they were not willing to spend their money on this process since they did not have this kind of process before, so they thought it was unnecessary. But in our cases, the green technology as a sort of advanced technology that had not been used widespread in China, the process of follow-up was necessary. There might numbers of issues that could happen in the future since the unfamiliar of the technology, while the process of review could avoid some of the problems in somehow. Therefore, from the side of safety and future development, a process of follow-up or review was significant necessary.

Conclusion of risks

Risks that related to the cases were discussed above. It contained all of the risks that were found based on the interviews. Although there had some limitations in this thesis research, there still had a conclusion that how important to have an initiation investigation and risk management. Further, there were many useful tools for risk management, for example, the risk register. Through the investigation, it could help to understand what kind of partners they were, and how to set up business with them. By building up a rather comprehensive risk management, it could provide some help to avoid some unnecessary issues and offer some emergency measures to handle the issues.

4.2.4 National culture difference analysis

The biggest difference between an ordinary project and an international project was the members of the international projects were from different countries. The national cultural difference played a significant role in the international project. This section will introduce the various behaviors between Swedish and Chinese in the national culture aspect by two cases above and the literature framework.

Swedish culture analysis

Based on the Lewis model and the interviews, Sweden located between the linear-active culture and reactive culture, while more tend to be the linear-active one. So they were strictly and having the rigid schedule, pay attention to the work competence and work attitude (Lewis, 2006). Further, an analysis based on Gesteland (2013)'s categorization and the interviews within the cases is shown below.

Deal-focused & Relationship-focused: Usually, according to Gesteland (2013), Swedish did not reject to work with strangers if they had the relevant capability to get the job done, open and straightforward were the attitude when they cooperated with their partners. However, through the interviews, Charlotta also mentioned that Swedish also paid lots of attention on building relationships. They preferred to choose someone they were familiar when the potential partners were on the same level.

Therefore, both capability and relationship building were important in the Swedish business.

Direct communication: As mentioned above, Swedes were usually open and straightforward, so they preferred to use direct communication, which confirmed by Gesteland (2013). However, based on Charlotta's interview, sometimes it might cause the misunderstanding when they communicated with some other high-context and indirect communication cultural people, such as Chinese. It might be seen as a rude way. Also, Swedish people preferred to use paraverbal behavior in most of the occasions. But if it appeared too often when they had a meeting with someone from other cultures, it might be regarded as annoyed.

Informal business behavior: In other words, based on the Gestland (2013)'s opinion, Sweden was an egalitarian country. A flatter management model was recommended in the Swedish culture, which was also confirmed by Charlotta. Like the word said before, a flatter organization structure was applied in most of the Swedish companies. Further, it could be regarded as the most egalitarian business culture in the world. Due to this feature, some informal communication tools, such as Facebook, could be used in the Swedish organizations with no obstacles.

Rigid-time: A rigid schedule was significantly crucial in Swedish culture. Punctuality was the brand of Swedish people. Moreover, they wanted their partners to do the same with them as well (Gesteland, 2013). Further, Charlotta also mentioned that since the Swedish really cared about time, usually they were significant carefully in making schedules. They needed to go through all of the detailed information before setting up the schedule.

Emotionally reserved & emotionally expressive: Open displays of their emotions were often avoided by Swedish (Gesteland, 2013). According to Charlotta's opinion, she agreed that Swedes were usually not showing their real attitudes to the strangers, while the attitudes would be more expressive when their relationship was getting closer. So based on her minds, Swedish were more like in the middle. It depended on the counterparts.

Chinese culture analysis

Chinese culture was belonging to the reactive culture, while a little tended to the multi-active culture. As Lewis (2006) stated that quite, introvert, patient and respectful were the main features of Chinese during the communication. Time perception here was more like a mix of flexible and rigid. Following is the analysis based on the Gesteland (2013)'s distinction and cases' interviewees' opinions.

Relationship-focused: As Gesteland (2013) mentioned, strongly relationship focused was the label of Chinese business culture. Thus, to have a well-known about the Chinese partner before the business meeting was significantly important, which was also supported by both Charlotta and Dongmei. However, the capability of the co-operators was also considered by Chinese people. Usually, before the cooperation built up, the Chinese companies needed to visit the potential co-operators' countries and enterprises to have an investigation both on the capability of the enterprises and the co-operators themselves. Therefore, Chinese was indeed a relationship-focused cultural country, but not without considering the competence of the partners.

Indirect communication: Face to face communication was the favourite within the Chinese business culture, phones and e-mails were less valuable in this circumstance (Gesteland, 2013). It was also why Dongmei said that they needed a contact person in China that belonged to Charlotta's organization. Further, as Charlotta mentioned, it seemed much complicated when they were having the conversation with the Chinese. There always existed some misunderstandings during the discussion, such as Chinese never said "no" but said "It could be difficult" or some other indirect words instead. It always confused her and her employees by understanding what the real meaning behind those words was.

Formal business behavior: Hierarchical was strong in Chinese business culture. Especially, there always existed an age barrier that younger people should respect to senior employees (Gesteland, 2013). Further, based on the interviews, the face to face meetings were the most favorite meeting styles by Chinese. If it was not possible to have face to face meetings, some formal communication tools, such as messages phone calls and emails were also accepted. However, with the development of the technology, some informal communication tools were also taken by more and more Chinese people, such as WeChat. Therefore, although Chinese people still preferred to use formal communication channels, the informal channels had been accepted by more and more Chinese to adapt to the international markets.

Rigid-time: As a reactive cultural country, China also cared about the schedule, while sometimes it could have a little change in within the permit. Further, once the relationship was built in an excellent way, the final contract was seen less crucial. However, the relationship needed to be maintained all the time. So contact often with the Chinese partner was necessary (Gesteland, 2013). Above opinions also agreed by both of our interviewees. Based on the Dongmei's interview, Chinese always put the time in a critical position before the project started, while sometimes, the time was a little bit shorter than the real situation, since they did not go through all the details before the project began to like what Swedes did. Then the workers usually ignored some processes and the quality of the work in order to catch up the deadline for the project completion.

Emotionally reserved: Chinese business culture was belonging he emotionally reserved culture in a strong way (Gesteland, 2013). The two interviewees also told that keeping silent and hiding emotions were the two apparently features of the Chinese people.

The comparison between Chinese culture and Swedish culture

From above, a fundamental analysis of Chinese and Swedish national cultural behavior had been provided separately as Table 8 shown. In order to have a further understanding of the two countries' cultures. A comparison analysis and some recommendations on how to cooperate with another countries' people will be shown below based on the case analysis above.

Table 8 Comparison between Chinese cultural and Swedish cultural behavior

Chinese cultural analysis	Swedish cultural analysis
Relationship-focused	Deal-focused & Relationship-focused
Indirect communication	Direct communication
Formal business behavior	Informal business behavior

Rigid-time	Rigid-time
Emotionally reserved	Emotionally reserved & expressive

Deal-focused vs. Relationship-focused: In this aspect, based on interviews, Chinese and Swedish were belonged to focus on both two features. However, they just had a different preference. Swedish focused more on competencies of the potential co-operators, while Chinese preferred to concentrate on the relationship between the potential co-operators and themselves. Therefore, when there was a collaboration between Chinese and Swedish, the Swedish should pay more attention on the deal with the relationship with Chinese, like having dinners and provided some trips when the Chinese went to Sweden. In the other side, Chinese needed to show their strong competencies before their collaboration. However, since both of the countries paid attention to both features, there would exist not too many problems during their cooperation. They just need to do what they used to do but change the preference.

Direct communication vs. Indirect communication: This part could be the hardest part to solve since Chinese and Swedish had entirely different communication habits. For the Swedish side, as Chinese preferred to have face to face communication, then sent some people to China to join the project on-site was a good choice. These people could find out the problems on time and could communicate with the Chinese co-operators face to face at the same time. Further, to learn some Chinese culture about their speaking habits was also helpful. However, as Chinese speaking behaviors were far more complicated, so it would be hard for the Swedish to understand all of the meanings. Then the Chinese needed to change their communication habits, to try not to use those indirect communication ways, to make the communication easier to understand.

Informal business behavior vs. Formal business behavior: Chinese were preferred to use a hierarchical organization structure while Swedish were not. Neither of the organizations was hard to change their organization structures. What they could do was just show enough respects to their co-operators. When there existed a meeting or negotiation, the presence of the Swedish should be at the same position as the Chinese in their own organization. Then it would avoid most of the issues. Further, as Chinese were starting accepted those kinds of informal communication channels, then there might be no problems on the using of communication tools.

Rigid-time vs. Fluid-time: Both of the Swedish and Chinese cared about time. But they just had different processes before the project started. Swedish always went through all the details before the start of the project, while Chinese were not. Then Chinese would adjust the deadline time all the time during the project which was not allowed by Swedish. Therefore, to get all of the detailed processes clearly before the beginning of the project was the priority task of Chinese people, and kept communication with Swedish during the project was also crucial to get the project done on time.

Emotionally expressive vs. Emotionally reserved: As described above, both Chinese and Swedish were kind of emotionally reserved, while Swedish could be emotionally expressive based on the counterparts. It could lead a problem that they might both kept silent although they had some different opinions. To solve this issue, they needed to build a good relationship at first. After they had known each other, the Swedish

were willing to speak out what they thought. At this time, the Chinese needed to communicate with their cooperators about their ideas also. Then that could be an excellent communication instead of hiding their opinions.

Overall, although Swedish and Chinese had numbers of different national cultural behaviors, it could be no problems if both of them shown enough respects to each other.

4.2.5 Stakeholder Analysis

Stakeholder management is significantly important during the international project as mentioned in the theoretical part. To have a better understand of the relationships and professional acknowledge conducted during the case projects. The stakeholder analysis will be drawn upon the project life cycle through the case project at below. The different stakeholders and their relationships will be expanding. Further, the stakeholders are going to be sorted into several groups depends on their professional differences which will be easier for the reader to understand their role in the projects.

