



TAMPEREEN TEKNILLINEN YLIOPISTO  
TAMPERE UNIVERSITY OF TECHNOLOGY

SAANAMARI MANNERI  
INTERNATIONALIZATION OF WIND POWER SERVICE BUSI-  
NESS

Master of Science Thesis

Examiner: Professor Antti Oksanen  
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## ABSTRACT

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The goal of this thesis is to study the internationalization models and their applicability to wind power sector. During the past few decades several internationalization models have been developed. They can be divided in five different categories: traditional models, behavioral based models, resource models, growing models and networking models. The main focus in this thesis is in networking models, because they are newest, most comprehensive and most suitable for wind power sector. The main point for networking is to increase the resources and know-how, which ultimately leads to economic benefits. Especially at the construction phase, the working networks between developers, owners, service providers and subcontractors are the most important asset what company can have.

The collected information about the different internationalization models will be summed up together with the wind power knowledge. To have a practical viewpoint on internationalization within wind power a case is used as a part of the analysis. Different internationalization models and their suitability is evaluated to the case company Empower, who is involved in wind power service business. The case company is eager to grow to Swedish wind power market, which is the reason why Swedish market is more closely reviewed as example wind power market as a part of the case study

Swedish wind power market is nowadays the biggest market on a Nordic region, with 5 425 MW (end of 2014) installed capacity. Because of the EU targets and Swedish governments will to invest in renewables it is also growing rapidly. The problem today are the low electricity prices and cheap green certificates. This is the reason why some already permitted projects are on hold. The future in Sweden looks promising and there are few thousand megawatts of permitted projects waiting to be built in the next five years.

At the end there is a suggestion made about the best internationalization models for wind power to be used. As a part of the future development after this thesis a separate business plan for the case company is created.

## TIIVISTELMÄ

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Tässä työssä keskitytään kansainvälistymismalleihin ja niiden käyttökelpoisuuteen tuulivoimaliiketoiminnassa. Viimeisten vuosikymmenten aikana on kehitetty useita erilaisia kansainvälistymismalleja. Ne voidaan jakaa viiteen kategoriaan: perinteiset mallit kuten Porterin timanttimalli, käyttäytymismallit, resurssipohjaiset mallit, kasvumallit ja verkostoitumismallit. Pääpaino tässä työssä on verkostoitumismalleissa, koska ne ovat uusimpia, laaja-alaisimpia ja tuulivoima-alalle sopivimpia. Verkostoitumisen idea on lisätä resursseja ja tietotaitoa, mikä lopulta johtaa taloudellisiin hyötyihin. Erityisesti tuulivoiman rakennusvaiheessa verkostot rakennuttajien, omistajien, palveluntarjoajien ja alihankkijoiden välillä ovat tärkein etu, joka yrityksellä voi olla.

Teoriaosion perusteella tehdään alustava ehdotus tuulivoima-alalle parhaiten soveltuvista kansainvälistymismalleista. Tämä perustuu kerättyyn informaatioon kansainvälistymismalleista ja tuulivoimasektorista. Jotta päästään parhaaseen mahdolliseen lopputulokseen on yhtenä tutkimusmetodologiana käytetty lisäksi tapaustutkimusta. Parhaiten tuulivoimalle soveltuvia kansainvälistymismalleja sovelletaan tutkimus yrityksen liiketoimintaympäristöön. Yritys on kiinnostunut kansainvälistymään Ruotsin tuulivoimamarkkinalle minkä vuoksi Ruotsin markkinaa tutustutaan tarkemmin osana tapaustutkimusta.

Ruotsin tuulivoimamarkkina on pohjoismaiden suurin. Asennettu kapasiteetti on 5425 MW (vuoden 2014 lopussa). EU:n uusiutuvan energian tavoitteet sekä Ruotsin hallitus edistävät markkinaa, ja se kasvaakin nopeasti. Ongelma tällä hetkellä on matala sähkön hinta sekä uusiutuvan energian tukiohjelman riittämättömyys. Jotkin jo rakennusvalmiiksi kehitetyistä projekteista onkin jäädytetty. Nykytilasta huolimatta tulevaisuus näyttää valoisalta. Useita tuhansia megawatteja uutta tuulivoimaa on odottamassa markkinalanteen parantumista ja näiden projektien odotetaan käynnistyvän seuraavan viiden vuoden aikana.

Työn lopuksi on tehty ehdotus tuulivoima-alalle parhaiten soveltuvista kansainvälistymismalleista. Osana tämän diplomityön jatkokehitystä erillinen kansainvälistymissuunnitelma on tehty tapaustutkimuksena käsitellylle yritykselle.

## PREFACE

This Master's thesis is written as a part of the Value Indicator Tool (VALIT) research project. The project and thesis are financed by Tekes- the Finnish Funding Agency for Technology and Innovation, University of Vaasa and Empower PN Oy.

In this thesis the challenge was the wide subject about internationalization and wind power in general. The viability of certain internationalization models in wind power business environment is depending on hundreds and hundreds of factors. Almost overwhelming amount of different models, factors affecting them and ways to establish internationalization process are itself enough for much wider research. Still I see essential to understand at least the basic of the complex process with all its components to be able to understand the internationalization environment within wind power.

I want to give credit to the following persons for making this work possible. First of all it should be noted that this thesis wouldn't be reality without my excellent supervisor Juha Silvola from Empower ON Oy, professional advisor and supervisor Dr. Vilma Vuori from the University of Vaasa and examiner professor Antti Oksanen from the Tampere University of Technology.

Along the way there has been many people, who somehow have affected this thesis and my knowledge about the subject. Especially I want to thank my supervisor Vilma Vuori, for her comments and feedback during the writing process. Her advices have been priceless, not to mention showing me the best coffee shops in Tampere. I also appreciate the support and knowledge, what I have been able to gather from my colleagues at Empower. Particularly I want to thank my project team and my superior Juha Silvola at Empower for giving me their time and making me a better engineer and person.

Thank you all the interviewees. The interviews and the observation in wind power events has been in my opinion the best part of the thesis. It is rewarding to recognize how much I have learned about wind power and internationalization just observing the actors. Interviews were also one of the most challenging parts with all preparations and later analyses of the answers.

Finally and most importantly I want to thank my family for supporting me first of all to choose technical studies and all the way through to this point. Wouldn't be where I am now without you. And of course, thank you Jussi for being there for me!

In Tampere, Finland, on 21 February 2016



Saanamari Manneri

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## LIST OF SYMBOLS AND ABBREVIATIONS

AB	Allmänna Bestämmelser Entreprenad. Standard construction contract
ABK	Allmänna Bestämmelser för konsultuppdrag. Standard consult contract
ABT	Allmänna Bestämmelser för Totalentreprenad. Standard turn-key construction contract
AMA	Administrativa föreskrifter med råd och anvisningar för byggnads-, anläggnings- och installationsentreprenader. A standard reference documentation for the administrative regulations
B2B	Business to Business
BoP	Balance of Plant
CHP	Combined Heat and Power Plant
EBIT	Earnings Before Interest and Taxes
EPC	Engineering, Procurement and Construction
EU	European Union
HFCE	Household Final Consumption Expenditure
IMD	Information Management Division
IND	Industrial Division
MW	Megawatt
NWEA	Norwegian Wind Energy Association
O&M	Operation & Maintenance
PND	Power Network Division
SEK	Swedish crown
SODAR	Sonic Detection And Ranging
SWPA	Swedish Wind Power Association
TND	Telecom Network Division
TWh	Terawatt hour
VALIT	Value Indicator Tool
WTG	Wind Turbine Generator
WWEA	World Wind Power Association



# 1. INTRODUCTION

Fossil fuels have ruled the world energy production for the past hundred years, but the renewable energy sources are slowly taking their place as the main energy source. The turning point occurred 2013, when the world added more renewable energy capacity than coal, natural gas and oil combined. The global electricity system is slowly shifting to the cleaner and environmental friendlier direction. From the renewables, wind and solar power are the two fastest growing energy sources. Solar power is coming more popular in the sunnier parts of the world, but in the north wind is increasing its popularity. (German Energy Blog 2014)

In the Nordic, because of the subsidiary systems from governments wind is one of the most profitable energy sources to invest in. The recent estimation is that even without the subsidiaries, wind could be the favorable energy investment object in the sense of profitability. Offshore wind has been growing rapidly in the North Sea area. The offshore wind farms are more expensive to build, but because of the better full load hours the production is way better than on land.

The EU energy targets are heading towards carbon neutral and environmental friendly energy producing. The 2020 package targets are to cut 20 percent of the greenhouse gas emissions, produce 20 percent of the EU energy with renewables and improve the energy efficiency for 20 percent. This is the general EU target, but nations have also they own goals set by the EU. These targets vary and are depending on countries starting points for renewable production and ability to further increase it. For example Sweden target is that 49 percent of the energy should be produced by renewables. (Green-x)

The wind power sector is fast growing and therefor offering also many work positions in many different fields from the turbine planning to electricity installations. Some of the wind power investors are local and are cheering for local environmental friendly energy. Some are huge international corporations, whose strategy is to invest in renewables. The investors are often contracting a lot of the work like construction, operation and planning to subcontractor and so further helping different kind of companies to grow to the market. Wind power market in most countries is fairly small and therefor many actors on the field of wind power are growing to international markets. For example most of the turbine developers are acting across the world.

The internationalization of the business is one way to grow. Successful internationalization isn't obvious and because market entry and internationalization is so complex set of

processes with different faces, dimensions, horizons, perspectives and levels, a lot of internationalization models and theories have been developed over time. Models are planned to help the internationalization of firms. They have been developing from the historical process based models towards new network and recurs based models.

## 1.1 Objectives and Scope of Thesis

The foundation of the thesis are the following research questions, developed together with the participants:

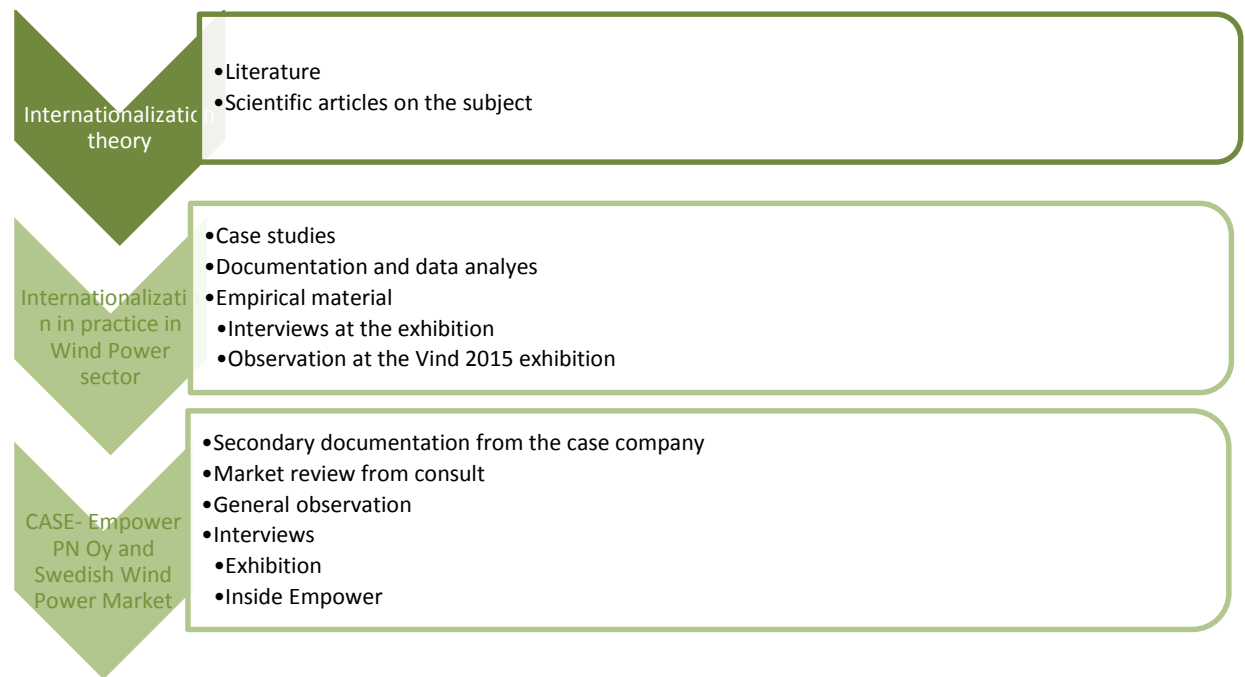
- How the wind power sector service business can be successfully internationalized?
  - o How and which internationalization models work in the wind power sector?
  - o How the business networking can help the internationalization process?
  - o What's the current situation on Swedish wind power market? Who are the actors there? Does the market have any special features?

In the master's thesis different internationalization models are analyzed keeping the emphasis in the networking approach. How the models can support energy sector service company internationalization and how they can be exploit during the internationalization process will be examined? Based on the collected information an internationalization and market entry plan will be developed to the case Company Empower PN Oy.

The thesis is made to VALIT -project in cooperation with Empower PN Oy and Vaasa University. The target for VALIT –project is to collect information from internationalization and networking in the business world. Empower PN Oys final goal is to create a model and action plan based on this thesis; how the successful wind power service business in Finland can be adapted to the Swedish wind power market and developed into the profitable business.

## 1.2 Research Methods

The needed information to the thesis is collected using multiple methods and a combination of quantitative and qualitative techniques and procedures (Saunders et al. 2009). Qualitative methods such as interviews are mainly used, but especially in the target market analysis also a lot of quantitative methods are used to collect the data from the market and to evaluate it. Using a wide range of different kind of methods gives the study more comprehensive results, while it at the same time increases the data to be analyzed.



**Figure 1:** Structure and research information sources of the thesis

In this thesis the main research methods used were *interviews, document and data based research, observation and a case study*. The used methods are collected in the figure 1.

### 1.2.1 Data Based Research

Internationalization and models within it have been a popular research subject during the past few decades. There was available lot of different sources dealing with several different internationalization models and theories. The challenge was to collect all the models together and compare them with each other.

Because the wind power as a business sector is fairly new and continuously developing there wasn't too much documentation or literature available about the wind power internationalization. This is the reason why the interviews and observation within the current market participants was chosen as a main research method.

The preliminary data about the market participants was collected from the literature, internet and from the third party consultant. The decision to use third party consultant in a phase of data collection was made to speed up the data collection process and due the lack of information in public sources. The assignment for the consultant was carefully developed so that it would include all the important information about the market and about the market participants. The assignment can be seen in the appendix A.

### 1.2.2 Interviews

Based on the preliminary data and analysis of the market, approached market participants and parties were chosen and interviews planned at the Vind 2015 event in Stockholm.

The Vind 2015 event was chosen, because all the major wind power developers, turbine manufacturers and service providers were attending the event. The interviews are a good way to collect information when the research is somehow describing, valuating or comparing. The current situation of the market or attitudes towards the future can be easily picked from the interviews. (Jääskeläinen 2016)

The interviews were not agreed beforehand, but the approach was made in each actors stand. The interviewing language was English and they were made in a semi-structured way. (Saunders et al. 2009) This means that a question list was made beforehand, but the questions and the way of presenting them varied from interview to interview. Also the order of the questions varied depending on the flow of conversation. Semi-structured interviews are planned to gather data, which is then normally qualitatively analyzed, for example as a part of a case study strategy. The data is used besides understanding ‘what’ and ‘how’ also to answering question ‘why’. (Saunders et al. 2009) The interview questions are summarized in the appendix B.

Interview answers were gathered together and analyzed. Same kind of opinions, historical stories and common nominators were looked for. The results of the analysis were then used as a part of the search for the best internationalization model within wind power.

There are few identified issues regarding the semi-structured way of interviews; reliability, forms of bias, validity and generalizability. The lack of standardization may cause a concern about reliability. The main issue is if alternative researchers will be able to achieve the same results. The credibility can be increased by using more sources and responders, but still there are few common errors that can occur. Robson (2002) suggest that there are four threats to reliability; Participant error, participant bias, observer error or observer bias. There is a lot of room for errors and false assumption between the interviewed and interviewer. The interviewers or responders non-verbal behavior or own personal opinions can affect the reliability of the interview. (Saunders et al. 2009) Generalizability is another great issue. If the group of interviewed is too small or somehow else limited the results may not be generally usable at the market. (Saunders et al. 2009)

In this interview about ten companies were interviewed including one to two persons per company. Observed issues were for example that the sales personnel on the stand didn’t have so much knowledge about the company history. Despite the flaws regarding the interview some consistent answers about the internationalization strategies and market situation were achieved. Based on them, some conclusions can be made when considering also the shortcomings.

### **1.2.3 Observations**

Observation is not so recognized form of research. Still it can richness the search data and be enlightening. In this thesis a participant observation is used as a one research method

to collect data and attitudes within the wind power. Participant observation is a qualitative method and is trying to discover the meanings that people attach to their actions. (Saunders et al. 2009)

Observations for this thesis are made inside the case company, but also in different events and meetings including the wind power aspect. The results from the observations are included in the study and sometimes received preliminary information from the observations is confirmed from the literature sources.

### **1.2.4 Case Study**

A case study is one of the research strategies beside the experimental and survey research strategies. Instead of the big and comprehensive material, where statistical cause and effect relationships are investigated, a deeper look is taken into few cases and they are being analyzed comprehensively. (Jääskeläinen 2016)

In this thesis first in a chapter three a small case study is made and few companies within wind power and their internationalization history were researched. In an actual case for Empower the pre-evaluated internationalization models are brought closer to the practice and their suitability for Empowers wind power service internationalization evaluated. The cases main point is to test the theories on an actual internationalization case. Based on the case study a real market entry plan is created to the case company. This is also one of the development options from this thesis. To check out after some time, how the internationalization actually proceeded. Was the model actually established a combination from several models or was some model dominant.