Stakeholder mapping

Below follow two stakeholder maps. The stakeholder maps draw upon two case projects, HXTC and DXGH projects as the basis. Since BCKJ was the principal actor in both projects between Chinese and Swedish parties, the stakeholder maps were based on BCKJ's perspective to describe the relationships between different stakeholders in two case projects. Further, the numbers in the stakeholder maps of each project will be used in stakeholder analysis corresponding each case project in this case study.

During Dongmei and Challota's interview, several stakeholders were identified. The relationships were drawn and shown below (Figure 11) for HXTC project, (Figure12) for DXGH project. In the stakeholder maps above, different stakeholders were grouping as Demand side, Supply Side and Public with different colors. The author also marked them with country's flags in the stakeholder maps above to notice the stakeholders' location.

Hangxing Machinery Manufacturing Center (**HMMC**)
Beijing Tourist Center (**BTC**)
Beijing Planning and Construction Bureau (**BJCB**)
Beijing Architect Design Institute (**BJADI**)
Beijing Forestry Association (**BFA**)
European Green Building Council (**EUGBC**)

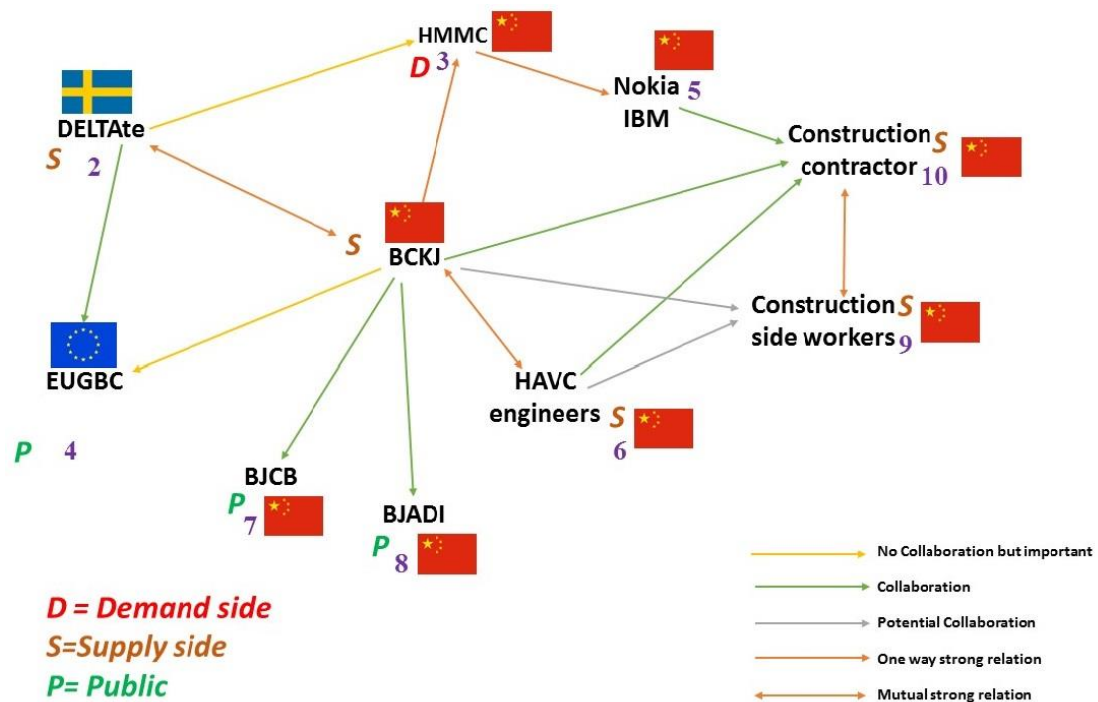


Figure 11 stakeholder map for HXTC project

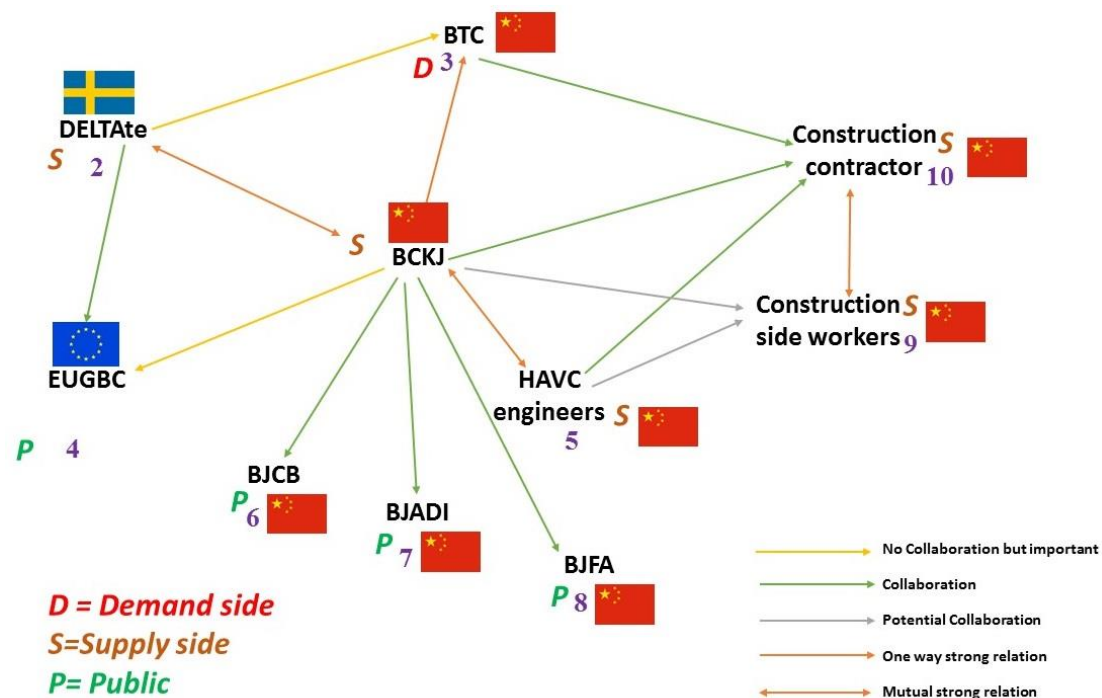


Figure 12 stakeholder map for DXGH project

BCKJ was the key stakeholder in both projects for the Building's architectural design and the whole HVAC system design. Since BCKJ's responsibility in two projects was similar, it was good to compare two projects' stakeholder maps together and had an overview. DELTate was responsible for applying the European green building certificate for both HXTC and DXGH project. DELTate worked for BCKJ to provide the general design for both project, with the help of DELTate BCKJ accomplished

the design and given to the clients in the end. But in both project the end user was not the clients. In HXTC project the end user was Nokia and IBM. In Dingxianggu Project the end user was the tourists. BCKJ had a strong relationship with HAVC engineer and DELTate. Other stakeholders only potentially collaborated with BCKJ. The public side in two stakeholder maps were responsible for the project design stander control and gave permission.

Power interest map of two cases

The power interest matrix analysis was based on the key project players from the stakeholder maps shows before. Each matrix corresponded to each of the project's stakeholder map. (Seen from Figure 11 and 12), the key stakeholder was currently DELTate since they were of high interest and power during the project life cycle. The clients of both projects were highly import since they all had a keen interest and power with both projects. Thus, it was important to manage the relationship with client and DELTate. HAVC engineers located in the middle part of the two matrixes since they worked with BCKJ with less power on project decision making than customers and DELTate. There was a group of stakeholders from the public side in the two matrixes to provide building permission and control the design quality. This stakeholders group was also high interest in the projects but not as much power to participate in project decision making. Further, the public side stakeholders affected the project decision making as well. Thus, it is important to manage them closely and to keep informed those public side stakeholders. Further, the construction contractor was also seen as high interests on the project since they would need to follow the design and construct for the clients. It is important to keep informing the construction contractor. The construction side workers were one stakeholder who was easy to ignore but still important. The construction side workers were interesting with both projects but did not have much power. For the green building construction project the design was significantly important. In the other word, the construction side workers were the stakeholder to accomplish the design and product the project result. Even they did not have much power, but it was important to provide information to them carefully. Sometimes even training them to have enough professional capability for such kind of project. It was important to monitor and kept the construction side workers to be informed. The following are the power interest map of two cases, which shown in Figure 13 and Figure 14.