## **1.3 Structure of the Thesis**

The core idea of the thesis structure is first give the reader idea of different internationalization ways and then bring them to practice to wind power. The work is clearly divided in three sections; a theoretical part of internationalization, theoretical analysis how the models apply to wind power sector and finally how the models can be utilized in the wind power service case and market analysis of Swedish wind power market.

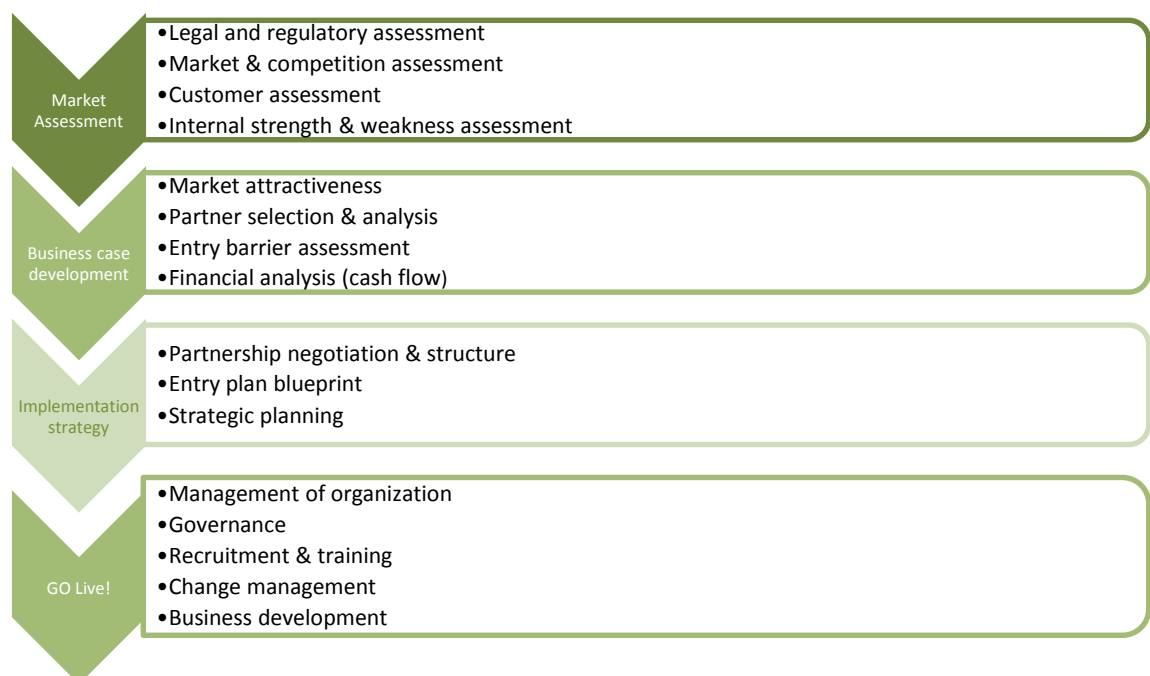
The chapter 2 gives the reader an overview of the different internationalization models. All better known internationalization models are listed and the most famous ones are opened up and examples are presented. The presented models are divided in traditional-, growth-, resource-, behavioral- and networking models keeping the focus in networking models. In the business world today the business networks and relationships are becoming more and more important and they are often the bases of working business.

The chapter 3 introduces the wind power sector and its actors on a general level. Some of the internationalization models introduced in the chapter 2 are further analyzed and their

feasibility to the wind power is analyzed. Also some internationalization examples from the sector are presented.

The chapter 4 is based on the case study regarding the wind power service business internationalization to Swedish wind power market. The Swedish market and its current situation is analyzed including the main actors and the future development. Finally based on the market and company analysis the market entry possibilities are evaluated and a separate market entry plan for Empower PN Oy is made. Lastly chapter 5 draws together the learnings from the internationalization models and wind power market analysis. Evaluation of the results is made, suggestion for the best internationalization models for wind power is presented and some follow-up actions suggested.

Because the internationalization strategies and market analysis are playing a key role in this thesis, also the total structure of internationalization process should be introduced.

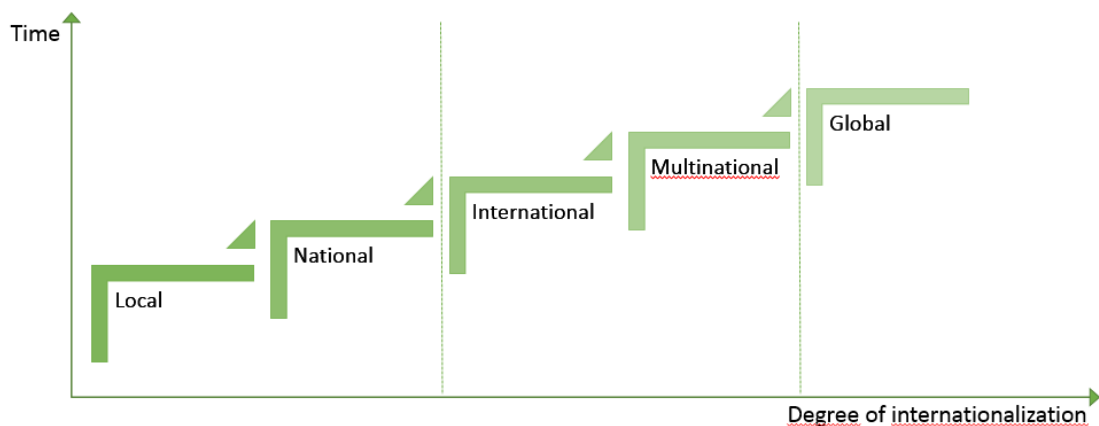


**Figure 2:** Structure of internationalization process (Slide Share 2012)

The above presented structure is one option how the internationalization could be handled. There are several different models that can be used, but almost all include at least some parts from the above shown structure. First step is always to do a market assessment. For Empower wind the fourth chapter in this thesis is doing that part. After market evaluation a business case have to be developed: if the company will use the same basic as in other countries or does the market demand something different. The first actual step towards the new market is doing the implementation strategy which can for example include partnership negotiations. The networking models are based on the relationship creation and maintaining. The last but the most important step is to do the actual actions; recruit, build up an organization, tender the projects and establish business unit in a new market.

## 2. INTERNATIONALIZATION

Not more than few decades ago internationalization of business was described as an ability to travel across the seas and borders (Masum et al. 2008). Nowadays there are no unambiguous explanation what is internationalization, but instead several different viewpoints (Vahvaselkä, 2009). Some of the explanations will be handled below. Today the internationalization concept has been developing into the more complex direction and it has been accompanied with the term globalization. The term globalization is much younger and at macroeconomic level it can be described as the phenomenon of increasing globally diverse ties between the economics. A globalized company has operation in two or more continents. A company is international when it has operation in two or more countries. Otherwise said the globalized company is also an international company in bigger scale. (Daszkiewicz et al. 2012)



*Figure 3: Example of the development from local to global (Hiltunen et al. 2010)*

In this chapter the goal is to manage the internationalization from the company point of view. In the current business world, internationalization or even globalization can be the only way for the enterprise to grow and expand to new markets (Johansson et al. 2010). This is the case especially then when the home market is small like here in Finland. As a small and open economy Finland is depending on export and internationalization of firms. This can be both a perfect opportunity, but also it brings huge challenges how to manage the business in international environment. (Vahvaselkä 2009)

Because market entry and internationalization is so complex set of processes with different faces, dimensions, horizons, perspectives and levels, a lot of internationalization models and theories have been developed over time (Daszkiewicz et al. 2012). Models are plan to help the internationalization of firms and they have been developing from the

historical process based models towards new network and recurs based models (Johansson et al. 2010). All the important internationalization models will be listed in the next chapter and then a closer look will be taken into the network models.

When a company is planning a market entry and is starting the internationalization process there are several barriers that can slow down the process. For example lack of recurs, information or experience about the market can be problems. In these cases networking is the best way to market entry. Networks can differ, but the main cause is to increase the resources and know-how, which leads to economic benefits as well as extra support in marketing. Networking has developed into the key-factor of internationalization process in a current business world. (Vahvaselkä 2009)

## 2.1 Internationalization in General

Internationalization is a complex set of different steps and viewpoints. It is really difficult if not impossible to give a universal definition what internationalization is. Most definitions are based on the idea of dividing the process in three levels; macro, meso and micro (Daszkiewicz et al. 2012). At the macro level internationalization will be handled in the economy's point of view, at the meso level in the industries point of view and at the micro level more narrowly from the firms' viewpoint (Daszkiewicz et al. 2012). Although the levels are quite widely accepted, there is no single determination for the term internationalization. In this research we will focus on micro and meso level internationalization.

Several factors have been inflecting how the term internationalization has been developed. The slowly and phased developing nature of the internationalization as well as information increase and network phenomenon have all been important factors (Johansson et al. 2010). "Internationalization of a firm can be seen as a process of increasing involvement in international operations, where the firm transfers products, services and resources across countries when expanding its trade outside the domestic markets and thus required to select which countries to operate in and the mode of operation". This is one of the most famous definitions of internationalization written by Welch and Luostarinen in the late 1980s (Vahvaselkä 2009). The definition is quite extensive and it is describing the transferring across the countries out of the domestic market without forgetting the goal country and forms of operation.

Toivo Äijö has a narrower viewpoint on internationalization, "Internationalization is a firm's holistic learning and transformation process resulting the company to expand its operations abroad." (Äijö 2008). Äijö points out that internationalization isn't something separate from the company's normal development and growth. It is a holistic process, not a series of separated strategical actions and operations (Äijö 2008). Internationalization is a part of enterprises growth strategy, where company decisions and operation will be adapted in the requirements of the business environment (Vahvaselkä 2009).



Beamish describes the internationalization as a process, where company's knowledge about the future direct and indirect effects of internationalization increases and they start and operate business, whose parties are in other countries. Johanson and Mattsson have described internationalization as a process, where development of business relationships is made via expanding to new networks, going deeper to those networks and by integrating those networks to one and other. (Johansson et al. 2010)

One of the latest descriptions of internationalization is made by Ahokangas in 1998: "Internationalization is a process, where companies move, gather and develop resources further for international activities." (Johansson et al. 2010) The thought of a internationalization as a process is common to all these definitions. The process way of thinking is although little recessive nowadays and it's been replaced with ideas of resource or network based internationalization. These approaches are also originally based on the process way but they have been expanding and are now more complicated ensembles than just step by step process. (Ahokangas et al. 2002)

*Globalization* as a concept is much younger than internationalization, although it has been appearing also for thousands of years in form of buying and selling at great distances (Daszkiewicz et al. 2012). One of the most famous examples from the past is trading through Silk Road that connected China and Europe. Shortly globalization can be described to be trading across the continents. The more general description of globalization can be formed as followed: "Globalization is a process of interaction and integration among people, companies and governments of different nations, a process driven by international trade and investment and aided by information technology". (Levin Institute 2015) In the past few decades the global business environment has been globalized even further and the markets are open almost all parts of the world. A truly globalized economy, where domestic national economic strategies are increasingly irrelevant and markets are dominated by uncontrollable market forces, has been born. (Hirst et al. 2009)

Globalization can also be considered as a business strategy that is depending on international economic environment and global economy. With this idea, business globalization is a higher degree of the business internationalization process. (Daszkiewicz et al. 2012) Following from this later in thesis only internationalization processes are managed because they are valid also for globalization.

*Market entry* is a corresponding term for internationalization. The main content is the same and they are often used as synonyms. "The essential act of entrepreneurship is new entry. Market entry can be accomplished by entering new or establishes markets with new or existing goods or services. Market entry is the act of launching a new venture, either by a start-up firm, through an existing firm or via internal corporate venturing" (Vahvaselkä 2009)

In market entry concept the entry modes are divided in exporting, licensing, franchising and special modes such as contract manufacturing, management contracts or turnkey projects. In this thesis we will not focus on exporting, licensing or franchising, but how to transfer the business model into the new market and how to manage this transfer. Later we will refer market entry as part of internationalization. (Agarwal et al 1992; Rizwan et al. 2006)

## 2.2 Barriers and Promoters of Internationalization

When planning an internationalization plusses and minuses of different aspects and approaches have to be taken into account. These can be called barriers and promoters of internationalization. Promoters are all the positive factors that boost the internationalization process, like a permissive atmosphere towards newcomers or governments support. The basic idea is that the promoters should be stronger than barriers. Understanding the market entry barriers is probably the single most important aspect of success, when pursuing the new business venture. (Driveyoursuccess 2012) Every issue should be approach as an unpredictable entity and kept an open mind towards solutions. Don't assume that the target audience and the environment will behave as you are used to. (Cleverism 2014)



**Figure 4:** Barriers to market entry (Driveyoursuccess 2012)

Michael E. Porter has identified six major sources of market entry barriers. The barriers can be seen from the figure 21 and they are opened more below (Referenceforbusiness).

1. *The Market's Culture*

Every market is defined by its operators, customers, authorities and creditors. What might be normal in the original market can be totally different in other market.

2. *Credit and Financing*

In most cases new entrants are required to invest large financial resources in order to compete in a market. Also for example different payment terms can act as a entry barrier. Financing day to day operation is the key-factor along with profitability.

3. *Market Makeup*

Some operators on the market can use their position and economies of scale to prevent new competitors from entering the market. It is important to know which parties make the market and have the biggest influence in it.

4. *Operations and Supply Chain*

The access to channels of distribution can be a challenge to newcomer. The existing competitors often control the logical channels of distribution through long relationships. The new entrant have to provide incentives in the form of price discounts, promotions and advertising. These kinds of actions reduce the profitability and so act as a barrier.

5. *Government Regulations*

The Government policy can either promote or hinder the foreign company internationalization. This can happen through licensing requirements, limits on access to raw material, pollution standards or similar regulations. The new comer have to focus on defining the laws and regulations within a new market. It is essential to understand the market environment that regulations are creating.

6. *Competing Brands*

The strength of your competitors have to be evaluated. The market leader or leaders should be pointed out and sort out how deep are the relationships and brand loyalty within the market. With this analysis it is possible to figure out what is the best spot for the company in market organization and who are your most likely competitors.

Shortly barriers can be sorted to categories like cost, capital, know-how, location and state power. These are the important factors that can either promote or prevent the internationalization. (Inc) Understanding the goal market barriers to entry ultimately requires a willingness to investigate every single one of these above mentioned aspects (Driveyoursuccess 2012).

## 2.3 Internationalization Models and Theories

The internationalization process of a company can be described with different kinds of models and theories. The common thought behind most of them is that internationalization and market entry is a process. (Ahokangas et al. 2002) In the following section most of them are introduced. The main focus will be at the models that are based on the networking point of view.

The models are usually divided in different categories (Vahvaselkä 2009). One of the division is the following:

- Internationalization theories based on the traditional models
- Internationalization models based on the behavioral sciences
- Networking perspective models
- Recurs perspective models
- Growing models

The model categories will not exclude one other out, but instead they will complement each other (Vahvaselkä 2009). In traditional theories the internationalization is a step by step model with various different mutations. In the past decades the traditional models have got competitive theories based on resources and networks.

The main reason behind the development of the models has been the same from the start: to describe how to do a successful market entry. The business environment, internal and external needs of a company have been changing with the models, but the main goal remains. (Ahokangas et al. 2002)

In the recent year's critic against the functioning of models have been stated. The world's business environment has been rapidly changing after 1990s. Trade barriers have been removed in most parts of the world, service industries are dominating the business markets and the business has been globalized. Following from these changes some researchers have raised up a question if old models are still applicable to the modern world. The models are not perfect and have many flaws like deficiencies in explaining firms behavior. The new network approach and resource based view apply more to the modern internationalization process. Another shortage is that most of the models manage only internationalization in developed countries and don't take into consideration third world countries or even Eastern Europe. A comprehensive internationalization model has been attempted to create to overcome the flows of previous theories, but so far without a luck. A comprehensive models target is to explain all the factors that influence internationalization and predict the result. (Ferencikova 2014; Andersen et al. 2014)

## 2.4 Introducing Internationalization Models

Based on the previously stated division of models, all the better known models are listed in the table 1 below following with the short descriptions.