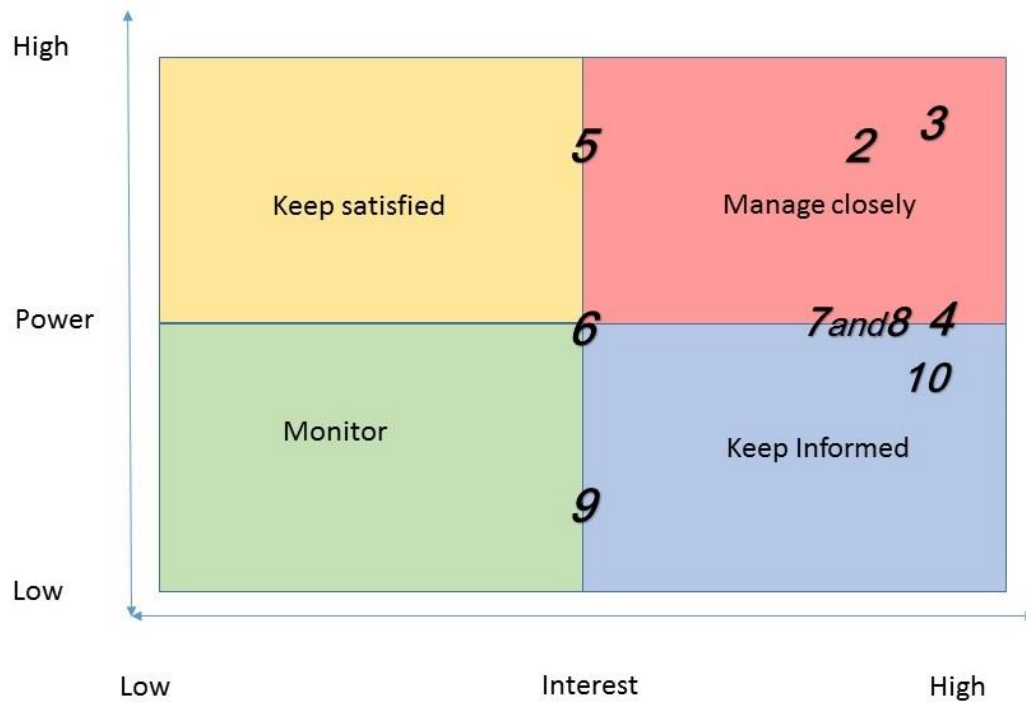


Figure 13 Power interest map of HXTC project

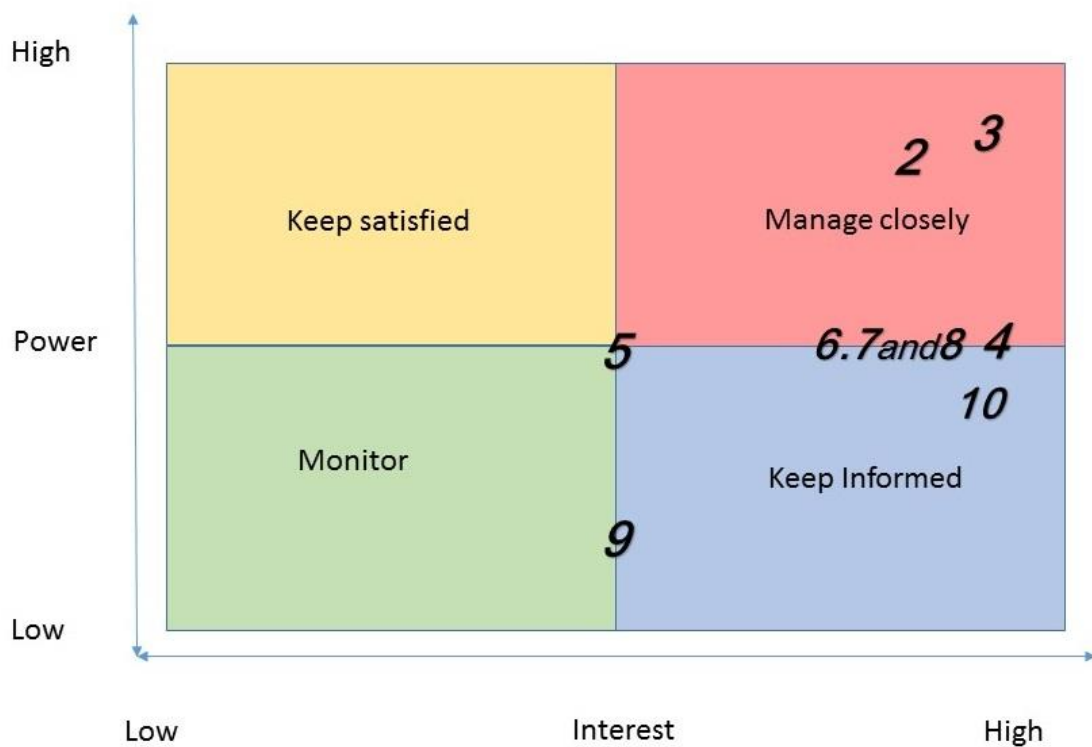


Figure 14 Power interest map of DXGH project

4.3 Summary of Analyzing

In summary, a relatively analyzing about two international projects has been provided in this chapter. The issues appeared in the two project cases within different management element were also discussed in the literature review. Further, some relevant recommendations were suggested in this chapter. Furthermore, by analyzing the cases, an unexpected phenomenon has been found out. The phenomenon was the issues caused by the national cultural communication barrier were less than the effects resulting from the professional cultural barrier. Figure 15 shown the status quo of communication between different stakeholders.

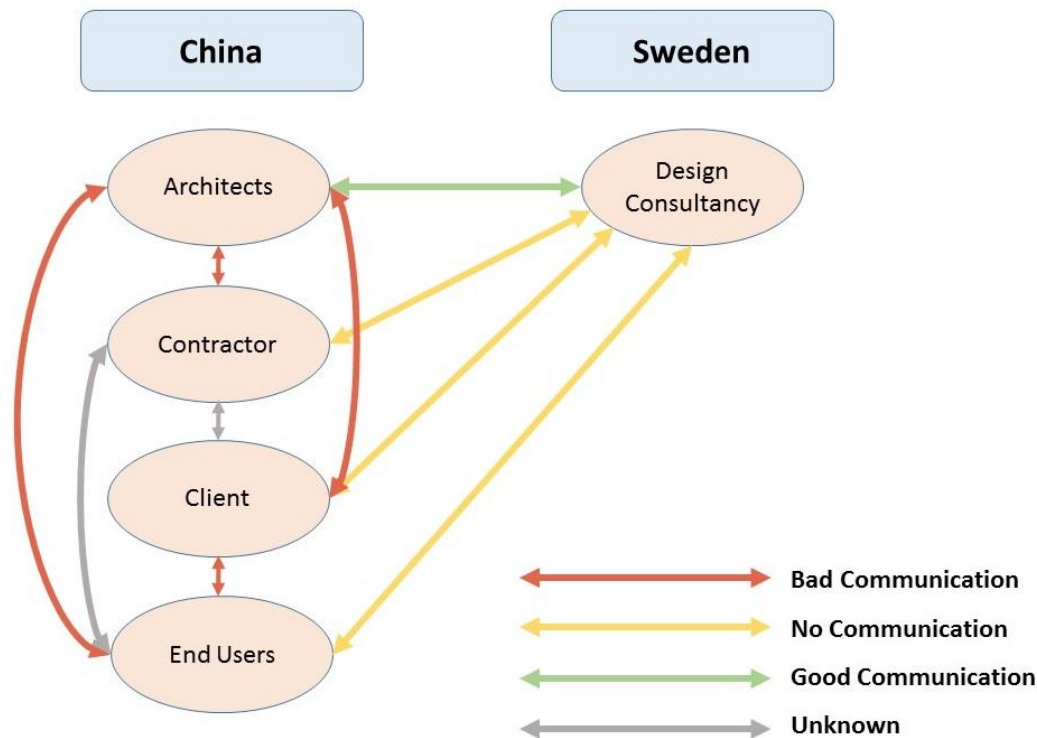


Figure15 Stakeholder communication relationship

This picture showed the stakeholder communication relationship between the key stakeholder groups during the two case projects. Architects and design consultancy had sufficient communication. However, many other stakeholders who have belonged to different professional areas had insufficient communication or even no communication. Took HXTC project for example. One of the cross-professional culture issues was the HXTC project client refused to allow architects and design consultancy executing the project follow up due to different value prospects and insufficient communication during the whole project. Conversely, although the cross-national issues indeed existed in the project, they did not make any serious effect on the project itself.

As a result, the author found issues between stakeholders were mainly from insufficient communication and inadequate stakeholder management. However, different national culture did not cause more problems than the professional culture, and different national culture background had fewer effects on project processing and project result. The professional culture here including professional skills, professional

information transformation, and green building standard specifications, etc. had the weighted influence on project's success. Further, responsibilities between stakeholders were not clearly defined at the beginning of the project. It would increase the probability of risk occurred during the project lifecycle. The earlier to identify risk and clarify who to respond with the risk happened the better response act would take when there were threats occurred. To avoid risks happened, it was necessary to build a problem-solving approach in such kind of projects. Furthermore, excellent communication, including communication between different professional areas, was the foundation of all the elements above. Moreover, it was very interesting to notice various stakeholders had different interests in both projects. To understand their interests and balance their interests was also important, this would help to build a trust relationship to decrease conflict and risks happened. In early project phase to involve all the important stakeholders and make the stakeholder analysis. However, it might also increase difficulties of working. All in all, systematically plan and strategy was necessary before the project.

5 Conclusion

This thesis aimed at searching for an appropriate project management strategy for a small and medium-sized consultancy to seek for an international collaboration with Chinese companies in energy efficiency building projects. To reach this objective, some relevant literature reviews, and cases studies were accomplished above. Those two chapters were connected tightly. The cases studies were analyzed by following the structure of the literature reviews (See figure 10). Both two chapters mainly had five parts, which were project life cycle, communication management, risk management, stakeholder management and national cultural analysis. Among five elements, project life cycle was just a model for providing help on understanding the cases. The other four aspects were the essential components in an international project management strategy. During the cases analysis, some processes belonged to those four characters had numbers of deficiencies when they were implemented. The case study was built upon literature review, interviews and study of case materials. Further, by the cases above, some recommendations and some tools were suggested to improve in the future project.

In conclusion, there did not exist so-called the most appropriate international project management strategy that could fit all of the small and medium-sized consultancies since every project was unique, the real situation of the projects was not the same. However, as most of the projects should follow the project life cycle, so most of the projects' processes were similar. Therefore, although there indeed did not have two projects were the same, some same tools and strategy structures could be applied both in the two projects. This thesis found out and concluded some tools that could provide helps in improving project processes performance and decreasing the obstacles that appeared in the previous projects. Those tools included project communication plan, stakeholder mapping, and so on.

Through the cases, the companies' strategies did not change too much when they faced an international customers or partners instead of a local one, no matter the Swedish consultancies or their Chinese partners. They just followed what they used to do. It was proved in the cases above that it has already caused numbers of issues in the management of communication, risk, stakeholder, and national culture. Therefore, to adapt the project management strategy to the counties of the customers or partners was necessary. However, it was insufficient just to change the strategies. Based on the case study, to improve the project performance, to enhance the relationship among different departments were also essential. In summary, to improve a project performance, except the project management strategies needed to be changed, the other factors also needed to be considered.

Overall, there still existed limitations for this thesis. All the results in this paper were based on the cases that appeared in the cases studies. Further, the cases were only focused on one small and medium-sized consultancy that having energy efficiency building projects in China, and the cooperator was only Chinese. Therefore, the results were concluded in this condition. Furthermore, this thesis just focused on four elements of the project management strategy. There also had several more factors that could influence the project processes, like project scope management, time management, cost management and so on. Then, some further researches needed to be done about those characters in the future study to achieve a comprehensive project

management strategy that could fit the international energy efficiency building project in China integrated Swedish small and medium-sized consultancy.

References

Alvesson M. Management of knowledge-intensive companies. Berlin and New York: de Gruyter; 1995.

Barinaga, E., 2007, 'Cultural diversity' at work: 'National culture' as a discourse organizing an international project group", *Human Relations*, vol. 60, no. 2, pp. 315-340.

Bettencourt LA, Ostrom AL, Brown SW, Roundtree RI. Client co-production in knowledge-intensive business services. *California Management Review* 2002;44:100–28.

Bryman, A. 2012, *Social research methods*, 4.th edn, Oxford University Press, Oxford

China Development and Reform Commission. 2015, “2015 circular economy promotion plan”

Den Hertog PD. Knowledge-intensive business services as co-producers of innovation. *International Journal of Innovation Management* 2000;4(4):491–528.

European Innovation Monitoring Systems. EIMS Publication No 15. Innovation Programme, DGXIII, Luxembourg. 1995.

Gesteland, R.R. (2012), *Cross-cultural business behaviour: a guide for global management*. 5th edition, Copenhagen Business School Press, Portland, OR; Copenhagen.

Gross, Andrew C. 'The Global Engineering Consultancy Market', *Business Economics*, vol. 47/no. 4, (2012), pp. 285-296.

Grisham, T.W. 2010, *International project management: leadership in complex environments*, 1. Aufl.;1; edn, John Wiley & Sons, Hoboken, N. J.

Hauknes J. Knowledge intensive services – what is their role? Paper presented at the OECD Forum on Realising the Potential of the Service Economy. Paris: 28 September 1999.

Hwang, B. & Ng, W.J. 2013, "Project management knowledge and skills for green construction: Overcoming challenges", *International Journal of Project Management*, vol. 31, no. 2, pp. 272-284.

Kai, (2005), *Cross-Cultural Communication*. Press: Elsevier. Inc., UK.

Kadefors, A. 2004, "Trust in project relationships - inside the black box".

Lientz, B. & Rea, K. 2003, *International Project Management*, Routledge.

Maley, C.H. 2012, *ESI International Project Management: Project Management Concepts, Methods, and Techniques*, CRC Press.

Miles I. Knowledge intensive business services: prospects and policies. *Foresight – The Journal of Future Studies, Strategic Thinking and Policy* 2005;7(6):39–63.

Miles I, Kastrinos N, Flanagan K, Bilderbeek R, Den Hertog P. Knowledge-intensive business services: users, carriers and sources of innovation.

Muller, Emmanuel, and David Doloreux. 'What we should Know about Knowledge-Intensive Business Services', *Technology in Society*, vol. 31/no. 1, (2009), pp. 64-72

Newell, S., Robertson, M., Scarbrough, H., & Swan, J. 2009, "Managing Knowledge Work and Innovation", 2nd edn, *Palgrave Macmillan*.

Nonaka, I. 1994. "A Dynamic Theory of Organizational Knowledge Creation". *Organization Science*, 5(1), 14-37.

Ottosson, H., 2013;2012;, *Practical project management for building and construction*, 1st edn, CRC Press, Boca Raton.

Potts, K.F., Ankrah, N., 2014, *Construction cost management: learning from case studies*, Second;2;2nd; edn, Routledge, Milton Park, Abingdon, Oxon.

Project Management Institute Inc. (PMI), Project Management Institute, 2013, *A guide to the project management body of knowledge (PMBOK guide)*, Fifth;5th; edn, Project Management Institute, Inc, Newtown Square, Pennsylvania.

Retrieved 20 April 2016. "*Countries of the world ordered by land area*". <http://www.listofcountriesoftheworld.com/area-land.html>

Reed, M.S., Graves, A., Dandy, N., Posthumus, H., Hubacek, K., Morris, J., Prell, C., Quinn, C.H. & Stringer, L.C. 2009, "Who's in and why? A typology of stakeholder analysis methods for natural resource management", *Journal of Environmental Management*, vol. 90, no. 5, pp. 1933-1949.

Rosseau DM, Sitkin B, Burt RS, Camerer C. Not so different after all: a cross-discipline view of trust. *Academy of Management Review* 1998;23(3):393–404.

Salt, J. & Wood, P. 2014;2013;, "Staffing UK University Campuses Overseas: Lessons from MNE Practice", *Journal of Studies in International Education*, vol. 18, no. 1, pp. 84-97.

Strambach S. Innovation processes and the role of knowledge-intensive business services. In: Koschatzky K, Zulicke M, Zenker A, editors. *Innovation networks: concepts and challenges in the European perspectives*. Heidelberg: Physica-Verlag; 2001.

Suzanne, M & Ann, H (2013). *Stakeholders, Information and Communication*. Available at: http://www.hma.eu/uploads/media/Section_3_i_Stakeholders.pdf

Toivonen M. Future prospects of knowledge-intensive business services (KIBS) and implications to regional economies. *ICFAI Journal of Knowledge Management* 2006;4:3.

Winch, G. 2002, *Managing construction projects: an information processing approach*, Blackwell, London.

Xu, T. & Greenwood, D. 2006, "Using design-and-build as an entry strategy to the Chinese construction market", *International Journal of Project Management*, vol. 24, no. 5, pp. 438-445.

Yudelson, J. 2012, *Marketing Green Building Services*, Routledge, Hoboken.

Appendix

Interviews

Interviewee: Charlotta Berggren

Position: CEO of ByDemand AB

Working Experience: 25 years

1991 started to work in Wikström as a Consultant.

2001 started to work in Dealtate, which is the subsidiary company of Wikström 2005 became the manager of Dealtate.

2016 established her own company ByDemand AB as CEO.

Part 1:

1. How do you know each other at the first time? When and why you started to cooperate with Dongmei's company (BCKJ)?

CB: That's a good question. It was 2009, Torkell, one of my colleagues, had a speech about schools, which were our specialist thing. During that speech, he told the audiences that we had one office in "Kinna". Afterwards, an architect audience asked a question about "where in 'Kina'?" Here "Kinna" is a city in Sweden while "Kina" in Swedish is the meaning of China. So then the question became to "where do you have an office in China?" Here is how we started, because the architect audience who ask the question was from another Swedish architect company which had an office in China. Also he knew Dongmei and had cooperation with her company "BCKJ" and another Chinese company "Hundred Group". Then Torkell went to Beijing, China with the Swedish architect company and met Dongmei. They also took part in an exhibition in Beijing. In 2010, we got two messages both from BCKJ and Hundred Group, they said that they wanted to have a visit to Sweden. Then they came to Gothenburg, first was the Hundred Group, and we arranged some trips to the buildings that we took part in. Hundred Group was a construction firm for heat pumps, cooling machines and systems for heating and cooling, but they were also a consultancy. So they were really interested in heat pumps projects that we had. A couple of weeks later, BCKJ came with their project "Hangxing". Then we made a workshop in Sweden, and visited some buildings that we took part in. But Dongmei was interested in natural ventilation, which was the expert part of the Dealtate. Natural ventilation is a big thing in the world now, and we now usually talk about the sustainable, it is one of that. It is about the ventilation without fans, and no need for electricity's system. It is not so big in Sweden, but it is important in Australia, Germany and Denmark. I think is because of the cold weather that make it is not so popular here in Sweden. But it works really well. And we built the natural ventilations in some office buildings in Sweden. Since it is really silent and good to environment, people who worked there enjoyed this thing very much. So we talked about that for "Hangxing". "Hangxing" had a mixture of different systems. Eh... That was how we started. We started with the workshop meet in Sweden. After that, I went to China five times, and most of the times I went to China for the projects. Especially in Beijing, and the most recent time I went to China is for the first session of China Green Forum in 2012. At that time, people in China talked a lot about the Green building and wish to do something really. Also, there existed lots of big certification, like LEED BREEM. During that time, we thought maybe we could started from a

smaller one, so we choose European standard to follow, because it only talked about the energy. So we started from European green building standard council. And they would do the European standard certification for the “Hangxing” project. Then it became the first one in China and also the first one outside the Europe. So we talked about how to build sustainable, and energies use, pollution, how the people use and how the city care about of course. We had the same problem here in 80s in Gothenburg. We could not breath outdoor, it is hard to believe now, but we have done this journey already. So it was not that long ago actually when we had the same problem. So China now is like what we faced in 80s in Sweden. So we wanted to say that it is possible change the situation in China at that time. Then we talked a lot about this kind of issues in the session.

2. What drives you or your company to implement international project? Why to cooperate with company in China?

CB: Of course, I think we choose China is because of a big coincidence, and then we had a Chinese employee at that time, it was also helpful. But why we were interested in international project, because we had already had a lot of international projects in Dealtate. Also because of our expert knowledge, there were not so many HAVC companies about nature ventilation as we did. We had already done mainly in the North Europe, like Norway, Finland and Denmark. But also in Germany and Estonia. And this was the first time that we cooperated outside the Europe. Eh... Actually we did not think too much about what kind of challenges we are going to meet. We just felt exciting, because it was a great experience. But we know that to cooperate a company in China could be a big difference, cause in Europe we had the same regulation following the European Union. Even it existed a little difference between North and South of Europe. It was mainly the same to work within the Europe. Also the cultural, the way of doing business may only had a little differences. While to work in China, is like another journey, so to speak. At the same time that we know that China had a great future with its huge market of course. Even it was only a small part of our job, we still needed to do a lot in China, so that made us so excited to have a market in China and it was also interested by lots of other European companies. Since we are doing things about energy systems, we are cared about climate things, and China as a huge country, it had a huge difference in different areas. We took it as an experience for us to work with other kinds of climate than we were used to. Like in Beijing, the climate is like here, is cooling, and while in Chengdu was different.

3. How many projects you have done together? Can you briefly describe them? Especially the Hangxing Center and DingXiangGu Hotel.