*Table 1: Internationalization models and theories (Johansson et al. 2010; Ahokangas et al. 2002; Vahvaselkä 2009; Ruzzier et al. 2006)*

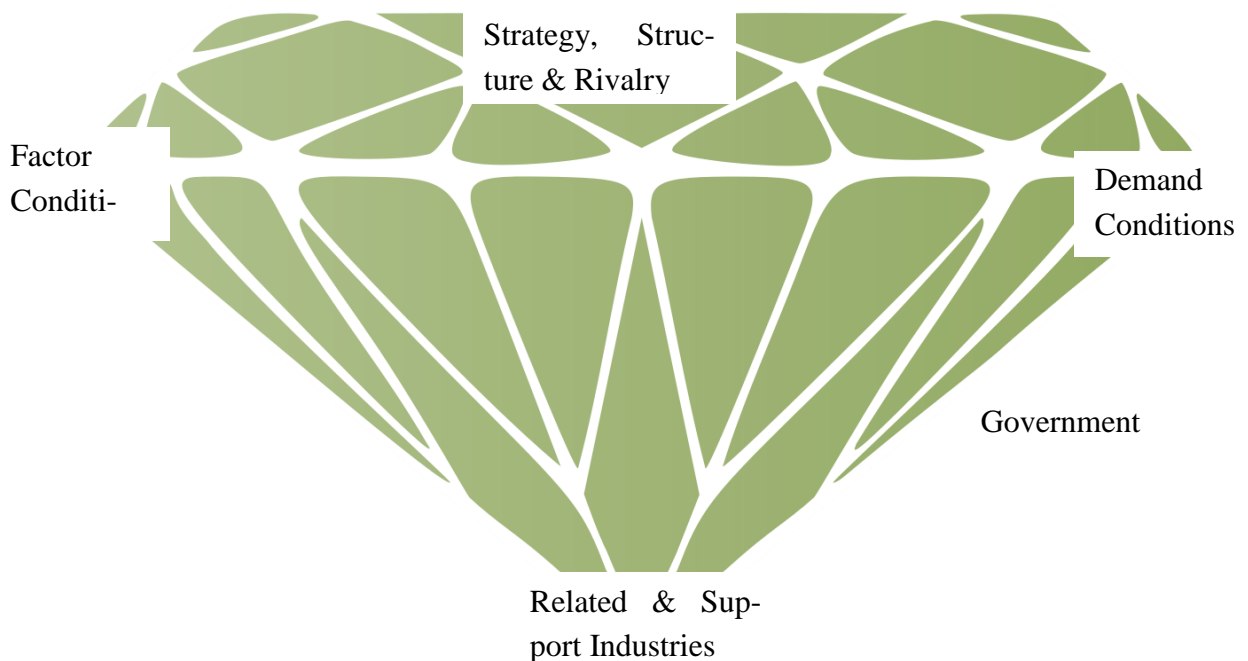
<b>Model/Theory</b>	<b>Author(s), Description</b>
<i>Economical/Traditional models</i>	
The absolute advantage theory (1776)	Adam Smith. Highlights production and selling abroad for achieving wealth
The comparative advantage theory (1817)	Ricardo. Trading should be done in the area where it has the best cost advantage
The comparative advantage theory of the factors of production (1924)	Heckscher-Ohlin. Country should produce a labor-intensive products if the labor is relatively cheap
The theory of direct investments, FDI (1969)	Hymer, Kindleberg. Internationalization through direct industry investments abroad.
Transaction cost theory TCA (1975)	Williamson. Model for deciding of operation format
International commitment (1981)	Johston and Czinkota. Focus in following interest and experience
Innovation adoption model (1993)	Bamberg and Evers. Focus in following interest and experience
Operation mode selection model (1990)	Hill, Hwang and Kim.
Abroad investment model (1993)	Larimo. A list of decision making criteria.
Eclectic OLI- theory (1988,1993)	Dunning. Production placement based on the ownership specific advantages, location and internalization.
Diamond model (1990)	Porter. Why particular industries become competitive in particular locations?
<i>Behavioral based models</i>	
Stage models, process theories (1977,1980,1981)	Bilkey and Tesar, Cavusgil, Reid. Stage models explain the export through 6 stages.
Innovation based models	Are based on the Rogers (1962) innovation adoption process.
Uppsala- model (1975, 1977, 1990, 1970, 1979, 1994)	Johanson and Wiederheim-Paul, Johanson and Valne, Luostarinen. Phased internationalization model

Phased learning model, POM (1979, 1994)	Luostarinen. Describes international development based on product, operation and market.
Holistinen kansainvälistymismalli (1993)	Luostarinen and Hellman
Process model	Development step by step, gradually
<i>Resource models</i>	
International development (1994)	Tallman and Fladmoe-Lindquist
Development of international know-how (1998)	Ahokangas. Describing competence strategy
Parent vs Daughter company development (1995)	Malnight
<i>Growing models</i>	
The gradual vs rapid change (1972)	Greiner.
Strategical goals (1983)	Churchill and Lewis
Product life cycle (1966)	Vernon. Describing a development based on the product life cycle
<i>Networking models</i>	
Network approach (1988)	Johanson and Mattsson. Business networking
Process plus network model	Coviello and Munro. Combination of network approach and process models.
Internationalization as developing networks of business (1999)	Lehtinen ja Penttinen. Focus in networks and relationships
ARA- Model (1992)	Håkansson and Johanson. Actors, activities and Resources

Table 1 above presents the longer processed models attached to internationalization. For the thesis subject the networking models are seen as the most important and most suitable one, why the concentration is on them. The network models are mostly based on the Uppsala model, which has been further developed taken into account the networking approach. In the networking models the internationalization is explained to proceed through business relationships (Johansson et al 2010). The first step of internationalization is to widen the networks, the second intensifying the networks and third to integrate the operation with other networks. The best known network approach model is developed by Johansson and Mattsson in the late 1980s. That and other networking based models are introduced deeper in the section 2.3.2. (Ahokangas et al. 2002)

### 2.4.1 Economical/Traditional Models

*The diamond theory* from Michael Porter is one of the most traditional and best-known theories explaining international trade (Ahokangas et al. 2002). The purpose of the model is to describe the emergence of the nation's competitive advantage, how it is evolving and what factors affect it (Johansson et al. 2010). Porter considers four main sets of factors which determine firms' ability to achieve and maintain competitive advantage. These four factors are called "national diamond" and are factor conditions, demand conditions, related & supporting industries and strategy, structure & rivalry.



**Figure 5:** National diamond by Michael Porter (Ferencikova 2014)

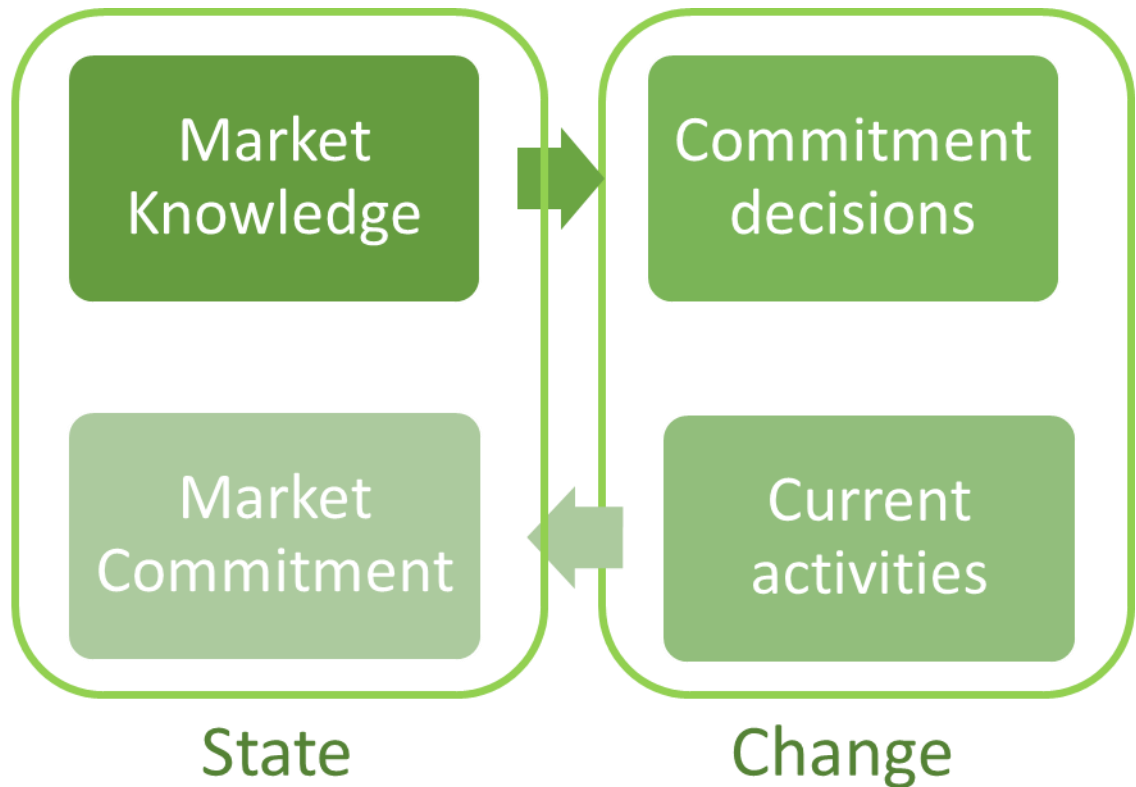
All the factors from the national diamond affect one to another and determine whether a business sector will develop into the success story domestic and in the process internationally. (Ahokangas et al. 2002)

Another important traditional model is *Dunning's model* from the late 1980s. Dunning emphasize the role of production in international company operations. (Ahokangas et al. 2002) Base of the Dunning model is that companies made decisions based on the ownership, localization and internationalization. These three significant factors influence both the initial act of cross-border production and the growth of such production. Ownership, location and international advantage has to be present simultaneously for it to be profitable for a firm to enter foreign market via foreign direct investment. (Ferencikova 2014)

### 2.4.2 Behavioral Based Models

*The Uppsala internationalization process model* is based on the empirical observations and it is so called learning model (Vahvaselkä 2009). Model is developed by Johanson

and Valne and is based on behavioral and know-ledge based theory (Ferencikova 2014). The basic logic is that market knowledge and assigned resources are the key factors in development of a firm. The Uppsala model is a dynamic model where the result of a previous stage work as a foundation to the next phase actions (Ahokangas et al. 2002). The cycle is shown in the figure 5 below.



**Figure 6:** Basic mechanism of internationalization according to Uppsala model (Ferencikova 2014)

The central idea of the Uppsala model is that firm collects experience from the domestic market and later increase their international commitment. As soon as firm has collected enough information about the market, they are more willing to enter the market. The four main stages according to Johansson and Valne are (Ferencikova 2014):

1. No regular export activities
2. Export via independent representatives
3. Sales subsidiary
4. Production/Manufacturing

“Marketing knowledge is the key, before any international activities should start; you have to know the market, how they work and who are the contact persons.” said one CEO from the engineering works company. (Ahokangas et al. 2002)

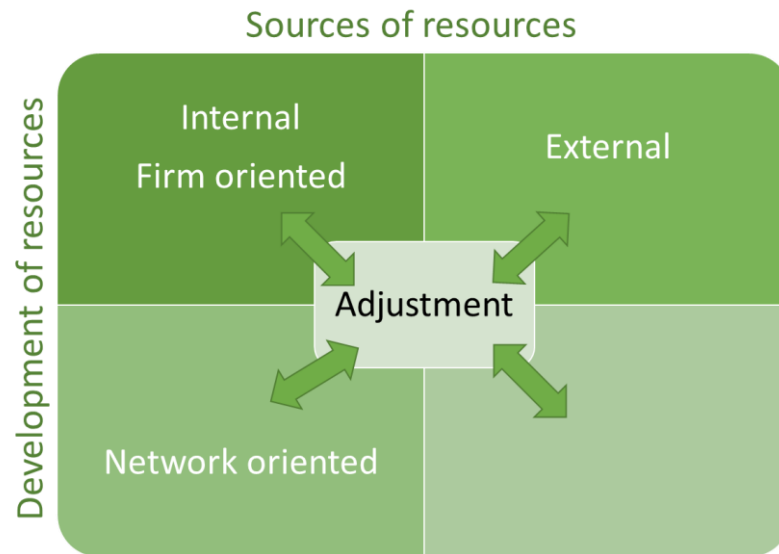


Even though model is one of the most famous and most used models it have also got some criticism mainly in three reasons. Criticism is based on the narrow origin of the original data from four large Swedish companies in 1970s. The internationalization is described as an irreversible process and as a tautological explanation of the learning process. (Ferencikova 2014)

### **2.4.3 Resource Models**

Resource and know-how based models are the latest wave of internationalization theories (Ahokangas et al. 2002). They are linked to the Penrose growth theory and strategical decision theory, which points out that firms' internal factors guide the strategical decision making and success more than environmental factors (Vahvaselkä 2009). The key is trying to explain why the company exists and how they develop and act by surveying company resources. Resource models are often developed from the traditional or networking models. Resource view is based on the idea, that there are elements in the company strategy, which are the core of the competitive advantage and the source of internationalization. These difficult to copy elements are called resources. (Ahokangas et al. 2002)

Three resource based models are better known; Model by Tallman and Fladmoe-Lindquist, Model by Ahokangas and Model by Malnight. All developed in the mid 1990s. (Ahokangas et al. 2002) *Tallmans and Fladmoe-Lindquist model* views internationalizing from two perspectives, which are the resources available and company interest in learning and developing resources (Johansson 2010). The model isn't planned to describe the development from phase to phase, but instead categorizing the companies with different strategies and operations (Ahokangas et al. 2002). *Ahokangas model* is build on not only on resource approach but also on networking approach. Its describing internationalization as a process of differing different kinds of company development strategies. According to Ahokangas model the companies are developing their know-how through internal and external sourcing as shown in figure 6. (Johansson 2010)



**Figure 7:** Modes of resource adjustment according to Ahokangas resource model (Ruzzier et al. 2006)

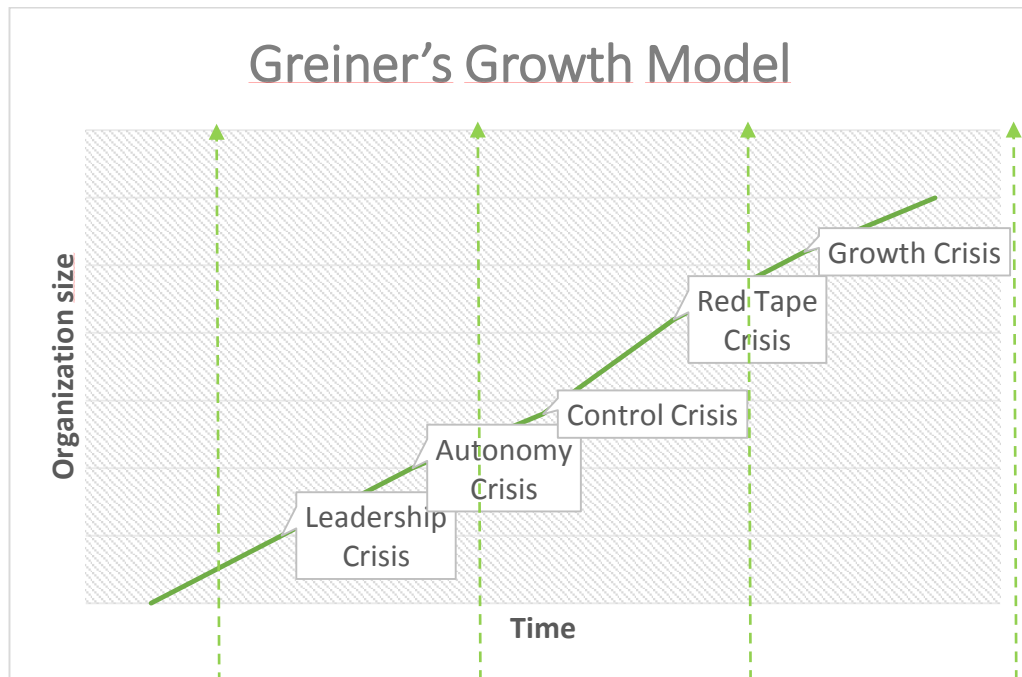
*Malnight* has been concentrated in the firms, that are first directed to domestic market and later internationalized. Their internal relationship transformation between mother and daughter company has also been in the focus. (Ahokangas et al. 2002)

#### 2.4.4 Growing Models

Growing models are based on the idea that internationalization is a way to grow and increase the turnover. Growth strategies are normally divided into internal growth and external growth. Internal growth means organic growth where company increases sales via current and new products. The company is externally growing when it is expanding the business to new markets. (Vahvaselkä 2009) Although internationalization has been contemplated as a time consuming process, only a number of researchers have done a long-term research by following a development of a company. A study is usually a historical project, where the development is examined afterwards. (Ahokangas et al. 2002)

General company growth models are for example Greiner and Churchill & Lewis models. At the *Greiner model* periods of slow and fast growth are alternating and company is developing through steady growth and crisis. (Ahokangas et al. 2002) The model describes the different phases in company's size development and apply to all organizations in all industries. The model can be used as a pre-tool to estimate coming problems of growing company and take correcting steps to avoid them. There are six phases of growth as shown in the Figure 7. These six phases are called Creativity, Direction, Delegation, Co-ordination, Collaboration and Alliances. The problems are likely to occur at the end of each phase. The root problems is that necessary changes in organizational structure, leadership and management styles has to be done as a company grows. The model is an

effective management tool when used regularly and consistently to prevent the crisis occurring in growing company. (Expert Program Management 2011)



**Figure 8:** Greiner's growth model (Expert Program Management 2011)

Churchill and Lewis are concentrated in reviewing different growth problems emerged from different growth stages. The focus is in leadership style, organization and the main targets of the strategy. Churchill and Lewis recognize also six stages of company growth, although they differ from the Greiner's Model. The stages are Existing, Survival, Success/Independence, Success/Growth, Action Station and Sufficient Resources. (Ahokangas et al. 2002)