We had four projects together, “Hangxing”, “Dingxianggu Hotel”, “International Professional College”, and an eco-lavender valley project in Wuhan. The college is a school in Chengdu that educated some professional skills about clothes, clothes for theaters, carpentering, pot making and so on. And they took part in the 2008 Olympics starting parts for the clothing. The building of the college was green building. About the valley project, because this is a big tourist thing, so we were responsible for madding some lavatories, biological systems that took care of wastewater. It was a beautiful place. And I had seen the pictures that sent by Dongmei. Except that, Torkell also looked at the universities’ buildings, which designed by Dongmei, and for that time, I think it was just some suggestions.

“Hangxing” started with that workshop as I said before, so they were here, Dongmei, a colleague of her, and two HAVC engineers. We set together and talked about the climate and how to design the natural ventilation system and also fan ventilation system. During that week, we discussed about how to design it. Since natural ventilation is a lot about architecture. It is very important to make it right opening and control system. So we discussed that over a week and then we had all the drawings that they sent to us. And our Chinese colleague Louise, she checked everything ok according to what we had described. After that, we did a report for this project. Then we were involved again when this green building certification should be done. So our head company Wikström was responsible for the certification part. They made all the calculation that they need to do for this building. This was a bit special, because in Europe, All of the passive systems were according to the regulations about how much energy a building should use for all the building systems. Like transmittion for the fans, outdoors lighting, and elevators and everything that needed for the building. It was measured by square meters. This is the same all over the Europe. And that was why this certification was based on this knowledge. Like you should do 25% better than regulation. What we need to do was to calculate an ordinary building within the Chinese regulation, and do 25% better. But in Chinese regulation, they had what we had before. Like for those detail parts, so we needed to measure and calculate based on the Chinese regulation, and do 25% better. But to compare with the European regulations, the units were different, like Chinese and European regulations were all measured based on square meters, but in European it also based on the year. So we had to calculate it for twice. And also I think it was also very important to follow up. We tried to have a meeting with managers of Hangxing to tell them that this was very important, and we would like to help them to adjust the systems to check if they were really working well. But I think that they thought that we were too expensive, so we did not get that job. But they got their green building certification anyway.

“Dingxianggu Hotel” was made a little differently. We were there for another project, and then set up to discuss about how the hotel should be built. It was 2013, we first came to the hotel and had that discussion. It was a valley for certain kind of tree. There were a lot of trees around there, so we were looking at if we could made the systems by using these sources, the energy source. Eh.... So we looked at wood boilers in combination with starling engines, which was about electricity. And we looked at solar power, different kinds of alternative systems with renewable energy. That was how we started and we looked at the place and also involved in discussion of systems of tourist village, which was also our main purpose. The valley were a lot of buildings with main building, service center, a small cottage and some pools. We made up some suggestions for the systems for this whole valley. For energy, water, sewage systems. It was very important, because there were no systems for this there. That was before the Wuhan project, so we started to discuss how we could deal with the sewage system in a natural way; because there was nowhere to pump it. So we looked into all these systems, and also U-values of the building because this was also going to get the green building certification at that time. It was really important that the building was energy efficient. So we discussed different kinds of U-values, construction systems. We suggested also some technologies about the energy efficient.

4. Please describe your role in those projects? At what phase of the project your work have been involved?

CB: I was only involved in the design part as the Dealtate's project manager. And the two HVAC engineers came from China were responsible for the design part, and I just help them and supposed some suggestions. So to speak, we cooperated with each other in both of the projects. Because we did not know the Chinese regulation, as what we did in other international projects, we cooperated with local companies. We did the early report based on the workshop, and made some calculation for the climate and some other suggestions, and they combined our suggestions and made the final design part, and they controlled the final decision part, not me.

For the Dingxianggu Hotel project, I was only involved in the beginning of the project as the head of the project. But it was only at the beginning. Then another of my colleague and my Chinese colleague made all of the suggestions and other parts, like energy calculation for the certification. It also helped this project to get the certification. While I had not follow up this project and even have not seen until now, except the pictures were sent from Dongmei, China. For which phase I involved, I would say the planning processes. But I was really like to take part in the monitoring and controlling processes. Because we think that is very very important.

5. What kind of cooperation you have with BCKJ? (For example, how you share knowledge or resources you have?) What is your expectation from the cooperation?

CB: They had their customer that they bought ours, so to speak. So Dongmei is the seller of us in both of the projects, we worked for BCKJ in somehow. While we also a kind of cooperation that was the main thing. We shared our knowledge and resources we had.

I think the best thing is if we could follow up all the projects and made some PR (Public Relations) from this. Because when you follow up, you will have a successful experience, and then you can take advantages for the future. It more like to make the advertisement to enter into Chinese market, both for Dongmei and us. That was why we cooperate and wanted to grow up together. We also wanted to show that it was possible to build these sustainable buildings in China. We think it was a challenge to show not only here, also in China as well. It could be really interesting to show some good examples.

6. Is there any long-term strategy for the cooperation? Do you think the cooperation will affect your company's development?

CB: Yeah, we had. We were really like to have some cooperation and in Wikeström, cause it was a big company, so we had some plans there, like to start a new company in China, making large projects together with Swedish enterprise. But now I think we are really please to cooperating with Dongmei, because we were becoming close friends of course. Doing really good small projects together. So that was the main start, but it will be really interesting to establish a kind of department in China. Although we had not write it down, my colleagues and I are all agree in that, and we are planning to go to China during this year to have all the contacts again with Dongmei and other Chinese companies.

7. Were the results of the projects achieving the initiate expectation?

CB: We actually do not know that! They had not allowed us to follow up, and we really wanted to follow it up. We think it is really important to make sure and adjust. But for the design part, I think the cooperation was really made us satisfied, they achieved the expectation and had good feedbacks. But about the building, we do not know that. We only know the Wuhan project. We knew that the company had deliver the systems for the waste water there. We were satisfied.

Part 2 (The following questions should be answered based on the two projects):

8. Does all of the projects were successful completed? If not, what are the reasons lead to the unsuccessful result?

CB: We do not know that. But I can say that this college project we made. Because we were there for it almost finished. For that project, we were not that happy. Because we were much more detailed here when we made design process. It was more detailed. And I think that was the communication problem. Because we would like to take part in each levelled detail of the design in this project. And also when it's constructed, because they had the problem we did not make any drawings or blueprints for this building. We only had suggestions. For instance, we suggested for the height of ventilation. The height should be high enough. Then you can walk and you can clean it. But the real situation was that it was not clean and the height was too short. The fan was really uncontrolled and had loud noise. There were lots of problems like this. That we really wanted to adjust, because we think it should be a really successful project. I think it was about the communication, but it was also about the construction builders. Because they could not read the blueprints. There was really lack of construction workers in China. So there were lots of farmers that went into the cities and then became the workers, construction workers. They did not know how to read the blueprints. Because here when you took a construction worker, he knew how to read the drawing, and how to follow the drawings. And that was a tough situation both for the designers and project managers, the construction managers at the site. Because they had to follow all the workers and said now you do this and this and so on instead of just gave them the drawing and follow it. I think that was one of problems, and also we were not aware of this either. So that was also a problem, because we were used to have workers that are able to read the drawings. There were two ways could solve the problem, one was in the design part, maybe had an early meeting with the construction firm or something like that. We need more communication, but also I had an idea that maybe changing the experiences from Gothenburg. Because we had some really good schools in Gothenburg for future workers for building side for young people. Maybe we could make cooperation in this part, and teach each other. For instance, if we are going to build a passive house in Sweden, then we have an education for all the workers about the passive house, because it is so important with all the details to make it the right way. It could be really exciting to have this large education school in China also. The education process may only take couple of weeks to introduce all of the details that we need in the specific projects. In Gothenburg, they had first week for introduction, and then few weeks about the details. And test them later. This could be a huge problem for the construction in the whole world, because you do not want to put your money in the beginning, but if you do that, I think you can save a lot of money in the end. Also it

may make workers really proud of what they are doing. That was also a very important thing.

9. Do you have a comprehensive project management strategy? If have, do you have a project management model, and what is it?

CB: Ok...not in those two projects. But in general, we have a certain way. We have a quality system, so we know how we precede the project from the start. What difference is the way of project managing between here and in China, and also here and in Germany. Because we have a certain way of working in Sweden and it is not an easy way to translate the certain way. So we have a project management way in Sweden, but not for international project. Since it is similar to work in the Europe, so we work more in the same way when we have an international project within the Europe, especially in North Europe. So we first wanted to work in China as the same way as here, then we found difference, we started trying to make some changes. And since it is a cross-cultural business, we need to develop the strategy. We have to adjust it to the Chinese system. Maybe we can have some influence based on our way, but the mainly thing should be the Chinese way. And Dongmei had a really good speech here in Sweden about the international project management. It was so usual for some European countries to work in China. She has lots of experiences in this part. I think some it needs some model to work together in the international project management.

Communication

10. Do you have any communication plan or strategy? How?

CB: No, honestly.

11. What kinds of communication tools you often used to communicate with each other? Do the tools work well?

CB: Email, although it is not working very well now, it was the most frequency used tool for communication, and it was work really good during the two emails. Viber is also here for telephoning for some meetings. Sometimes also SMS by Viber. Since we all had some good translators, it worked also as well as emails at that time. In Sweden, we usually communicate through Facebook. It was a really fast way of communication. But it is not possible in China.

12. What are the challenges you think when you communicate with Chinese team members? Compare to communicate with Swedish team members.

CB: One is the time zone, because we have difference time zones. We had to plan when to speak, also based on our own here, and we had another time schedules here, so it was a little bit difficult to manage it. And the other one, which is the main problem, the language. The language usually is very hard to understand since it has lots of terminologies. Even we had a Chinese colleague here, because she was new when she employed by us. So she did not know anything, she had worked not that long with Swedish design. First we had to explain to her what we were talking about and then she talked to Dongmei. But since she could speak Swedish that was really

good for us. While, sometimes Chinese people were not that direct. You think you get an answer, but you were not sure about that. And we have tried to clear it, because we had a quite direct way of communicating. I think we had changed the way of communicating, we do not know if it is a problem in the communication that we are so direct, but I do not think it could be a problem.

2 Stakeholder

13. What are the stakeholders you directly cooperate in the projects? Describe their role in the projects. Are there any challenges in the cooperation? Any other stakeholders that you think will also affect the project? (Now we draw a stakeholder map for these two projects)

CB: Mainly were Dongmei and her employees, Dealtate and our employees, HVAC engineers. But we had different cooperation way with Dongmei and HVAC engineers. We cooperate with later through Dongmei.

Mainly language and cultural differences were the challenges. My dream is to bring Dongmei and her employees here to involve in the Swedish projects. So then we could cooperate in Swedish project.

For the other stakeholders, like customer, which was really important for both of the projects. Contractors as well. And also the employees of the Hangxing in Hangxing project, which means the users.

14. What you usually do to have good relationship with other stakeholders in the project?

CB: Our relationship is mainly with Dongmei, BCKJ today. We do not have any communication with other stakeholders. When we had Louise, she could have some communication, because very often, they do not communicate in English. So she had some contacts in the early of the projects. So Dongmei took the mainly part to communicate with other stakeholders. So keeping a good relationship with Dongmei is necessary. However, we were friends in personal. We had a really good relationship with Dongmei although it was not that close with Hundred Group. Our personal relationship with Dongmei was good, and then we put it into our business to enhance that.

15. What type of contract you have with these projects? Why to have this type of contract?

CB: We had a main contract about cooperation with BCKJ and Dealtate. But we also had a design contract for those projects what we had said we will do this, this and this and then set up the rules and what we should delivered. Just for the design phase.

We had this because it will help us to clarify our role in the project, and set up the rules. The foundation of our contracts is FIDIC. It was like an international contract for how to divide risks.

Cultural

16. Do you think culture difference will somehow affect the project?

CB: Yeah, maybe not that directly, but indirectly. Because we worked differently, and we had to communicate, and I think we had learnt from each other along the rules. So we understand each other more and more. But we did not understand how to work together from the beginning. So that was the difference. But I found that to work with Dongmei was so easy. Since she was so international. She was so open-minded. We had different feeling from Hundred Group and Dongmei. We were not that close to Hundred Group as Dongmei was because of Hundred Group was not as open as Dongmei. I believed that to keep a good relationship the key is on the person. It was also the same here, but we do not say it.

17. How you think the culture difference has been affect the project result? How you make it balance?

CB: I think so. But maybe not that much, because we brought the Swedish culture into the project, when we started this Hangxing project with a workshop. I think it was a really unusual way of in China. So that effected how we the process went on. So I could say that we influence thee project more with a Swedish culture than the Chinese influence us. But then we had learnt that Chinese culture way of cooperation. Then we knew that there were certain ways that you cannot do it as the same as in Sweden. It became a little messy. Because we want this creative process where we discussing and everybody are involved. The Chinese way was very hierarchical. In Sweden, it was a falter organization. We used that, and used it for everybody. Speak often and free to say anything. As the same way, Dongmei is a bit different also. I think she was belonging to our organization. She was really strong. And had strong opinions. I think she liked the process what we were doing here. She was the key for the success of the project.

18. Are there any other challenges you found when you work with Chinese team members, except the communication part? How you solved them?

We had an education in 2011. We had some speeches in Beijing for Chinese companies together with the Swedish embassy. When we got a question, the Swedish consultant love this problem and also solve the problem in certain projects by following the details. While the Chinese want the solution. For instance, if you have this problem for an office building, then you do it in this way. And it will end in a good way, which means to get the result at the time. So we often got this question in the education. But how do you do for the office building. I cannot answer that. I have to know some detail information, like where it located, how many people are the employees in the company. So there are lots of issues that we think we need to go through all the details to know how to deal with the project. Of course it was really inefficient. So we maybe mixture could good. I think in somehow it also a kind of communication problem.

Except the communication part, we think that maybe a best way could be to have someone in China if we take it in serious. We used to have a Chinese member here in our team, Louise. It was much easier to work with her, because she was between the culture since she was from China, but she married a Swedish husband and lived in

Sweden for years. She was a designer, if we talked about the challenge, maybe there was one. Because she was so inexperienced, she was new. She had not too much time to learn how the Swedish way of working. That could be a problem. Otherwise, she was so good. I think the communication part is the main part, and maybe the way of working. Here in Sweden, when you build a building, you often build it for yourself. So the stakeholder builds for themselves, so the stakeholder are so interested in low energy, and energy efficient buildings, and good in climate. That was why we got this much closer cooperation with stakeholders. When you work in China, very often, it is like that you build your building and then sell it. Then you are not so interested in the building itself, like the energy efficiency, and how the customer will like it and so on. But Hangxing built for itself, so it was more like the way here. You will be interested if you own this building for 20 or 30 years, but you will not if you are going to sell it. But for Dingxianggu, I am not sure, because I do not know the situation. I think it was owned by the municipal. But I was really interested to know what it looks like now.

Risk

19. Do you have any risk management plan or strategy? Or how you manage risks?

CB: Yeah, we had an insurance that took care of the risk. That was why it was so important to have this contract of FIDIC. Because you had to take care of the risks, if something goes wrong, we need to know how to handle that. So that we had. We used contract to control the risk and they used it to control us. But we also had an agreement about how to divide these risks, and main thing was FIDIC, which controlled that risk, so to speak. In order to avoid risks, that not the difference from here in Sweden. Because it was a natural part of our work, like how to think about the risks. We had a quality system for instance to ensure how we should work to design it. And if it happened, then we needed a contract to divide the risk, and how to take care of the risks.

Knowledge Transformation

20. How do you think of the words “knowledge” and “knowledge transformation”?

CB: For me, knowledge is.... because we had almost the same education in China and Sweden and wherever we are. We learnt the same things in schools, but we had the different experiences. And I think that better to understand that we share our experiences from our successful projects, and we can share them together all over the world. Like I said the pollution thing, we had already gone through this pollution problem here in Sweden, then we know how to handle it now. And I think that was the big challenge for the whole world now that we are facing the climate challenge now, and social challenge for the whole world. It was getting better and better, but we need to share our experiences all over the world, because we could learn from each other. So we do not do the same mistake again. It was a better way to describe it, because we had already share it.

We use data, and also very important to show how and what we are doing. We have to measure and see that, yeah, we do it like this, and got this kind of result. That was really important. Also of course needed to connect with local climate. We using a lot of master thesis students to follow up our projects and made reports to show that this

is the result of this project. Also may cooperate with some universities in other countries, like China, it will also help the students to know it as well.

21. What are the challenges for both sides of you so far that appears in knowledge transformation during the international project?

CB: I think the challenge is this thing that you need to follow up. And I think that is a large challenge for the Chinese market, because it is so fast. So that is the big difference between Sweden and China. Even we had lots of challenges here that we need to build a lot of apartments. But it still even faster in China, and you do not have any information. I heard a number that a new Chinese architect, during her or his five years, he or she made more projects than the Swedish architect during his or her whole working life. So you can imagine that if you do those kinds of so many projects in five years. You do not have experiences yet and you do not have time to think about the last project, like what went wrong in the last project. So I think that is the big challenge for the Chinese market to have enough engineers to do this, because it is so high-rise development right now. So you do not have time to think about what we can do better in the future. So the follow up and feedback is really important. This is also the problem here, but we do not have that fast growth, because we have time. But in 60s, we also faced the same situation as China faced now. But we have now learnt that we had to make feedback and adjustments, to find out what can we do better in the future.

22. Do you think there are any technical difference of energy efficiency building project between China and Sweden? Which are the main differences?

CB: I do not think there is a difference in the technology knowledge. But I have noticed that the regulation in China is comparable with the 70s of the Sweden. It was too old for now. China needs to be more energy efficient. We compared the Chinese's regulation when we did the Hangxing project, and we saw that it was the same U-values that we had used in the 70s in Sweden. But the customers did not know this. Further, it was so expensive to build energy efficient of course. But you will save money in the end, you can save the energy. I do not know that how much energy cost in China and we tried to figure it out. If it is expensive, then it should be really important to save this energy for the cost. Because although you cost a lot to build the energy building, it could save a lot for the energy using. Except the regulation, the technology in China is the same as us now. And it still develop in a fast speed now, both in regulation and technology.

23. How do you think about the technology of energy efficiency building? What's the position of energy efficiency buildings at Swedish construction market?

CB: I think actually the companies here are competing now, we have interest of the public that they want to build this energy efficient building and they want to live in sustainable. It is the whole common interest. And of course it affects how you build, so most of the buildings build here in Sweden are better than the regulations, which is a good thing. I think we are quite early here, because we have a long traditional in nature, and sustainability. But I think it was in the entire world, but we were a bit forward here, so to speak. Because we had this first association for the environmental

issues in the early of 20 century. We cared a lot, for all of the people, including our king! I believed that we are in the top of the world.

24. What are the challenges you think when you operating an energy efficiency building project comparing with a normal project? Especially an international project.

CB: I think it is very important to go through all the details, and to follow up! Follow up is really important. I have to say it again. Wherever you are, if you doing an energy efficient building, you have to follow up, you have to be careful all the details.

In the end, is there anything you really want to point out or want to say about the project or cooperation? Or there is another thing that not mentioned you want to supplement?