## 2.5 Internationalization Based on Networking

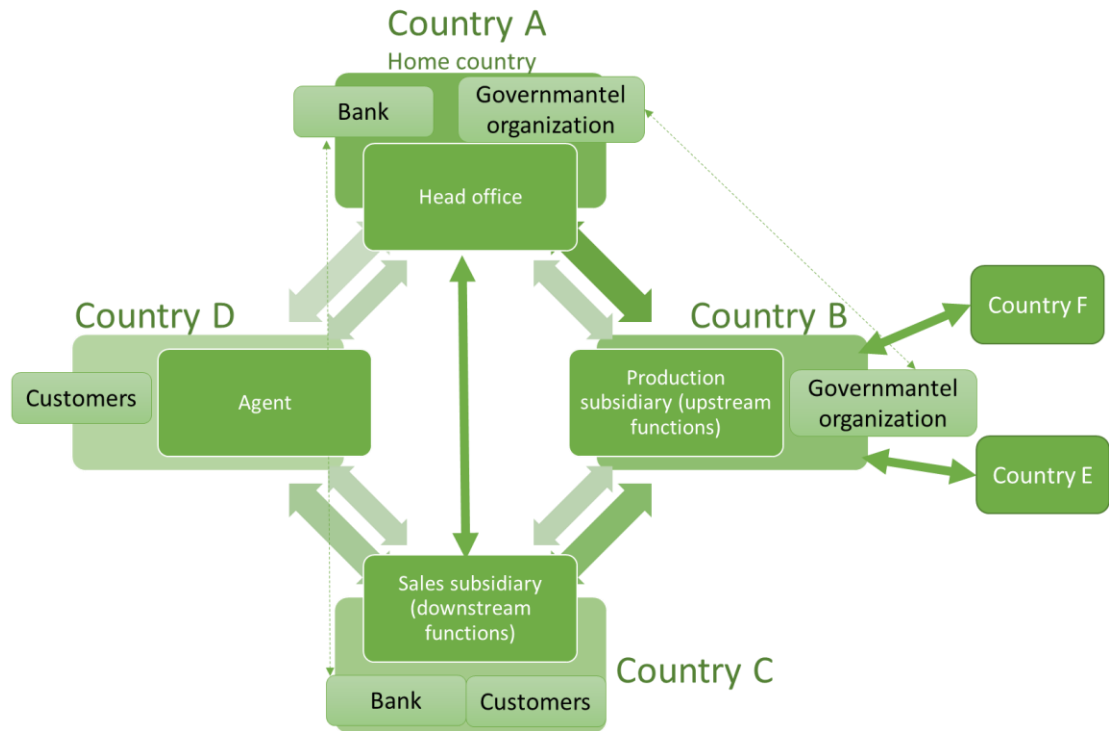
Internationalization models based on a networking are the newest ones and in general the most extensive ones. The networking approach is interesting in the current business world, where functional relationships are often the key to the success. The networks are increasing resources and know-how, which leads to economic benefits as well as extra support in marketing. These are the reasons why in this thesis networking models are at focus and they are wide opened.

In today's business world and in internationalization processes the key to the success is the business network a company is able to build and manage. The conventional thinking only from firms' point of view will no longer be able. (Christopher et al. 2002) The firm is not an island! The traditional models take into account mostly the factors internal to the firm and that's why a modern networking approach has been developed to respond to the demands of modelling the internationalization. (Lawrence et al. 2007) A growing number

of researchers support the argument that network has a significant impact on internationalization processes (3 Daszkiewicz et al. 2012). A company will need an effective network of different kinds of relationships in order to succeed in internationalization process. These webs of connected relationships are called business networks (Daszkiewicz et al. 2012). Nowadays nobody will succeed an internationalization alone and the key is the way in which the network of alliances and suppliers are welded together to achieve mutually beneficial goals. (Christopher et al. 2002) Networks are often a key to successful internationalization especially for small firms. Using the resources provided by the network a company may have a chance to grab a business opportunity it wouldn't normally have the resources alone. Because of the network the knowledge, market know-how and customer relationship skills are all growing. (Vahvaselkä 2009)

The network approach highlights that integral part of the internationalization process is the establishment, nurturing and expansion of relationships (Lawrence et al. 2007). The approach also suggests that sustainable advantage lies in managing the complex network of relationships that link providers in a cost-effective, value-adding network (Christopher et al. 2002). According to network approach the market can be defined as a network of relationships between companies and the internationalization as a process, where business relationships across the borders will be developed by expanding to new networks or integrating networks to each other (Vahvaselkä 2009). Another description of network perspective says that the knowledge and an open opportunities a firm has about foreign markets, extend beyond the boundaries of the firm itself. The knowledge and opportunities have contained in the network that the firm has been and will be able to develop, and anchored by key actors within them. (Lawrence et al. 2007)

According to Axelsson and Johansson, a network consist of 'two or more connected exchange relationships' (Axelsson et al. 1992). Relationships can develop between a wide range of organizations and individuals, including customers, investors, intermediates, financial institutions and government officials (Lawrence et al. 2007). Below in figure 8 is shown an example of an international network (Hiltunen et al. 2010).



**Figure 9:** Example how an international business network can be build (Hiltunen et al. 2010)

Relationships can be purely business based, but in some cases also the private relationships of employees may have an effect on business network (Vahvaselkä 2009). Formal and informational contacts between people provide the basics of relationships. Relationships vary a kind and quality, but those one which over time create a sense of trust and mutual dependence between actors are the ones that matter. Well-trusted relationships are especially important when trying to enter a new market that can be described as a complex or very distant. (Lawrence et al. 2007) From the firms point of view the relationships to other companies and contractors can be strategic, tactical or purely operational. In a strategic level the relationships are based on the long term decisions and co-operation. For example strategic suppliers are those whose resources, skills and capabilities enable the best value to the company or the supplier can provide materials, products or services that are in limited supply. On the contrary some products or services are standard and available in multiple sources with competitive price. In such cases the firm don't have to attempt to develop a strategic relationship, but instead have a tactical or operational relationship with the supplier (Christopher et al. 2002).

Network of relationships can be separated into several network forms, from which the M. Perry division is well-known. Perry differentiated the networking based on the relationships. (Perry 2007) These types are:

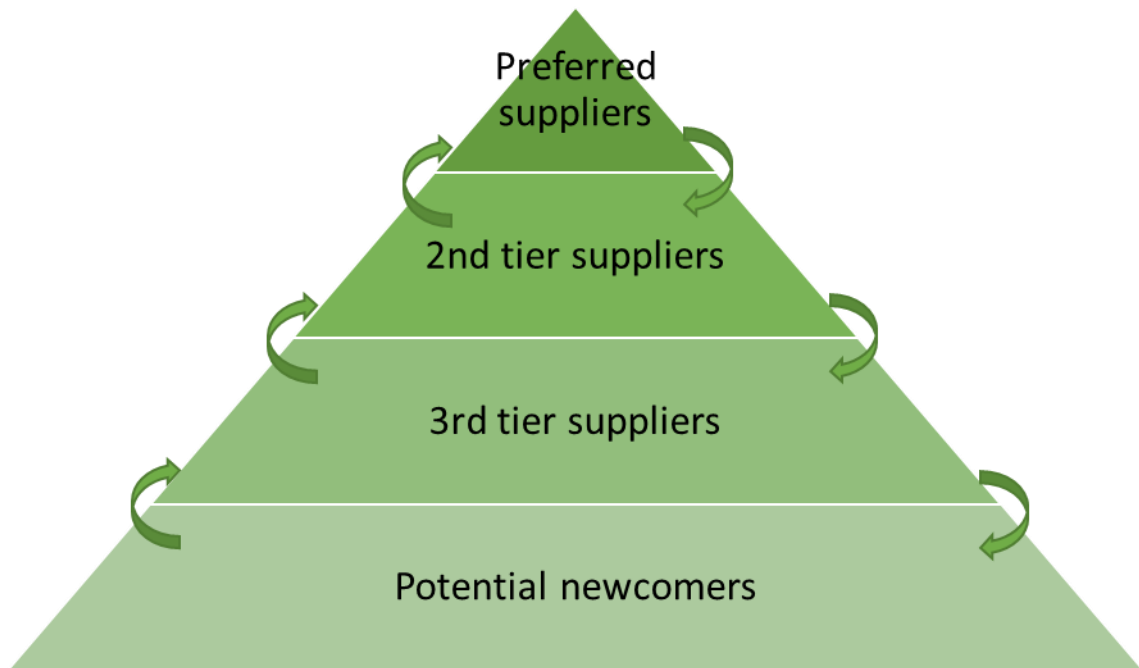
- Personal and ethic ties
- Geographical proximity

- Organizational integration
- Buyer-supplier links

The construction of social network is influenced by personal and ethnic ties. This type of network is usually strongly based on the trust and commitment among family, friends and close associates such as managers and employees. Geographical relationships are based on the idea of sharing a strong affinity to the particular locality. Good example is Silicon Valley, where the innovative strength is result of people's opportunities to move between organizations inside the Valley. The advantage of organizational integration network is the willingness of participants to accept some degree of collective discipline or resource sharing from an external entity. Buyer-supplier connections on the other hand are developed through contracting or ongoing relations of interaction between two or more firms. These kind of relationships can be very effective for all parties, if they develop the operations into the more economical and effective direction. A long cooperation is almost always beneficial for all parties. (Daszkiewicz et al. 2012; Perry 2007)

Networks can also be divided according to their effectiveness into the business networks, communication networks and social networks. Business network is consisting of companies and other organizations, which trade together including buying, contracting, licensing and franchising –operations. Communication network is a network formed by the individuals and organizations. This is very important in having the most accurate market information and a crucial part in decision making. The third and in some cultures the most important is the social network. They grow up in the long run from peoples contacts. (Vahvaselkä 2009)

Networks are difficult to observe and to analyze. One way of analyzing the links surrounding a firm is by distinguishing them to firm-centered and network-centered connections. In firm-centered analysis the idea is to focus on the networks using a division to necessary and voluntary networks. Bryson et al. proposed keeping the focus on compulsory networks, which are demand related, supply-related or support related networks. Demand related means mostly clients, supply-related includes relations in delivering process and supply related networks can be associated to the banks, business advisers and so on. The network-centered analysis is based on thinking in organization and management theory, which views networking as a competitive strategy. (Daszkiewicz et al. 2012)



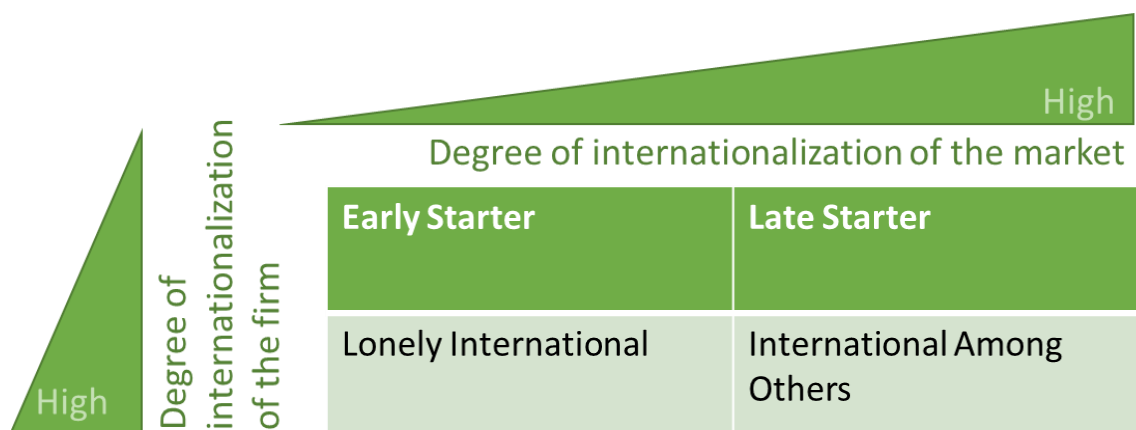
**Figure 10:** *Supplier hierarchy (Christopher et al. 2002)*

Networking can be described as a socioeconomic business activity by which groups of like-minded businesspeople recognize, create or act upon business opportunities (Hubert et al. 2001). Networking is building a business network with other actors on the market. For supplier the networking can be divided into the four step path, 'a career path'. First when a new supplier enters the market they will end up at the bottom of the hierarchy. From there the suppliers' goal is to achieve the 'preferred supplier' status and be the employers' first choice. See figure 8. (Christopher et al. 2002) Internationalization will occur in three steps; the network is expanding to new networks (I), activities will create deeper dimensions inside networks (II) and the operation integrates to the network (III) (Aho-kangas et al. 2002). Achieving the preferred suppliers position can be a long road and requires lot of co-operation, positive ended projects and mutually targets with active network (Christopher et al. 2002).

*Why build a business network?* The reasons leading to networking can be divided in external and internal circumstances. The external reasons can differ a lot and come from a need to respond to the global competition, from a financial markets or even from a business culture as in Japan. Internal circumstances can be further separated into production, marketing and financial reasons. Production factors are for example better synergy and efficiency, higher productivity and a smaller risk in production. Improvement of customer experience, less marketing resources, possibility to specialization and decreasing of problems caused by the internationalization are one of the benefits of marketing factors. Behind the cooperation can also be financial reasons, from which decreasing the need of investment financing or working capital is very important.

### 2.5.1 Network Models

The network models of internationalization are fairly new and most of them have been developed from the traditional process models like Uppsala. The best-known network based internationalization model has been developed 1988 by *Johansson and Mattsson*. They used a business network research as a basis of their model. (Daszkiewicz et al. 2012) Johansson and Mattsson identified two dimensions of internationalization; firms and markets internationalization level, which leads to four different internationalizing situations (Johansson et al. 2010). The four stages are the early starter, the late starter, the lonely international and international among others. Their interconnections can be seen from the figure 10. If a firm is an **early starter**, it has few international contacts and little information about the market. Early starter uses internationalization strategy, in which the internationalization will start from the nearby market using a local mediator in between. In this way the lack of information won't delay the process although developing a network can be problematic. In the **lonely international** situation the firm has experience and information about the market with international resources and contacts. A company will confront a local competition, but it has the possibility and resources to expand the network in the target market. The **late starter** confronts a long developed network, where the connections are deep and where it is hard to get in to the business networks. In an advanced market a company must specialize and adapt to the markets and customers' demands. The other firms might even try to hinder the firms market entry with their actions (Daszkiewicz et al. 2012). Both the business environment and the company are long internationalized in a situation where the company is **international among others** (Vahvaselkä 2009). The differences and lines between countries and market areas will disappear over time (Daszkiewicz et al. 2012).



**Figure 11** : Internationalization and the network model (Daszkiewicz et al. 2012)

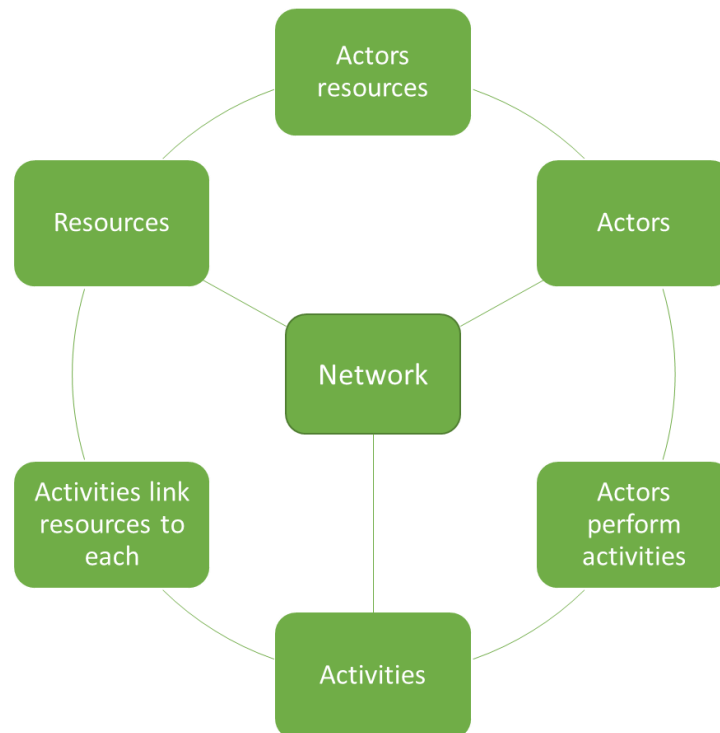
Johanson and Mattsson suggest that the success level of firm when entering new international markets is depending more on its position in a network and relationships within market, than market itself or cultural characteristics (Coviello et al. 1997). An internationalizing firm has typically a wide network and long-term cooperation relationships in



the home country. Building new long-term business relationships at the target market is one of the keys to the success of internationalization. (Vahvaselkä 2009) The role of learning is accentuated in the network model, because the current position of the firm is building up based on the previous decisions and actions (Johansson et al. 2010).