Interview

Interviewee: Dongmei

Position: Chaired Architect of BCKJ

Visiting Professor of College of Architecture and Landscape architecture of PKU

Director of Beijing Forestry Society

Working Experience: 27 years

1989-2001 worked as an architect of Beijing Apartment Design Institute

2001-2003 worked as a Chief Resident Architect of Beijing Mocheng Architects Office

2004-now worked as the Chaired Architect of BCKJ

Part 1:

1. How do you know each other at the first time? When and why you started to cooperate with Charlotta?

DM: In the beginning, I was not cooperation with Charlotta, I cooperated with Torkell at the first time. He played an important role in our cooperation with Charlotta. About 10 years ago, one of my students Wang was studying in Sweden. When he came back to China, he represented the SweDesign, a Swedish company. He has the objective to connect the Chinese government, projects and Swedish technology. At that time, I know the responsible people from SweDesign, which were an architect, Lorf and a water treatment specialist, Lars. In 2007, we had a series of speeches with SweDesign in Yichang to propaganda about sustainable to the local government. Also one of my projects, a building in Beijing University was completed in the same year. Then Lorf brought another equipment engineer Torkell to visit my project. During the visit, they measured the nature ventilation of the building by using paper, which made me a deep impression. After that, they gave me some suggestions about the air outlet. They said that it should be better to opposite to the underground garage instead of opposite to the outside of the building, and the temperature may decreased two degrees. This conversation had a significant influence on our future cooperation at that time. They also made a speech in my office in BCKJ. And after they came back to Sweden,

Torkell sent me an email about the suggestions that he came out of my project. It was so clearly. It had four steps I can still remember now. First was to do the adjustment and test for the current system. Second was about the training programs and where should we fix. And I handed his suggestions to the principle of the Beijing University. However, they thought that my project was already so advanced. They cannot follow me if I wanted it to be more advanced. They cannot even understand the suggestions. So I have to say that BCKJ is in the first column but not just a little advanced in China. Then we had to give up at that time, since they did not adopt our suggestions. In 2008, we built a project called Heihu primary school in Sichuan based on the sustainable design. At the same time, we got another proposal of a project, which was Hangxing. We got this project was because of two reasons, one was the sponsor of the Hangxing was giving lectures in the building that I designed in Beijing university at that time, he was really appreciate that building, and he recommended me to all of the sponsors of Hangxing. And another reason was the design of the office district of Hangxing was in North Europe style. They knew that I had experiences to cooperate with Swedish companies. Then I submitted a tender for the project, of course I got it. After I got the project, I promised that I would cooperate with the Swedish companies on this project. Then I sent an email to Torkell and said that we wanted to cooperate with you and your company. Soon I got the invitation from Torkell and he invited us to go to Sweden. I went to Gothenburg for visiting with my cooperator Liu, two HVAC engineers, Mr. Guan and Mr. Gao. We went directly to Dealtate, and met the Charlotta at that time, it was 2009. To seek for technology cooperation and learnt sustainable technology were our initiate goal. We learnt the technology through the projects. One side was I brought my project to them, and they gave us suggestions as I said before. Another side was we brought our project design to them and paid them for giving advises. And there was one thing moved me that we did not sign any contracts for this but only an oral contract, of course we did not pay initiate. We just bought the tickets then flied there, and met Torkell, Charlotta, Haken and Louise. Louise was really important for our cooperation since she can speak both Swedish and Chinese. And they gave us a systematic effective advises at the same day. We went to Malmö on the second day.

On the way there, they just kept talking about the suggestions that they made for us. I was so grateful that they gave us advises so soon without to sign any contracts. They said that they trusted us, so the contracts were unnecessary, they never doubted about us. Because they trusted us so they invited us, they were willing to cooperate, and they did not want to waste their own time. This formed the respectful between us. This chance of study establishes the relationship between Charlotta and us from a blank to current situation. Also at that time, I required our engineers to ask questions as much as possible in order to understand all of the issues.

2. What drives you or your company to implement international project? Why choose Sweden?

DM: We had an objective, which is to focus on both the people and the environment, and to find out how they can be exist together. Here the environment was not only means the nature environment, it also referred to the circumstance that people lived and culture. And we focused on the development protection of cultural relics as well. We even went to Chalmers University to hold a speech about the practice of Green Building based on the culture difference in China in 2013. We also wanted to achieve

the goal that to build the sustainable building in local China. We choose Sweden as our partner also because of this objective. We want to learn from Sweden about this theory and technology deeply.

3. How many projects you have done together? Can you briefly describe them? Especially the Hangxing Center and DingXiangGu Hotel.

DM: Four. For the Hangxing, I had already told you that how I got the project and how we proceed with Charlotta at the first time. It was a combination of Sweden and China. After the preparation part, we started to build it. However, when we finished half of the project, the customer said they were going to rent the building to some users. The users were not Hangxing customer as before any more. The users changed to another company, which was Nokia. After Nokia checking the building, they said that they did not want to have this kind of systems that we had designed before. They wanted to change the sustainable system to traditional non-sustainable system, because they never used this kind of system before, and they did not trust this system. They did not want to be the first one in the trial. But I insist to not to change everything, I wrote many letters to almost all of the participators in the project, even to the headquarters of Nokia in North Europe and Asia, but I got no response. Since I had contract with Hangxing, which was the owner of the building, not Nokia, so I did not care Nokia any more. But Hangxing cared since the building was going to be rent to Nokia. So they came to my office and wanted me to change. And I still insisted to not to make any changes. Then they had to agree with me, since we had already had a contract before. Then after the Hangxing completed, I brought Charlotta and her team to the Hangxing project, and shown the system capacity to the users of Hangxing. Well, the users and the customer were saying nothing, and when they heard that Charlotta wanted to follow up. They thought that the project had already build in the way that was not expected by them, and Charlotta still want to follow up, they were really unhappy about that, it was a kind of emotion problem. Honestly, I did not know about how it worked now, I did not follow up as well. And I also did not tell Charlotta why the customer and users not allowed us to follow up, it was so complicated. If I had to say why, then you know, the technology of Hangxing was already enough advanced to compare with other project in China. Also they did not use by themselves, they rent the building to Nokia and IBM. And they had to listen to the users who rent the building, and the users were not willing to follow up. Also the customer of Hangxing did not have a good communication to the users about that why we wanted to follow up as I thought was another reason. Meanwhile, the users always changed during these years. Lack of knowledge and knowledge transformation was a big problem here.

About the Dingxianggu Hotel project, it started in 2013, and was located in the Badaling Forestry. It was located in the field that surrounded by the forests. We found Charlotta and seek for cooperation was because the customer of Dingxianggu Hotel also wanted to get the green certification as well as Hangxing. Meanwhile, the location was special, the customer wanted to build the hotel that made of wood and can be used in the all four seasons, and kept good capacity of course. At that time, I was cooperated with Charlotta on another project in Sichuan. So I talked to Charlotta about this, and she shown a lot interest on it. We cooperated in two parts, one was the integration of the systems, like what we did in Hangxing project, that they designed and we completed and adjusted based on their design. They did all of the calculations

and some initiate designs, and we did the equipment and external piping design. Another part was to get the European Green Building Certification for the hotel part, not including the service center or any other building in the valley. The whole process was pretty smooth. We did not face so many issues then. But the project still not completed yet, while we already got the certification. But Charlotta and her team did not need to take responsible for that. Because it was the financial problem, there existed a problem between the contractor and the customer.

About the Sichuan project, Charlotta and her team gave us a creative design about a system. We draw the drawings and then built it as we designed. However, there were two problems, one was the contractor's working quality was not so good. The system was not seal, they did not change the drawings, but the quality was really bad. It was really different to compare with our design drawings. And to guide the contractor was supposed to be the Chinese HVAC engineer's responsibility. When he came to the construction site, he sheltered the real situation of the construction's quality. He told them that it could be changed in the future, although he knew that the quality was not reach the design. While when I found this it was too late, and the customer blamed me about this instead of to blame the HVAC engineer. Then I suggested to customer that we should let contractor to check and fix it and let the quality inspection department to ensure its quality. If it cannot work after all the work above had been done, then the Swedish designer and I to adjust and fix it. But the customer rejected my suggestion. Because the HVAC engineer said that the Swedish technology was too far and cannot be assembled in China, in this project, but he can fix and adjust it by himself, and it was unnecessary to found the Swedish constancy any more. What he said it seems that all of the responsible should be taken by the Swedish people and me, not him. Even worse that he stole the relevant suggestions that suggested by Charlotta and her team. He stated that they were his own suggestions to provide to customer. The problem was occurring based on the person. It was not common but it happened in our project.

We also cooperated another project with Charlotta and her team. It was about the biological lavatory. They provided a design, and gave us a suggestion of choose which lavatory factory as our supplier and technology support. The technology was owned by the lavatory factory, and the owner of the factory was Torkell's friend. He wanted us to buy the technology. He told us that he charged for about 200 thousands RMB for one lavatory, while after we bought five lavatories, then he would like to decrease the price, and then if we bought more in the future, the price will getting lower and lower. But this kind of quoted price system cannot be implemented in China. Nobody wanted to pay first, since they need to pay more that if were one of the first five customers. But they were actually interested in this technology. They just cannot ensure that they were going to buy it. Then I suggested to the factory that if they can change the style of quoting price, which was the factory would get one bonus when they sold one. Then they sold second one, they can get another bonus, and so on. But the factory owner did not accept that, he said that what if you copied and stolen my technology when you just got one. Then we had to use another technology instead of this one, anyway, the project was completed. In this project, we had no issues when we had technology cooperation with Charlotta and her team. However, we do had issues on applying the technology part.

4. Please describe your role in those projects? At what phase of the project that your work have been involved?

DM: I was involved in most of the parts, like design part, planning part, system integration part, landscape design part, interior design, decoration, external piping design and propaganda part. I took responsible for all of the parts above. And in the system integration part, we cooperated with Charlotta and her team.

5. What kind of cooperation you have with Charlotta's company? (For example, how you share knowledge or resources you have?) What is your expectation from the cooperation?

DM: We definitely want to have a long-term cooperation with Sweden. But when we had cooperation with Sweden, we found that they never sent people here to work and live in Sweden, like a contact person who lived in China. This phenomenon strongly influenced the adapting of the technology applying the local China. If the Sweden wanted to continue this long-term effective cooperation, to have a contact person in China is necessary. We really need somebody like a contact person, and also a person who was responsible to advertise the Swedish technology and doing the propaganda. We lack of these kinds of people. We cooperate with each other by learning from each other, while both of us are good at technology, while not good at advertise. That is a problem. I remembered that in 2012, Charlotta and her team came to China to join a session with me. We faced lots of problems at that time, such as seat booking mistake, schedule mistake and I even did not get my speech draft three hours before the session. That was the problem both caused by lacking of relevant responsible people and also the insufficient management of the responsible people of session. But the session was effective. It brought the new direction of the sustainable technology to China. My cooperators, such as Charlotta were the people who taught us the technology, but not just sold their products to us. I am really willing to cooperate with them because they are willing to teach us. That was also why we become friends. We respect each other. And to work or cooperate with friends was really good for me, because we know each other and I will also have my passion on the work. I really wanted to change the situation of China, but of course, that was not enough that only I changed and cooperated with them. So I really needed a kind of person to do the propaganda.