*Coviello and Munro* developed a model that combines the process model and network approach based on their empirical study. They found out that network relationships have an impact on foreign market selection as well as on the mode of entry. The rapid growth and market entry of a firm appears as a result of their involvement in international networks. Networks don't only drive the internationalization process but also influence the pattern of market investment. Chetty and Patterson presented that the social networks are the basis of business network as the social exchange perspective shows. With this viewpoint overcoming the problems of limited resources, experiences and credibility is possible. (Daszkiewicz et al. 2012)

*ARA-networking* model presents that the financial outcome of a network depends on business relations activities; Actors, Resources and Actions. In a business network the operation of all actors are tight together. The cooperation will affect all parties resources and tights them together. This will need a mutual trust between the actors. (Johansson et al. 2010)



**Figure 12:** ARA-model from Håkansson and Johansson (Hosseini et al. 2012)

ARA was presented by Håkansson and Johansson. The final purpose of the model is to justify the function of business relationships, like interlinking the activities in an special manner to help the actors to transform resources for creating the optimal value. (Hosseini et al. 2012)

### **3. INTERNATIONALIZATION IN WIND POWER BUSINESS**

Wind power business is fairly new business scope although wind power itself as an energy source has been utilized by humans more than 5000 years (Hossain 2014). First as a power source for sailboats and already 70 years before the Common Era man has developed a wind mill that was planned to rotate a wheel. In year 1888 the first wind mill producing electricity was erected in Cleveland by a scientist Charles Brush (Wilkins 2009). Even though capturing wind for power is an old invention it was only mid of 20<sup>th</sup> century when governments started to invest in wind power as an alternative energy source. The real boost started in the mid 1990 as the Kyoto environmental agreement was developed. Today over 190 parties have signed the contract as a promise to reduce the greenhouse gases (Wilkins 2009).

This chapter gives an overview of wind power sector in general accompanied with the internationalization models applicable to wind power. The idea is to bind together the theoretical knowledge about the models and market with the empirical evidence. The empirical material is mostly collected from the Vind 2015 event in November 2015 by observing and interviewing the market participants. Some of the biggest actor's representatives on the Swedish wind power market were interviewed and the results were collected and analyzed to get the overall view of the market situation and normal behavioral on the market.

#### **3.1 Project as a Business Model**

The developing and construction of a wind power plants is very project oriented. Especially service providers are operating mainly project based. That is why understanding the concept of project based business and project marketing is so important. To get the full picture of how wind power business works and how the market area can be expanded, you have to understand the basics of project management and project marketing. In the next section the focus will be in explaining the most important factors of project based business and marketing in the frame of wind power.

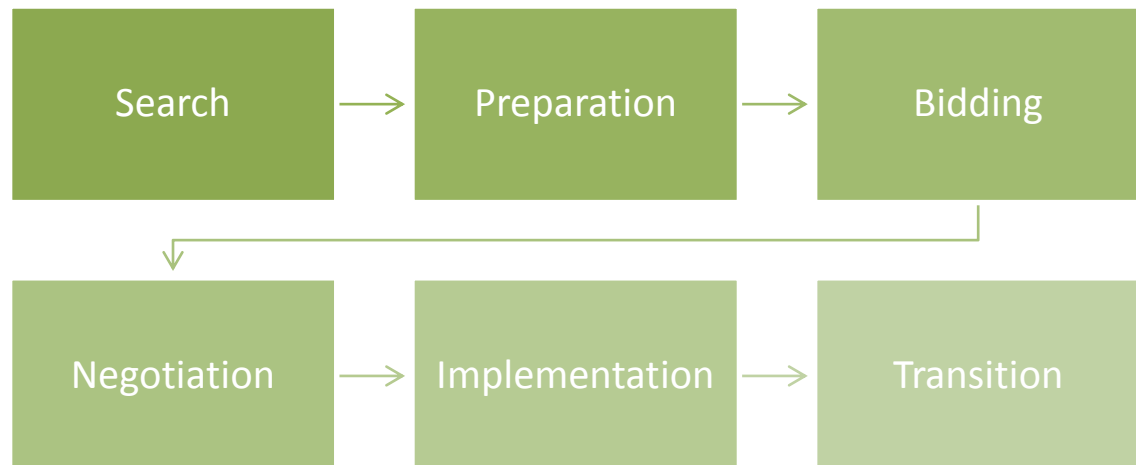
Project is a planned package of products, services and work to be executed over a fixed period of time and within certain cost (Businessdictionary; Cova et al. 2002). Different forms and shapes of projects represent a big proportion of international trade and business activities. These activities are varying from subcontracting to turnkey-projects or offset contracts. The specialty of project business comes from the unfamiliarity of business participants. Normally project buyers and sellers are not in the beginning familiar with each other, but still they have to agree on transactions, negotiate and share responsibilities

within the project. This brings a whole new dimension to business relationships and how to build them. (Cova et al. 2002)



**Figure 13:** Project network (Cova et al. 2002)

Companies engaged in project business can be divided in two. Project-Based-Firm is using external project-deliveries in its business and getting most of the cash flow from project selling. On the contrary Project-Oriented Firm is getting some of the cash flow from project selling, but that share isn't the most important income. Companies have transferred more and more to the project business and today project marketing plays a big role in business marketing. The project marketing cycle can be divided in six pieces as shown in figure 13. First part is to find possible buyers and contact them. Bidding and negotiation steps can be fairly quick, but are the most important part of project selling and marketing. (Tikkanen et al. 2008)



**Figure 14:** Project marketing cycle (Tikkanen et al. 2008)

The main characteristics of project business can be summarized in four; uniqueness, complexity, discontinuity and the extent of financial commitment. These characteristics make project marketing exceptional to traditional marketing. Most projects are one of a kind and are characterized by an extreme technical, financial, political and societal complexity. Discontinuity plays an important role in project business, which leads to the importance of business relationships. Even though projects are unique and one time deals, if you can build up a working business relationship you have a chance to construct a chain of projects. This will take a huge part of the business risk in project business away. (Cova et al. 2002; Tikkanen et al. 2008)

Above presented characteristics of project business can cause many challenges for project sales. These can be summarized flowingly (Cova et al. 2002):

- A high degree of uncertainty for the parties concerned
- A specific buying process by customers (invitation-to-tender)
- A long transaction duration with many phases clearly delimited
- A double fragmentation of buying centers

Project marketing is a total different business field and day-to-day marketing rules are not all applicable to that. Project deliverers' strategical goal has to be pointed to creating, maintaining and managing of business networks, which will then enable and support the demand of future projects. In a strategical sense the project marketing is in most parts relationship management in a network consisting of business and non-profit organizations. The strength of customer relationships can be crucial for a Project-Based company. (Tikkanen et al. 2008)

Project seller can have two different ways of approaching the project buyers. The first way is to learn to understand and anticipate the marketing situations and get the trade by following the known rules and manners of the market. This is called a deterministic way and its opposite way is a constructive way, where the seller is more actively shaping the market and its existing rules and actions. (Tikkanen et al. 2008)

As already said before the building and managing of business relationships is in project business even more crucial as it is in traditional B2B business. The building of working business relationship should be started by prospecting and scanning possible customers. After the preliminary scanning some scoring and ranking shall be made to be able to target the right customers. Final target is to set up a partnership with chosen customers and when this is done successful manage the customer ship with care. (Cova et al. 2002) When setting up a customer relationship a reputation of project provider can play an important role. If the reputation is bad, it can be that the project buyer won't even consider the company despite all the other facts. In project business the project provider's good reputation can be more significant than in many other B2B marketing situation. This will come from the characteristics of the projects, which can be very unique and big investments for the buyer. (Tikkanen et al. 2008)

When thinking project business in the frame of internationalization, the project export is a business area to consider. The project export can be defined as a one-off, targeted, financially oriented venture, which is limited by time, place, quality and costs and there is a special organization taken responsibility of it. Coming from that definition project export isn't some standard delivery but a special delivery. The project export can also be thought as a way to do market entry. The first project in the goal country is made as a part of the normal procedure in the original country. After the reference has been done the more permanent business organization can be established. There are several pros and cons related to exporting a project. There can be a huge profit possibility because the exported projects are usually big. On the other hand there are so many variables starting from the currency risk, to getting the validate market information and complex legislation differences. Despite the risks the export project could be good way to get the reference project in the goal country and for using that to do a successful market entry. (Karhu 2002)

Reference projects are playing an important role at the beginning of project business relationship. The image of an attractive and competent project supplier can be strengthened by showing examples of earlier successful projects, reference projects. The best reference project is the one most similar to the current one. If the reference project is done in the same kind of business situation, in the same market area or is somehow else similar, it is the most applicable. (Tikkanen et al. 2008; d)

## 3.2 Wind Power Sector

Wind power is nowadays one of the fastest-growing form of energy production. According to the World Wind Power Association (WWEA) in year 2014 a new record was made in wind power installations: Over 50 Gigawatt of capacity were added to the global electricity network (Gsänger 2015). This leads to the total wind power capacity of 370 GW at the end of 2014, which is 40 % more than a year before. The biggest investor is China, where almost half of the world's new capacity were installed (Gsänger 2015). Denmark has historically the biggest wind power share and they have achieved a new world record by producing 39 % of the domestic power supply with wind (Gsänger 2015). Because of thesis target to concentrate in Nordic wind power market, the focus is in European wind power market and global markets are not further reviewed.

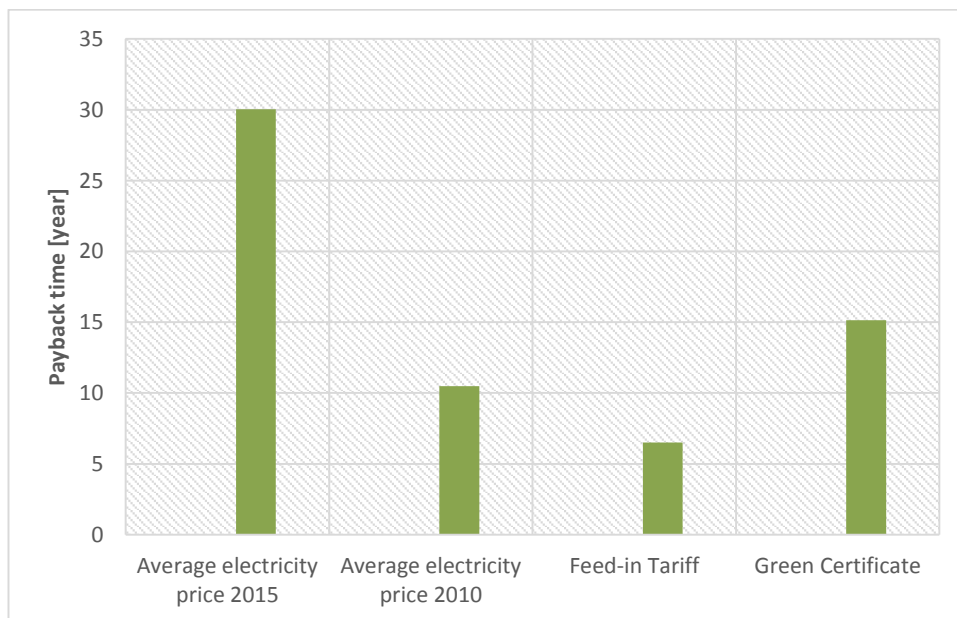
The European Union (EU) have set a renewable energy target for 2020. From the EU energy consumption twenty percentage should be produced using renewable energy sources. The goal sounds ambitious, but when comparing the results already achieved in Nordic, it doesn't sound so impossible. For example Norway is already producing 100% of its electricity with renewables. Furthermore the target for 2030 in EU is to produce 27 percentage of the consumption from renewable sources. (Vattenfall 2015) Because of these energy goals European Union and its member states are investing heavily towards renewables and especially towards wind.

Because renewables have not been in price sense competitive to the traditional energy sources many countries have a financial support mechanism for them. The major support mechanisms are based on either investment support strategies, generation-based strategies or quantity-based strategies. In investment focused strategy financial support is given as investment subsidies, soft loans or tax credits. The generation-based strategies can be divided to fixed regulated feed-in tariff and fixed premium, which will be paid in addition to electricity price. In feed-in tariff system the total feed-in tariff is fixed as for premium systems the amount to be added to the electricity price is fixed. The feed-in tariff system is very predictable and that for very good for wind power producers to estimate their profits. The premium systems are more unpredictable, because they are partly based on volatile electricity prices which can differ a lot in short time. The crucial for premium systems is to find the right price for the premium. The last popular support scheme is quantity-based strategy, which is in operation for example in Sweden and Belgium. The desired level of renewable production is defined by the government and generators, distribution companies or retailers are obliged to supply or purchase a certain percentage of electricity from renewables. The price is determined in the market (in Nordic NordPool) according to the supply-demand balance. This leads to the situation where electricity prices and green certificate prices both can have a big volatility. (Krohn et al. 2009)

All previous presented support schemes are in operation in some parts of Europe. In Finland government did first establish an investment based support system, which later was

changed to feed-in tariff system. Feed-in tariff system is also in operation in Germany and Denmark for certain amount of time. Beside the feed-in mechanism also a fixed premium mechanism is in operation in Denmark. Sweden and Norway have a common green certificate support system, which is quantity-based. More about Swedish support system will be explained in the following chapters. (Krohn et al. 2009)

The support schemes and their dependence from the government politics brings a lot of uncertainty to the business. Wind power development and investments profitability is highly bound to the support received. (Marja-aho 2011) Next a short comparison between Finnish feed-in tariff, Swedish green certificate and no support is carried out. Their effect to profitability is evaluated using payback time of one wind turbine as an evaluation method. The example turbine is average size 3.3 MW turbine with the full load-hour of 2500 hours. This leads to the power generation of 8 250 MWh per year. The expected investment cost is 1.3M€/MW and operation and maintenance costs 30 000€/MW per year.



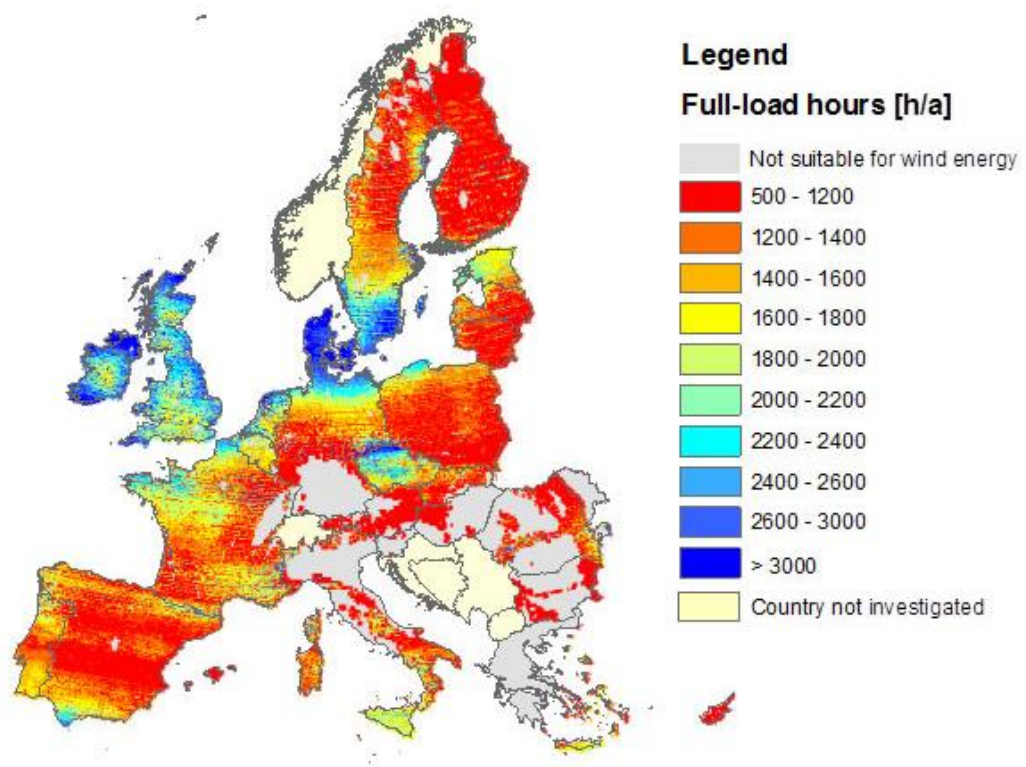
**Figure 15:** Payback time for example turbine in different scenarios

The calculations are made using the average NordPool electricity price for Sweden 2010 and 2015, average Swedish green certificate price for 2015 and feed-in tariff set by the Finnish government. The average system price was 196,24 SEK/MWh during 2015 and 505,91 SEK/MWh during 2010. (Nordpoolspot 2016) The transformations to the unit €/MWh are made using the exchange rate at 19.02.2016, which was 9,3838 SEK for one euro. (Suomenpankki 2016) The green certificate price is 160 SEK/MWh, the average from the prices 2015. (Svensk Kraftmökung 2016) The feed-in tariff currently in Finland has been set to the value of 83,5 €/MWh, which can be received 12 years. (Marja-aho 2011) The figure 15 shows the huge difference in payback times, when comparing different scenarios. With the current electricity price the payback time in Sweden for average

turbine is over 30 years. In comparison the payback time in Finland with current feed-in tariff system is only 6,5 years.

The calculations shows the huge impact the support has on the profitability of wind power business and its development. Also the impact of electricity price can be seen there. With the electricity prices about 500 SEK/MWh the profitability is noticeably better than with the current low electricity prices. Because the support schemes are government regulated, the changes are always possibly, which increases the risk of wind power investment significantly. If the company is calculated to receive feed-in tariff but instead have to manage with just the normal electricity price without any support the difference in payback time is over five time. Without the support, with current electricity price the payback time is more than the normal lifetime of wind power plant.