6. Is there any long-term strategy for the cooperation? Do you think the cooperation will affect your company's development?

DM: Yeah, since Charlotta and I were friends. I also wanted to implement long-term cooperation strategy with Sweden since we had cooperated with each other for many years, I had a kind of feeling with Sweden, and also I had lots of friends here. Swedish people also very kind, they seems so proud, but in fact, they are very enthusiasm and friendly to friends, also had no cultural discrimination. That is really great. I really like them. And I also really wish to have some cooperation in Sweden. But I was so busy and even cannot review my projects before, so how can I go to Sweden.

Part 2 (The following questions should be answered based on the two projects):

Communication

7. What kinds of communication tools you often used to communicate with each other? Does the tools work well?

DM: Email, mostly. We used to use Skype, but now we use Viber sometimes. But Viber worked not so well in China, sometimes it did not work, like Instagram and Facebook, we cannot use them so well. I thought that WeChat is a good communication in this kind of international project. We could communicate through webcam which means face to face, it would be better than email. I prefer to communicate face to face, I can show my emotion and also can find her emotion through webcam. Meanwhile, I am not good at English, so it took me too long time to write email. Sometimes they also left a message through Weibo.

8. What are the challenges you think when you communicate with Swedish team members? Compare to communicate with Swedish team member.

DM: Of course, the language, cause sometimes they had different minds with us. It was really hard to translate it based on the cultural difference. Such as the quoted price occasion. Swedish cannot understand why we do that.

We also cooperated with LiljeWall, they had an architect called Peter, and he had a Chinese assistant Zhang. We started to know each other during the Dingxianggu project. At that time, Louise was just left the Dealtate, and went to Sweco. And Peter, Charlotta and some other architects established a new group, and then the contact person became Zhang instead of Louise. But he did not contact me any more after he went to the project in Sichuan.

Stakeholder

9. What are the stakeholders you directly cooperate in the projects? Describe their role in the projects. Are there any challenges in the cooperation? Any other stakeholders that you think will also affect the project? (Now we draw a stakeholder map for these two projects)

DM: There were some many stakeholders that I directly cooperate with. The contractors, the customers, the designers, the cooperation teams, such as Charlotta's team, the supervisors, the users, construction budget and quality inspection department. In Hangxing's case, the users were Nokia and some other companies, but Nokia was the key one. The designers, which were from architect design institute, they also take responsible for part of checking. The checking part also involved the experts from administration of the ministry of the aerospace, which were charge for the Hangxing project, and also the Beijing government. Since the users belonged to the ministry of the aerospace, and the building was in Beijing. So both of them needed to check the drawings in separately. While they never heard of this kind of technology at that time, so I had to explain again and again.

Also one of my cooperators, one of the HVAC engineers that went to Sweden with us canceled the cooperation with us any more when we had the Sichuan project, and it

directly influenced the Dingxianggu Hotel result. He designed some parts in the Hotel project. So he cannot join and solve the problem on the construction site. I had to confirm all the information and solved the problems that happened on-site. But since I was not the designer, so that was a big issue.

The property belonged to the customer in Hangxing. And they rented it to other renters. Since they were not using the building anymore, so they did not need to do this. That was the question here that who was the customer and also who was going to use the building. Since almost nobody could know that who would be the future users, so it was so difficult to solve this problem. What we can influence was the customer, if he or she could not transfer our message or information to the users, then it was useless. It all depends on the users in China.

In Dingxianggu Hotel project, the customer and the user were the same, which was the Badaling Tourism Company, a company that owned by the government.

Cultural

10. Do you think culture difference will somehow affect the project?

DM: On the way to the Malmo on our first trip to Sweden, they just kept talking about the suggestions that they made for us. I was so grateful that they gave us advises so soon without to sign any contracts. They said that they trusted us, so the contracts were unnecessary, they never doubted about us. Because they trusted us so they invited us, they were willing to cooperate, and they did not want to waste their own time. This formed the respectful between us. That was also the reason why we kept cooperating with Charlotta and Dealtate. We trusted the people but not only the business or technology. It was really important to know each other in some kind of psychology way.

11. How you think the culture difference has been affect the project result? How you make it balance?

12. Are there any other challenges you found when you work with Swedish team members, except the communication part? How you solved them?

DM: The design phase was different when you compare China to Sweden. In Sweden, it had a big characteristic that the construction drawings were drawn by the construction company. But in China, all of the design drawings were finished by the design company, including the construction drawings, and then handed those drawings to the Chinese construction companies. And the design in China was much more detailed than it in Sweden. Because most of the construction workers were farmers, and lack of relevant knowledge, they were not able to read the drawings. That was why Chinese construction companies cannot build the buildings based on the Swedish design. And also lack of professional translators was another key reason.

Except the difference on the drawings, the quoted price system also had some distinctions. It was so important. We found that in Sweden, Swedish company quoted price based on the working hours, and the quoted price were usually in a free way that

could be changed. For example, how much we should pay if the Swedish company worked to reach a specific stage. And also it will be charged based on the real situation, not just follow the contract before. But in China, when this kind of quoted price system appeared on the desk of Chinese customers, they were confused and also getting worried, and not willing to accept it. They afraid of the price would go up. In Sweden, they had this kind of system was based on a society with integrity. They trusted each other. However, in China, people were not trusted each other as much as Swedish people did. They all wanted to get more profits. So Chinese always quoted price as based on the project, which means how much the customer will pay when the project completed in total. They did not care how long you take for the project. They just cared about how much they should pay when you finished it. In the projects that we cooperated with Charlotta, I trusted them, but the customers, they did not, because they did not know Charlotta. So I cannot persuade them to change the contract.

Third difference was that the contract in Sweden was pretty clear, for instance, they calculate the money based on the details of the design. But in China, it was so ambiguity. We could always found the word “about” when we talked to each other.

Next one was the regulation. The regulations were difference between Sweden and China. We thought that we had already handled all of the issues in Sweden, but when we back to China to practice them, we found that we were not able to do something in China while were able to do in Sweden. So we asked Louise in Sweden about some specific questions that it was not able to do in China. And she asked Charlotta and Haken, but they still insisted saying that there were no problems. In the final, we found that the regulation were really different to compare with Sweden. Then I brought the statistics and some relevant documents, which were provided by Swedish company to some experts in China. After the practice and test for many times in the real situation, they found that the Swedish suggestions were right. So in case of this kind of situation, we were not daring to take all of the Swedish suggestions to apply in our project. That was also because there might some physical difference existed between China and Sweden. And since we were going to apply this technology, then we had to persuade all of the participators who were involved in this project, including the customer, the experts who responsible for checking drawings and so on. Then we applied the technology by integrating the Chinese local conditions. So Hangxing was a combination of Sweden and China.

Some material suppliers from overseas did not put on record in China before, and then based on the Chinese regulation, they were not allowed to be applied in Chinese project. For example, in the Dingxianggu project, one of the equipment suppliers was from Denmark. It faced series of problems when they entered into China, like had no record to be put on in China. Then based on the Chinese regulation, we could not use that, so we had to change our initiate systems. All of the adjustment or changes were the issues that not happened in Sweden but in China. We could not fully apply the technology since there existed such a number of restrictions. This was leading to the technical responsibility and technical adjustment.

When we had cooperation with Sweden, we found that they never sent people here to work and live in Sweden, like a contact person who lived in China. This phenomenon strongly influenced the adapting of the technology applying the local China.

Risk

13. Do you have any risk management plan or strategy? Or how you manage risks?

DM: First, We want both of our sides can understand each other in all of the differences involved in the projects. Second, the projects' cooperation was based on the relationship between people. Third, on the knowledge part, we want to add some items to clarify the responsible about the technology, adding some items on the contract about how to solve the problem if happened.

Knowledge Transformation

14. How do you think of the words "knowledge" and "knowledge transformation"?

DM: "Knowledge" was a big theory, first, it means the knowledge that came from book, and people can learn it from outside. Second was the knowledge that you came up with by thinking ourselves. It was more like learn from inside, yourselves. Third one was more like the second one. It came from the experiences, what you have been through. About the "knowledge transformation", it came from the book, while you have to verify them in the practice, it was important to do the practice to see if the theory was right. But not just using the theory to apply in the practice. It was so important. The knowledge should be a tool to help you know the world, but not control you. And for the "knowledge transformation", different people have different thought about this. In old time of China, people should have grateful to the people who are willing to transfer knowledge. And now, one of the ways is like Sweden and I, we transfer knowledge based on the cooperation. And another one is the relationship between teacher and student.

15. What are the challenges for both sides of you so far that appears in knowledge transformation during the international project?

DM: I think one of the problem is that China just educate students in some specific part, want them to be an expert in one area instead to educate them in many areas. Also China worked not enough in the part of social responsibility.

16. Do you think there are any technical difference of energy efficiency building project between China and Sweden? Which are the main differences?

DM: During the first trip, I asked our engineers to ask questions about the technology. It seems that all of the questions were really simple to the Swedish consultants, like Charlotta. They really had a better knowledge. And also at that time, we found that the nature ventilation was pretty new for China, that we did not have this knowledge in the China, at that time. So we stayed there to learn this technology.

17. How do you think about the technology of energy efficiency building? What's the position of energy efficiency buildings at Chinese construction market?

DM: Before 2008, Lorf has been visited to China and seek for cooperation for 8 years, but all of them were just theory without practice. Since 2008, the Olympics, numbers of consultancies of sustainable buildings came out in China.

We needed a kind of training program about the energy efficiency building technology in China, but who was going to be the trainer was a problem. In a construction company, they had some people who took responsible for the technology part. They should be responsible for telling the workers how to do in the project. So if it was enough that we just needed to educate them? It is not so sure about this problem, because those people were changed frequently in some companies. While, whatever, to have this kind of training program was better than not having them. There existed a person that never changed, which was the designer. So then the training should also face to the designers. Because the sustainable technology is a little bit new in China, so it should let all of the participators should be involved in the training to reach a better result.