Wind conditions in Europe can vary a lot depending on the location. The variety in wind speeds over certain time in certain locations on the other hand is fairly constant. (Krohn)



**Figure 16:** Annual full-load hours for onshore wind energy in the EU (Greenx)

As seen from the figure 14 particularly the United Kingdom, Ireland and Denmark possesses favorable wind conditions together with northern Germany and south coast of Sweden. Full load hour can give a good estimation about the wind conditions in the area and possible achievable profits. (Greenx) Full load hours describes the amount of time the generator would have to run at full capacity to produce the electricity it is producing in a year. (GermanEnergyBlog 2014)



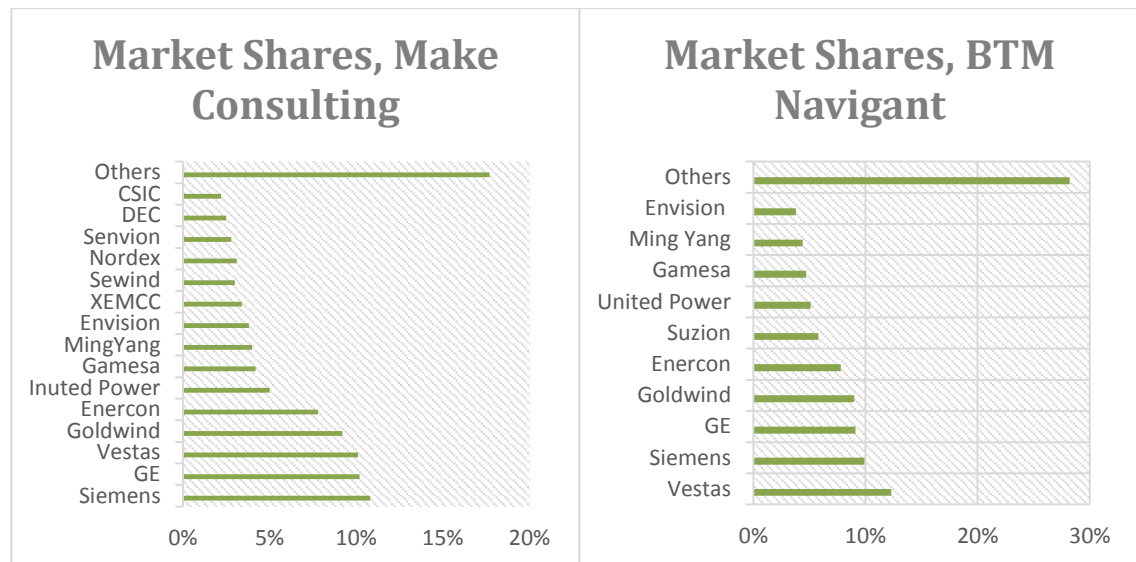
Europe has been the number one in wind power development and installations, but in recent years Asia and especially China have been installing more wind power than any other continent. End of 2014 Asia had 39,3 % share from the overall wind capacity in the world, while Europa's share was 35,5 %. The largest single wind power market in Europe is Germany with 40 GW installed capacity. The highest growth rates 2014 in installed capacity in Europe were found in Iceland (67 %) and Finland (40 %). (Gsänger, 11/2015)

There are several different kinds of companies operating in wind power sector. It is important to recognize the difference between these players, because they are involved in so different areas of wind power producing chain. The following division is created based on the empirical research and study on wind market actors. The general division in this thesis could be the following:

- Wind Power Developers
- Wind Power Owners
- Turbine Manufacturers
- Service Providers for Construction
- Electricity Market Participants
- Consultants
- Wind Power Operators
- Wind Power Maintenance & Service Providers
- Component and Spare Part Providers
- Energy Authorities
- Electricity Grid Companies

Wind power developers size and internationalization degree varies a lot. Some of them are big international companies that develop different sizes of projects in several countries, like Vattenfall AB. Among developers there are also some small local companies that are concentrated in developing one or few windfarms at the areas nearby. Wind power developer can also be the owner of the wind farm. Some developers sell their projects when permitting processes are in order, but some will continue to building and later to operational phase. In Nordic market one big developer is Nordisk Vindkraft, which also owns few wind farms, although they normally sell the ready wind farms to investors and offer then them operational services (Vind2015). The biggest wind power portfolios in Europe are owned by French EDF-EN (11 437 MW), German RWE (10 268 MW), Scottish & Southern (12 047 MW) and Swedish Vattenfall (11 225 MW). (Thewindpower 2015)

The most internationalized party in wind power sector are the Turbine Manufacturers. Worldwide there are also several small, local turbine manufacturers, but they have a fairly narrow share of the worlds' wind turbine market. The ten biggest companies are holding 70 % of the total market as can be seen from the figure 15. (Windpowermonthly, Vind2015)



**Figure 17:** Turbine installation world market shares in 2014 according to Make Consulting and BTM Navigant (*Windpowermonthly*)

Three biggest turbine manufacturers are Siemens, Vestas and GE, which together hold 30 percentage of the market share. Siemens has dominated the offshore market in recent years, while Danish Vestas has been growing in onshore markets. GE Wind has worldwide about 10% share, but in Europe Siemens and Vestas are dominating (*Windpowermonthly*, Vind2015)

Wind power developers and investors rarely are doing the actual construction of a wind farm by them self. Instead they are subcontracting it in several packages to subcontractors. Based on the interviews made in the Vind 2015 exhibition one common package separation is into three; turbine delivery, BoP and grid. Turbine delivery and installation is usually done by the turbine manufacturers. BoP includes all the needed infrastructure including roads, platforms and foundations of the turbines. There are companies that are providing just this service for Investors and can be generally to be described as service providers for wind power. These companies can be more local infrastructure construction specialized companies, but also big construction companies like YIT, Skanska and PEAB are performing that kind of works in Europe. Some service providers, like Empower, can also offer services related to building an internal electricity grid and substation of a wind farm beside the infrastructure works. (Vind2015)

Maintenance of the wind farms is usually divided in two; the maintenance of the wind turbine and maintenance of the electricity grid and infrastructure. Turbine manufacturers have after erection long insurance period, during which they normally do also the maintenance of the turbines. In later stage there are also small independent companies that perform the maintenance, like Connected Wind Services in Sweden. Infrastructure maintenance is often tendered to some local company near the wind farm, who is responsible of snow clearance etc. (Vind2015)

There are 2 238 wind farm operators in the world. Some of them are local power companies that have added few windfarms in their portfolios, but there are also huge wind power operators with their own 24/7 control centers (Thewindpower 2015). For example Vattenfall has one of the largest surveillance centers in northern Europe. The surveillance center is located in Denmark in Esbjerg, where every single one of Vattenfalls 1000 wind turbines is operated and monitored (Vattenfall 2015). From the control center the vital data can be transferred to trading companies or departments for electricity trading (Vattenfall 2015). Electricity trading is a complex system, where at the end the production and consumption have to be in balance. In the Nordic the NordPool is the market place for electricity, where also all the produced wind power is sold further to the electricity grid and consumers. Because of the complexity of the trading system, some companies have specialized only for trading. Axpo is one of the biggest trading companies and its specialities are portfolio management, hedging and balance responsibility (Axpo 2015).

Via wind turbine generators electricity is produced and that electricity has to be transferred from the site to the consumers. Inside the wind farm an internal grid will be built and at the substation it will be transferred to higher voltage and added to the national electricity grid. This is why also electricity companies are highly involved in wind power construction and electrifications. At some locations also the capacity limitations of the national electrical grid can prevent the wind farm from connecting to the grid. In these situations the extreme solution is that the developer will build a new grid connection to the site. (Vind2015)

Other parties are also involved in wind power electricity production like different kind of consultants and energy authorities. Energy authorities provide in most countries the environmental and construction permits for wind power. The consultants are often used most commonly at the planning phase of the project. They usually have a lot of knowledge on their own area, so using them especially when you are new on the market can be very useful. (Vind2015)

### **3.3 Analysis of the Internationalization Models Most Suitable for Wind Power**

As described in the previous section the companies among wind power vary a lot and depending on their sector they can be already international big enterprises, small local contractors or something in between. Before the operational phase the common nominators for all different business sectors inside wind power is the Project-Based way of work. Developers are developing a wind power project, which will be permitted by the authorities, constructed by service providers and turbine manufacturers. When the wind farm is ready it will be transferred away from the project thinking towards long maintenance agreements and day-to-day operation.

Developing and construction of the wind power is the phase where all the money will be tied to the investment and the return of the investment starts to accumulate after the turbines have been connected to the electricity grid. Because the biggest money flow occurs before the grid connection, the focus in later sections will be in construction phase of the wind farm. Parties most involved in the construction phase are the wind farm investors and developers, service providers, turbine manufacturers, electricity grid companies, authorities and consultants. Because authorities and electricity grid owners are basically always local they will not be reviewed in sense on internationalization.

The business environment within in wind power is very project oriented. That is why also in internationalization and market entry processes have to take into account the project viewpoint. In the following some internationalization models are further described and their suitability to wind power and project oriented way of work is analyzed.

The internationalization models in the chapter 2.4 have been preliminary sorted out and from every upper category one most suitable internationalization model for wind power have been chosen. These preliminary picked up models are then further analyzed and their suitability evaluated. The models chosen are Porters diamond model, Uppsala model, Ahokangas resource model, Churchill and Lewis growth model and Johanssons & Mattssons networking model.

From the traditional models, *Porters Diamond Model* is the best known and widely accepted. As already explained Porters model is based on the four main sets of factors, which determine the firm's ability to achieve and maintain competitive advantage. These factors build a "national diamond", which then determine whether a business sector will develop into the suggest story domestic and internationally. The original goal of Porter is to explain the nation's competitive advantage; what affects it and where is it coming from? It is clear that in different countries different kinds of business sectors are prospering differently and Porters model is trying to answer to the question why it is like that. Understanding the country-to-country differences is important when entering a new market from the old and familiar one. (Ahokangas et al. 2002)

He found four factors that together can explain how the nation's competitive advantage is deformed. The competitive advantage is a diamond consisting of factor conditions, demand conditions, related & supporting industries and strategy, structure & rivalry. The companies are flourishing in the business sectors and segments where the diamond is most favorable. Even though diamond is favorable there is always a change to fail, because of the lack of know-how or variable resources. (Vahvaselkä 2009)

Factor conditions point is to explain that company competitive advantage is based on the abundant natural, physical and mental resources. Demand conditions are formed from the domestic and international demand, customer segments and their sophistication. Here can

be stated that just the products that are internationally successful show a permanent competitive advantage. Company's strategy, structure and rivalry are forming the concept of operations. The success in international market is characteristic special to those business sectors, where a lot of companies are competing among themselves. The ancillary industries ability to operate in the international market is also very important. These related and support areas are the ones supplying raw materials, intermediates and production factors or they are the ones receiving the final product. The government's actions can indirectly affect the environment through the four factors. (Vahvaselkä 2009) When all these factors are summed up it can be possible to determine whether a business may be successful or not (Ahokangas et al. 2002).

When these factors are brought to the wind power business frame company chances of succeed in a certain market can be reviewed. The demand factors can be sorted out by doing a market analysis of a goal market and determining the demand exactly for your product or service. The rivalry is also attached to the market analysis and later can be part of determine which strategy and structure shall be used. The factor conditions on the other hand are company's internal resources and knowledge, which shall be reviewed to get the best possible view how your scope is fit to the market. For example a foundation construction know-how can be a key to your success if it is a factor with most demand on the market. If a wind power service company is for example offering the whole BoP service to a developer, they will most definitely need subcontractors. In this point it is important what kind of relationship the company have to the subcontractors. With a good relationship the cost can be lower and the whole package more profitable. This is the point where the fourth corner of diamond is important; related and support industries.

Shortly, according to Porter if company's internal resources and know-how are in balance with market demand and rivalry there is a good change that with a good strategy, structure and good relationships to the related industries company will be successful on the market. This model can be quite straight forward used as an internationalization model for wind power when estimating the chances of one firm in a certain market. The downside is that it is only applicable for estimating the conditions, but take no part in how the market entry should be done.

From the internationalization models the behavioral based *Uppsala model* is the most important and it is also the basis of most of the newer networking models. The learning model was developed by two Scandinavian researchers Johansson and Wiedersheim-Paul in the late 1970s and it was further developed to the dynamic direction by Johansson and Valne. (Morgan et al. 2005) The central idea of the Uppsala model is that firm collects experience from domestic market and later increase their international commitment. As soon as firm has collected enough information about the market they are more willing to enter the market (Vahvaselkä 2009).

Johansson and Wiedersheim-Paul identified four steps of internationalization based on the research on four Swedish companies. (Morgan et al. 2005) At the beginning company doesn't have any export activities. In the second phase there is export, but it is handled via independent representatives. After exporting the company is starting a daughter company or branch office in the goal country. The last stage is to have a production or manufacturing transferred to the new market. (Vahvaselkä 2009) Based on this companies are taking normally a slow approach towards a new market and usually choosing a markets, which physical distance from the domestic market is as small as possible. (Ahokangas et al 2002; Morgan et al. 2005) The 'physical distance' was determined to be factors that are disturbing the information flow between market and a company. For example language, culture and mode of operation are these kind of factors. (Ahokangas et al. 2002)

In the dynamic model that Johansson and Valne developed, the previous taken steps and learnings are a foundation for future operations. The market knowledge and market resources are describing the current situation and commitment decisions and current activities are the factors of change. From these factors a cycle model is born, where all the factors influence one to other. (Ahokangas et al. 2002) The internationalization is based on learning through the development of experiential knowledge about foreign markets. (Morgan et al. 2005)

As a comparison to the Porters diamond model, both models are highlighting the importance of market knowledge and company's internal resources. Porter is concentrated just describing the market and its conditions while the Uppsala model is highlighting the continuous learning. According to Uppsala you have to have the knowledge about the market to be successful like Porter said but beside that you have to continuously learn new and develop you own processes and resources that the internationalization process will be successful. Coming from this the Uppsala is more applicable to help with the internationalization process of wind power, although also it isn't perfect. There has been lot of criticism that Uppsala doesn't consider the importance of business relationships enough and also about the models originally narrow source material.

The resource based *internationalization model by Ahokangas* is not concentrated on describing company's development from local until international, but tries to separate different kinds of strategies that company is developing. The model is developed in the mid-1990s, when Ahokangas did examine small and mid-size Nordic companies. In the model company is developing its inner knowledge through inner and outer resources and it takes also into account networking approach. (Ahokangas et al. 2002)

On the basis of competence development ways Ahokangas did separate five strategic ways to internationalize (Ahokangas et al. 2002).

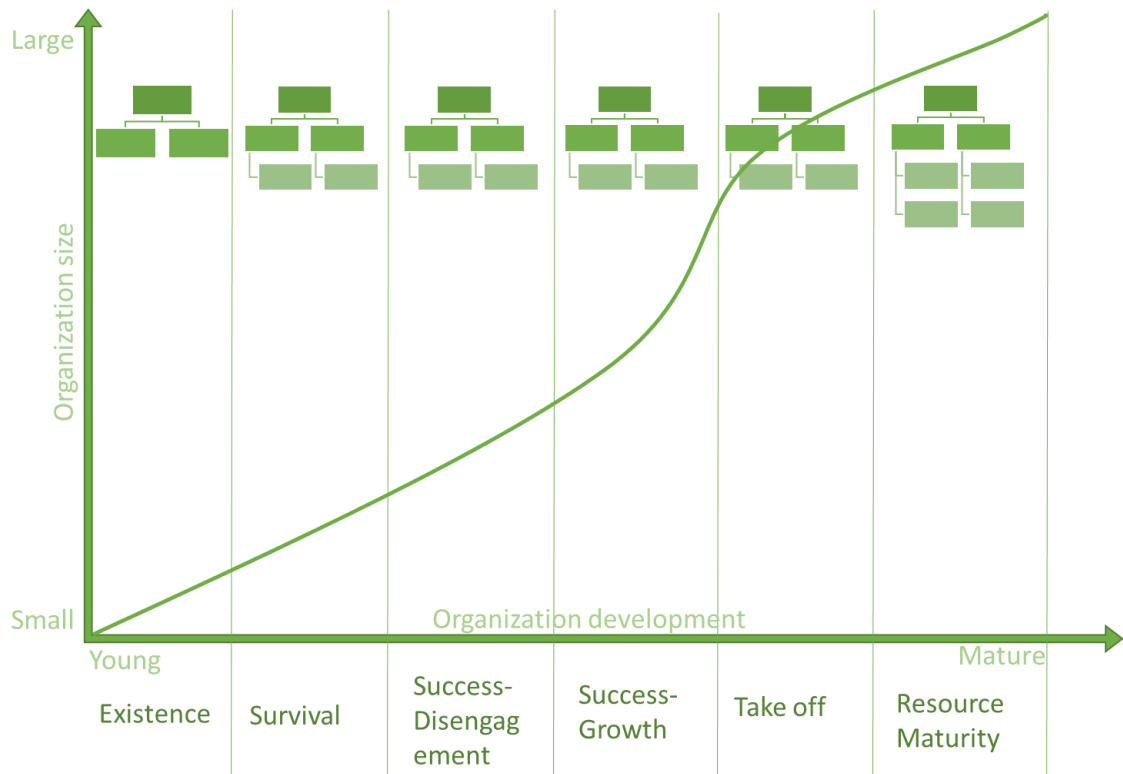
1. Customer oriented diversification (specially for new customers)
2. Product oriented networking

3. Operation and knowledge acquisition performance improvement
4. Product development and marketing performance improvement
5. Domestic networking and foreign customer selection

The difference between these five strategies is the factor what companies are emphasizing. The strategy number one is most related to the subject of this thesis and internationalization of wind power service business. The customer oriented diversification strategy means a strategy where company is searching new markets for a current product portfolio. This kind of strategy needs investing to marketing channels and –knowledge, but don't necessary need any changes to organization or supplier chain. The down side is that this strategy doesn't consider networking as an important factor. That is why for example a mix of strategies one and five could be a fluent way to the foreign market. (Ahokangas et al. 2002)

As an example an illustration how the strategies could be used for Finnish wind power company is presented. A Finnish company has a certain product portfolio and they are offering for example BoP services. The company is doing well in Finland and wants to expand to Sweden. Following Ahokangas strategies one and five they would stick to their current portfolio and try the market entry just by marketing and establishing relationships to the actors already on the market. Disadvantage is that depending on the foreign market, there isn't necessary demand for BoP services. This approach doesn't consider the foreign market conditions enough that it could be used without a hesitation as an internationalization strategy. But if beforehand a sufficient market analysis is made and demand for companys services secured this can be an efficient internationalization strategy, which doesn't demand so much extra investment other than marketing.

The before stated models give a very systematic idea of internationalization process. If a company is doing these steps with these resources and search for information the internationalization will be successful. In reality the internationalization process isn't so simple and this is what *Churchill's and Lewis's growth model* is explaining. The model is viewing especially the problems that come along in each growth phase. The focus is on management style, organization structure, extent of the formal planning and the main targets of strategy. The model is originally planned to describe the growth of a company, but because internationalization can be seen as a way to grow the model is applicable also for internationalization processes. (Ahokangas et al. 2002, Slide Share 2009)



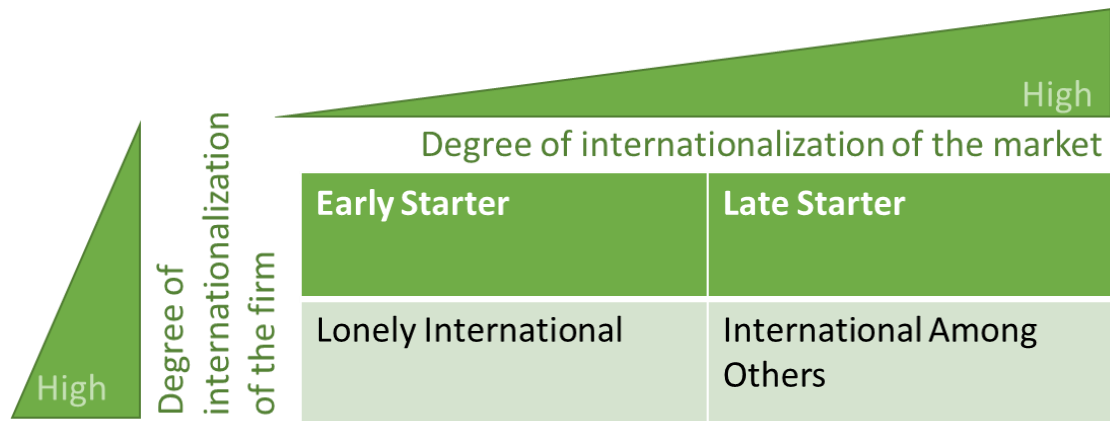
**Figure 18:** Churchill & Lewis growth model (Slide Share 2009)

Churchill and Lewis did recognize the company growth phases that can be seen from the figure above. In the first stage, existence, the main problems of the business are obtaining customers and delivering the product or services. In the first stage the organization is still small and undeveloped. The main strategy is just survive. When the company is reaching the stage number two, survival, it has proven that it is a workable business entity. The key problem here normally transfers from the existence to the relationship between revenues and expenses. In the third stage the company is stable and profitable but the owners usually face an important decision whether to use the company as a platform for growth or keep the company stable and maybe even disengage. Depending on this decision a company will stay shortly or long at the stage Success-Disengagement. In the stage Success-Growth the company is taking a risk and investing all the profits to the growth. At the fourth stage the main problems are how to grow rapidly and how to finance the growth. In this stage the internationalization usually comes to the picture. Entering new markets sounds like an easy way to grow the business, but there are lot of factors and problems to consider like before mentioned money and organizational issues. In the last stage the problems are connected to consolidating and controlling the financial gains brought on by rapid growth and to retain the flexibility of response. (Slide Share 2009)

The model and its content is helpful when trying to recognizing the problems occurring during the internationalization and growth. Alone it is still not suitable for internationalization planning and execution. It is too much problem based and doesn't consider all the variables. But as a side model it is usable also for wind power.



As already described before in this thesis networking models are the most modern ones and are in most parts built up on the foundation of process models like Uppsala model. This is also the case in *the networking model developed by Johansson and Mattson* in the late 1980s. In the networking model the internationalization is explained to happen through the business relationships.



**Figure 19:** Four possibilities of internationalization according to Johansson and Mattson (Hiltunen et al. 2010)

The network development is explained to happen in three phases; the network is expanding to new networks, the action within the current network are deepening and finally integration between different networks. This kind of approach means that networks should be seen as a business relationship bunches, where relationships are born, developed and end all the time to reach the ultimate target. If the relationships between enterprises are seen as a network, the internationalization can be seen to happen because other actors within the network are internationalizing. From this viewpoint four different internationalizing situations can be seen. See figure 17: (Ahokangas et al. 2002)

- Early starter
- Late starter
- Lonely international
- International among others

The internationalizing situation is determined by the internationalization degree of a firm and of a market. When both are determined, can the possibilities of a market entry situation be evaluated. Next we will open these different situation with examples from wind power sector. In an early starter situation the firm is at start domestic like a mid-size service company. The company is eager to grow in international market and chooses a not developed wind power market as a first foreign market, like for example Middle – East. The challenges are huge starting from the firms’ internal development and costs structure continuing to the supplier chain creation and resource grow. The late starter situation the market situation is the opposite. The market is well developed and business relationships are long formed. This could be the case for example in Denmark, the pioneer

of wind power. When a new, just internationalizing company is trying to enter the long developed market the challenge can be to find your business slot where you are better than the ones operating there decades. This kind of market can even resist the new comers, to avoid the competition. (Ahokangas et al. 2002;Vahvaselkä 2009)

In the situations of lonely international and international among others the target market is very international. The lonely international is the first international actor on the market and faces only local competition. In this case the challenges are not external but are coming from the internal processes and especially when the markets are differing a lot from each other. The synergy- and size advantages cannot be exploit then and every market needs its own deliver concepts, networks and mode of operations. This leads to the need of developing an own market entry and market operation concept for all markets. The operational concept that is working in an original market doesn't necessary fit the needs of a target market and it has to be somehow moderated. International among others describes the situation where a company is already operating in several countries and the target market has several international actors. Here the competition is tougher, but the company has a good foundation to enter the market and the market is most likely willing to take new international actors. Slowly the boundaries between different markets will disappear. (Ahokangas et al. 2002;Johansson et al. 2010)

The networking model describes what different kind of situation an internationalizing company can face and what factors should be taken into account in each case. It highlights the importance of a business network, which without no doubt is a crucial part of today's successful market entry. Because the model is based on the process models, but takes into account also several other factor, is it the widest of the all models. But of course it is not perfect either. (Ahokangas et al. 2002) Too close networking with someone domestic can cause problems also internationally and limit the opportunities. Also when building a new network a wrong value adding can weaken the internationalization process. Therefore managing the networks is as important as building them. The company has to always have also their own market entry strategy and not just follow the current network, or there is the risk of missing market opportunities. (Hiltunen et al. 2010)

As can be seen from the models represented above none of them alone is the key to explaining internationalization of wind power business. In all of them there are components that can be useful when trying the market entry and growth to international markets. This shows how complex the internationalization process actually is. It is not enough that the company has the knowledge about the target market, it is not enough that company have a great product portfolio, it is not enough that the company is financially strong or even the working business relationship network itself isn't enough. The company have to do well in all sectors plus have a good knowledge of those sectors. That way the chances of successful internationalization are at its highest.

Alone the networking models are the most comprehensive ones and when spiced up little with parts from the other models it is preferred internationalization model for wind power. When determining with the model the market situation and available networks, there is a good possibility get an overall idea of the market, to develop a successful market entry strategy and start the journey towards equal market player.

### **3.4 Stories of Internationalization within Wind Power**

In this section few examples of successful internationalization processes of companies operating in wind power sector are introduced. As a comparison there is one internationalization story from a service provider, one from a turbine manufacturer and one from a wind power developer. These example companies are shortly presented and their internationalization process is analyzed based on the available information and interviews. During the internationalization analyze the focus is to find which or if any of the theoretical models are used and what was the key factor in successful internationalization. When possible the Swedish market has been used as a target market.

#### **3.4.1 VEO Oy**

VEO Oy former known as a Vaasa Engineering Oy is a Finnish energy company established in 1989. VEO provides automation and electrification solutions for energy production, distribution and utilization globally. The company is able to provide turnkey project deliveries, as well as design and engineering services and project management. VEO is operating on a several energy sectors like hydropower, power distribution, wind power, thermal power and oil & gas power plants. Within wind power industry VEO is focusing on turnkey deliveries of applications between wind park and grid connection. (VEO 2012; VEO 2015)

The originally Finnish company has nowadays operation in Finland, Sweden, Norway and Russia. From the foreign markets Norway is the biggest one. Norway is currently renewing the electricity network and substations in the national grid, which creates a huge market for electricity service provider. (VEO 2014)

Because of the geographical locations of Sweden between the mother country Finland and growing market of Norway, Sweden is a focus area for VEO. For VEO it is also beneficial that the company origins is in Vaasa and in the middle of Finland's Swedish speaking community. This may have decreased the threshold to start the internationalization to Sweden. Cultural differences are small and language isn't a problem. Although company is investing in Sweden the market isn't the easiest one. "The Swedish market is without a doubt the toughest one in the Nordic countries. The competition is stiff and most power distribution projects are managed as a public procurement projects.", says the sales manager Andreas Martin from VEO. (VEO 2013)

During the internationalization VEO has got huge help from its partners. Many of the done foreign projects are done as a cooperation with Wärtsilä, Valmet or some other big global companies, according to sales manager Marcus Newman. This proves that the national business networks can help during the internationalization or the internationalization can even happen due the close relationships with international partners or customers.

VEO internationalization process highlights the importance of business networks and what kind of effect big international customers can have to a company. When to this a small cultural difference and common language is added the internationalization has really good changes of success.

### **3.4.2 Statkraft AS**

Statkraft Group is Europe's largest generator of renewable energy and fully owned by Norwegian state. The company is over 100 years old and today it is developing and generating hydropower, wind power, gas power and district heating. Statkrafts revenue in 2014 was 52,2 billion euros and it has some 4 200 employees in more than 20 countries. (Statkraft 2016)

The first real international action of Statkraft happened in 1996, when the company acquired a small stake in Sydkraft, Swedens second-largest power company. Same year also a common energy market between Sweden and Norway, Nord Pool, was established. The common market was the world's first international power exchange and change the power trading culture for good. At the beginning of the new millennium, climate change and environmental agreements were on the spotlight. During this time Statkraft focused on renewable energy and growth through mergers and acquisitions. In 2008 a huge energy production transaction between E.ON and Statkraft was made. The transaction meant the international breakthrough and a place as the Europe's largest producer of renewable energy. (Statkraft 2016)

Statkrafts first wind farm was opened 2002 on Smola Island and today the installed capacity is over 700 MWs. There are 109 wind turbines operational in Norway and more in Sweden, United Kingdom and Brazil. Statkraft has built lot of wind farms with cooperation with other companies. (Statkraft 2016)

Statkraft is state owned, which makes it growth and decision making processes somehow different from the private owned companies. That said, their internationalization path haven't been very traditional and their current strategy is to be worldwide biggest renewable energy producer. The internationalization did start as a foreign company acquirement from Sweden. The Statkraft internationalization seems to reflect most the resource model. The company internal resources are determining the direction and the speed of internationalization. Malnights resource model describes well, how the company was first di-

rected to domestic market, but later changed the orientation towards global markets. Beside the resource models Statkraft has taken advantage of business networks and managing them. The most wind power projects, where company is involved are build up as a cooperation with local developers. They know how to benefit from local partners.

### **3.4.3 Vestas Wind Systems A/S**

Vestas Wind Systems A/S is a Danish wind turbine manufacturer, seller, installer and service provider. The company roots go as far as 1898 and it entered the wind turbine industry in 1979. Vestas have started as a small local family company and growth into the multinational corporation with the revenue of over 6,9 billion euros at the end of 2014 (Vestas 2014). Until the 1970s the company manufactured household appliances, agricultural equipment and hydraulic cranes. At the beginning of 1970s Vestas starts to experiment with alternatives to traditional energy production. They start the development in secret, but few years later the first successful turbine with 10-metre rotor is sold. During the 1980s Vestas starts the mass production and the journey to worlds biggest wind power manufacturer what it is today. (Vestas 2015) Currently Vestas employs more than 17, 000 people globally. (Vestas 2014).

The internationalization of Vestas did start long before the manufacturing of wind turbines. As early as 1950s the owner Peder Hansen wants the company to internationalize. For that he buys the worldwide patent for a milk urn cooler. This appears to be smart move and Vestas exports its first goods to Finland, Germany and Belgium. The real internationalization starts at late 1960s, when Vestas adapts to sudden demand for hydraulic cranes. This decision leads to the situation, where 96 percent of Vestas production is exported to 65 countries. The company has become global. (Vestas 2015)

The internationalization of Vestas is reflecting the Uppsala model. First there are no regular foreign activities. After some decision and steps the export via independent representatives has started. In Vestas case to Finland, Germany and Belgium. The next two steps are sales subsidiaries and production or manufacturing abroad. In 2014 Vestas had manufacturing plants in 12 different countries in three different continents. (Vestas 2014)

For Vestas it has been important to be little ahead of the progress. Being an alternative energy developer 20 years before the environmental agreements and subsidiary systems has most likely been challenging at that time but paying of now with the longest development history. If Vestas would have started wind turbine business 20 years later, it would have been more crucial to have the working business networks in place, to be able to sell on new markets. But because of the timing Uppsala model has been the right and successful choice for Vestas.

## **4. CASE STUDY: INTERNATIONALIZATION AND MARKET ENTRY STRATEGY OF WIND POWER CONCEPT**

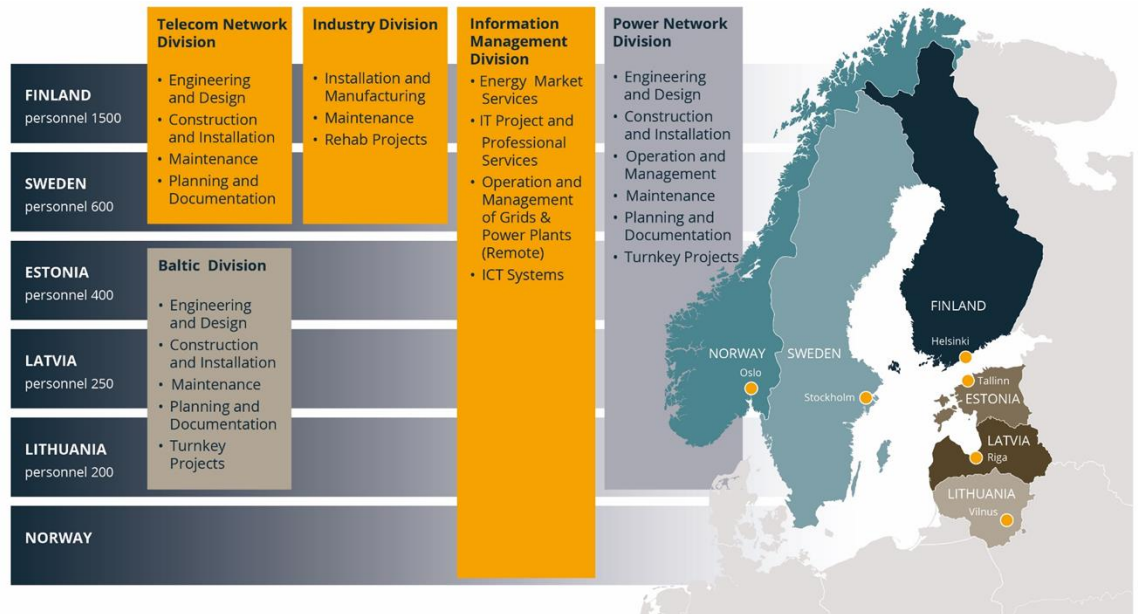
In the previous chapters a certain amount of internationalization models were introduced and further analyzed which of them could be applicable for companies involved in construction phase of wind power plants. In this chapter the previously collected information will be brought closer to the practical side and internationalization possibilities for Finnish wind power service provider Empower will be estimated.

The case itself contains a wind power market review from Swedish wind power market, case company Empowers presentation and finally which factors have to be taken into consideration during the internationalization. The information regarding Empower has been collected from several sources inside the Empower, by examining the company presentations and documentations, doing interviews inside the wind power sector and by analyzing the documentation from the previous internationalization attempt to Swedish market.

### **4.1 Case Company: Empower PN Oy**

Empower Group is a Finnish service company that has started with telecom and electricity networks, expanding to power plant maintenance, ICT solutions deliverer and wind power services. Empower is serving the customers in the Nordic and the Baltic Sea region, operating in more than one hundred locations in Finland, Sweden, Norway, Estonia, Latvia and Lithuania. (Empower Group) The turnover was 311 M€ in year 2014 and Empower had 2700 employees in five different countries. (Empower 2014)

Empower has been established in 1999, when Pohjolan Voima did separate their service providing business to a different company. The internationalization process of the group has started already in 2000, when Empower bought a majority of an Estonian grid construction company. Empower Group have been divided into five different divisions: Telecom Network Division (TND), Industry Division (IND), Information Management Division (IMD), Power Network Division (PND) and Baltic Division. See figure 18. (Empower Group 2015)

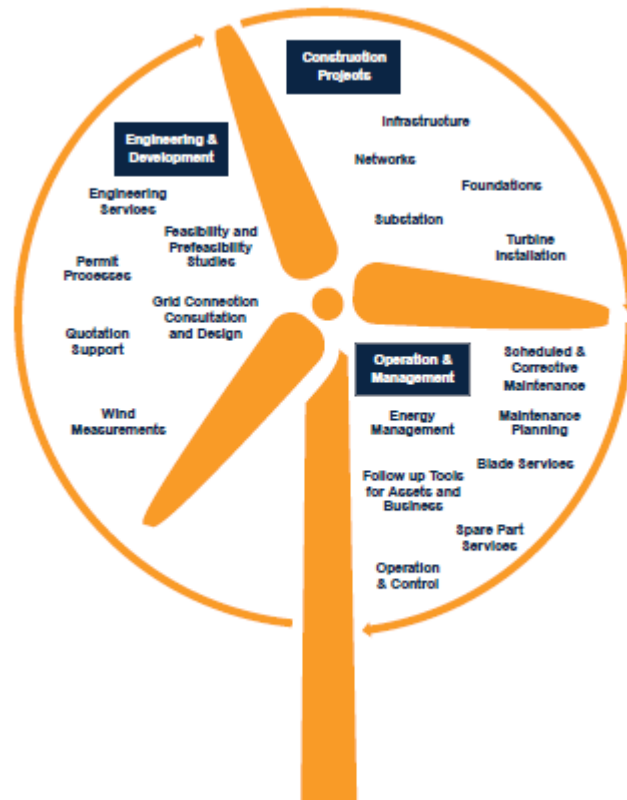


**Figure 20:** Empower Group operational locations and division separation (Empower 2015)

In 2014 the telecom, information management and power networks were divided in three different companies owned by the Empower Oy. (Empower Group)

Empower PN Oy is concentrated in planning, constructing and maintaining the electricity grids, substations and wind power plants. In wind power sector Empower is the leading provider of comprehensive wind energy services in Finland. The service scopes includes the entire life cycle of the wind farm from development and wind measurements to construction, maintenance and service. (Empower 2015) Empower wind power vice president, stated that 80 % of the wind power turnover comes from the construction, 10 % from the development and pre-planning and the last 10 % from the operation and maintenance.

Empower PN Oy is offering wind power services for the whole life cycle of the wind farm and it is in this sector the leading service provider in Finland. For the development stage Empower is providing engineering and consulting, feasibility studies and also cold climate specialized wind measurement deliveries. The wind measurements are done using the mast or SODAR- technology. For wind farm construction, project management and turnkey/Balance of Plant deliveries are available. The Balance of Plant delivery is usually including road and platform works, foundations, internal grid and telecom. When the wind farm is up and running the provided services are including maintenance services accompanied with operation and monitoring services.(Empower 2015)



*Figure 21: Empower wind power service offering (Empower 2015)*

Because of Empowers history as a grid and telecom service provider one of their strengths is the capability to offer also total internal grid and substation construction and services. Even construction of long power lines is possible. (Empower 2015)

#### **4.1.1 Internationalization History of the Case Company**

Empower is the leading service provider for wind power life-cycle services in Finland. The company is eager to grow and expand also its wind power operation to those markets nearby where Empower is already involved in different business areas like telecommunication. One of those markets is Sweden.

Earlier in other business sectors Empower has managed its internationalization mostly by buying local smaller companies and joined them to Empower. The same growth strategy can be seen also in Finnish operations. The growth and internationalization path of Empower starting from 1999 can be seen from the figure 20 below. The first international actions did occur already 2000, when Empower bought Estonian electricity service company “Eesti Elektri Võrkude Ehituse”. (Empower 2014)



	1998	2000	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Information Management	★					★				★			★
Industry			★		★		★	★★					
Electrical Network		★	★	★	★	★	★★		★				
Telecom Network			★		★	★	★	★	★				★

 =International acquisition  
 =National acquisition

**Figure 22: Growth path of Empower Group (Empower 2014)**

The wind power sector inside the Empower is somehow different from the other previous sectors. It is the only one that has been growth from the point zero until its current level. No other companies are bought or joined. This is also the reason why the internationalization process of Empower wind should look like different than just buying a foreign company. The aim of the wind power internationalization is to grow a functional wind power business unit to Sweden like Empower has done in Finland, without a corporate trade. This approach gives huge opportunities, when building an organization from the beginning, but also big challenges especially in information and knowledge gathering.

Empower have tried the internationalization of wind power services already in 2009-2010. Back then a company internal Sweden wind power –survey was made to get the idea of the market, which was then followed by a business plan. (Blomqvist 2009) At the time company had some internal issues, which lead to the freezing of all new business ventures, investments and internationalization actions. Because of that real actions towards the market were quite minimal and the entry wasn't successful. Now the situation has changed and Empower is again looking for new growth possibilities and internationalization is one of them.

The wind power market survey in 2009 was including a general overview of the market, market potential, list of interest groups, new business plan, a suggestion of services to be offered in Sweden and a follow up actions. The main message at the survey was that the market is assumed to be growing rapidly in the near future, that there are not yet developed service market and that Empowers wind power offering could have demand on the market. (Blomqvist 2009)

2009 the market situation in Sweden was quite different what it is today. The installed capacity was 2 TWh and the estimation for 2013 5,4 TWh. (Blomqvist 2009) In the reality the production 2013 was 10 TWh, double from the estimation. The market was expected to grow and government was favoring the renewables, but still the growth has been magnificent. A much slower growth was predicted, because of the unstable financial market, weak Swedish currency and complicated permitting bureaucracy. The survey did estimate the growth to be maximum 500 MW pro year, which is the growth needed to achieve the

EU goals stated to Sweden. The increase in capacity has been changing from year to year, but for example from 2011 to 2012 the capacity increase was almost 1000 MW. (Svensk Vindenergi 2012)

Back in 2009 Sweden had already the green certificate support system, but 2012 it changed to be common with Norway. The prices for certificate are low today, but apparently the change still had some positive effects to the investment climate. The market potential for BoP deliveries 2010 to 2020 was calculated to be 159 million euros pro year. This is somehow an overestimation, although there has been more megawatts installed compared to the estimations. Year 2015 the investments real BoP potential with the same calculations values was 68 million euros. Less than the half of the original estimation.

The main actors in year 2009 were shortly introduced in the survey and their importance was evaluated. The biggest change in the actors has been happened in the companies offering project services. In the survey there is only four actors, from which two are small or their actions are unclear. Connected Wind Service, former Triventus, and SEU were the main actors. Connected Wind Service is today concentrated in turbine services on operation phase and doesn't offer construction services apart from the ones straightly connected to turbine delivery. On the Swedish BoP market there are totally new players operating today, like Danish Stenger & Ibsen and Swedish Mobjer Entreprenad.

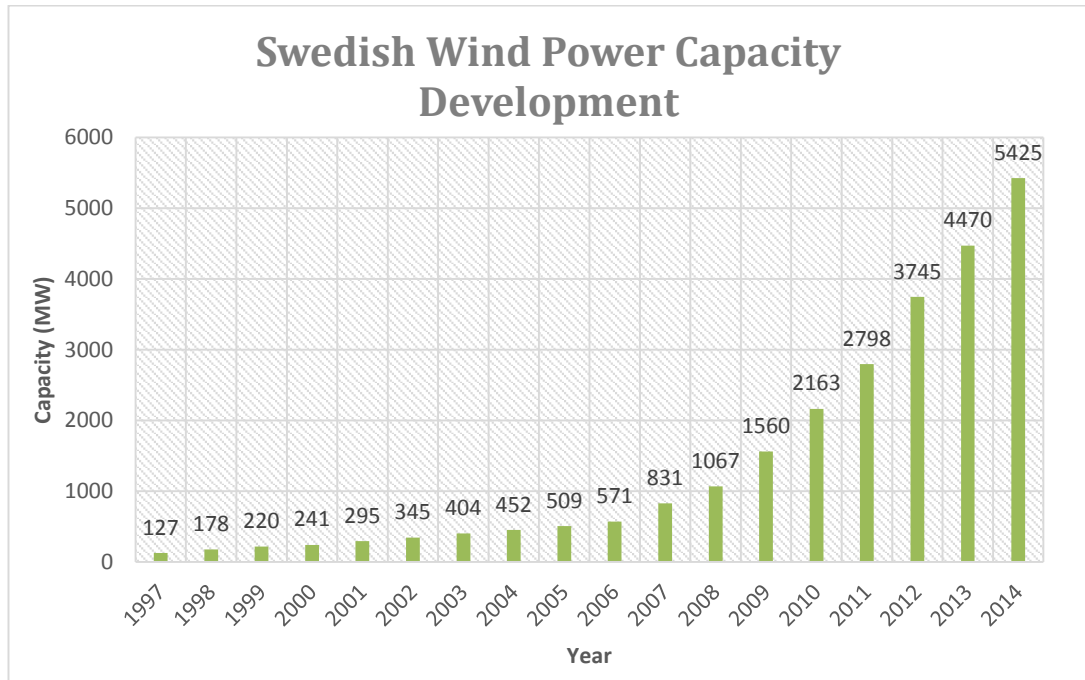
At the survey a co-operation with Scancon was suggested during the market entry, because of the older relationship with them in a different business field. From the current perspective this feels not so good idea, because Scancon is only a component supplier, which didn't have any wind power contacts that could have helped the market entry. A working and profitable co-operation with some local party, like with some civil engineering company could be a perfect way to do a market entry, but the partner have to be chosen with care. In general there was a idea of manufacturing and serving turbine components, which is not even in Finland profitable. The turbine manufacturers have better changes to provide and distribute the parts for their turbines. A third party distributor is not needed at the moment.

A full evaluation of Empowers service scope was made in the previous survey and a suggestion which operation to offer and in which scale. This scope was now further developed as a part of the market entry strategy for Empower.

## **4.2 Analysis of the Target Market**

In the northern countries Denmark has been the number one wind power producer, but Sweden is slowly and steadily growing its capacity and the competition has grown significantly. At the end of 2013 4 470 MW of wind power were installed in Sweden, which was only 300 MW less than Denmark (Gsänger 2014). The next year Sweden took the

leading position at this sector with 5 425 MW installed with the increase of 21.4 %. This was almost 500 MW more than Denmark (Thewindpower 2015).



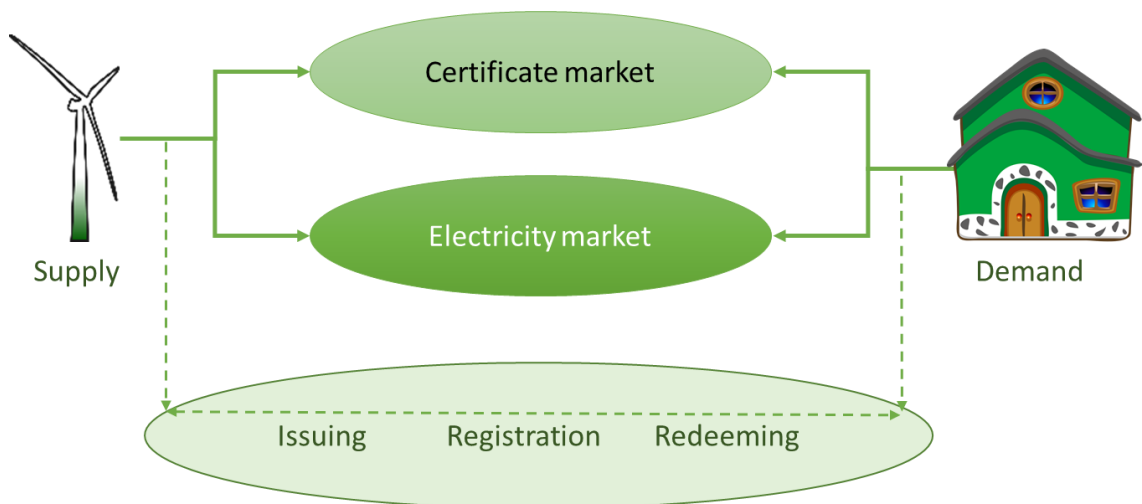
**Figure 23:** Wind power capacity development in Sweden (Thewindpower 2015)

Sweden has been investing a lot both in onshore and offshore wind power and today 846 wind farms are producing electricity to the Swedish electricity network (Thewindpower 2015). On the June first 2015 Sweden was producing more energy with the wind than with the nuclear power, as a second biggest energy source after hydro power (REneweconomy). This is a huge achievement for renewables as Sweden has one of the highest individual levels of energy consumption in the world (REneweconomy).

Sweden has set up own targets for renewable energy for 2020, which are even more ambitious than the ones presented from the European Union. Sweden is aiming to produce 50 percentage of its energy consumption and 63 percentage of electricity consumption from renewable energy sources like water, wind, sun and biomass before 2020. For Sweden to be possible to meet those targets new wind power installations are playing a major role (Vattenfall 2015)

### 4.2.1 Support System- Green Certificate

To promote the investments in renewables Swedish government has introduced an electricity certificate system back in 2003. The objective is to increase the production of renewable electricity so that the set goals for 2020 can be reached. At the beginning of 2012 Sweden and Norway joined their certificate market to a common one. The joint market will permit trading and receive certificates in both Swedish and Norwegian market. (Energimyndigheten 2015) The joint system is extended until 2030 and it was the first joint certificate market in the world (International Energy Agency 2013).



**Figure 43:** How does a certificate system work? (Osterkorn et al. 2007)

A green certificate is a tradable commodity that assures that a certain amount of electricity has been produced using renewable energy sources. The most popular renewable energy sources are wind, solar, wave, geothermal, certain hydro, certain biofuels and peat in CHP plants. (International Energy Agency 2013) The main idea is to separate physical flux of electricity from its environmental benefits. (Osterkorn et al. 2007)

In addition to incomes coming from the sale of electricity the renewable electricity producer receives incomes from the sale of electricity certificates. (Nortrade 2011) The government can grant an electricity certificate for every MWh produced from renewable sources. The certificates can then be sold to an open market and further to electricity consumers. The consumers have to fulfill a quota obligation of certified electricity. So even though supply is unregulated the demand is regulated by means of the quotas. The historical quota levels that consumers have to buy are seen in the table 2. Levels show how much from the electricity consumption consumer have to buy from the renewable sources alias how much certificates each consumer have to buy. (International Energy Agency 2013)

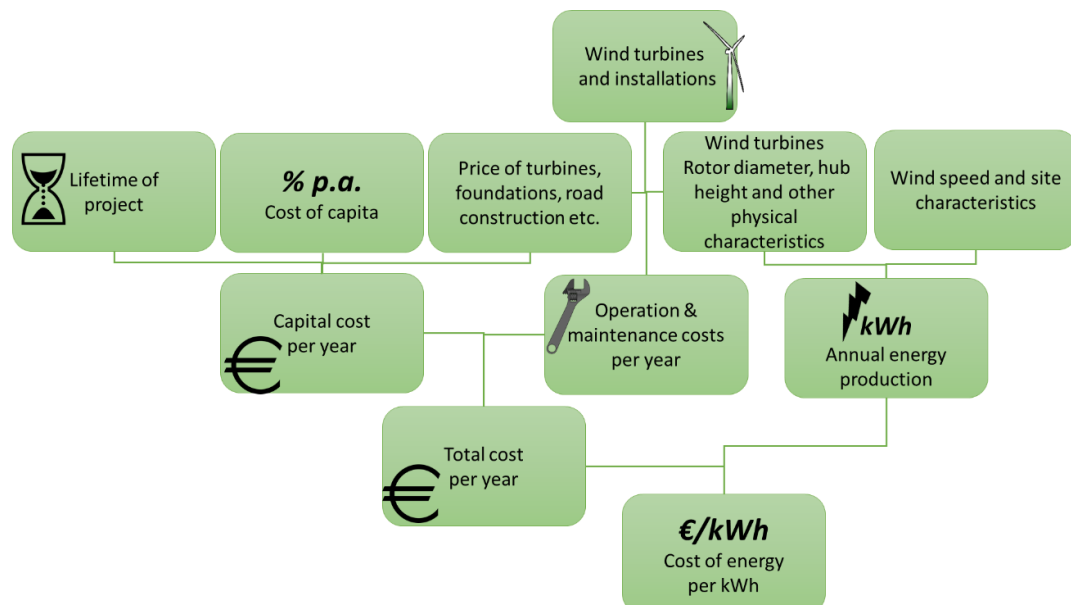
**Table 2: Historical and future quota levels in Sweden and Norway (International Energy Agency 2013)**

	2009	2010	2011	2012	2013	2014	2015	2016	2017
<b>Sweden</b>	17%	17%	17%	17,9 %	13,5 %	14,2 %	14,3 %	14,4%	15,2%
<b>Norway</b>	-	-	-	3%	4,9 %	6,9 %	8,8 %	10,8%	12,7%

“One of the purposes of expanding the market is to get a more tradable commodity and attract more investors and make the market more efficient”, said Andreas Aasheim, grid advisor of Norwegian Wind Energy Association (NWEA). The final goal of the system is to increase the amount of renewables to 26.4 TWh before 2020 in Sweden and Norway. (International Energy Agency 2013) The system gives flexibility to market allowing green producers of electricity to reach easily green consumers. (Osterkorn et al. 2007)

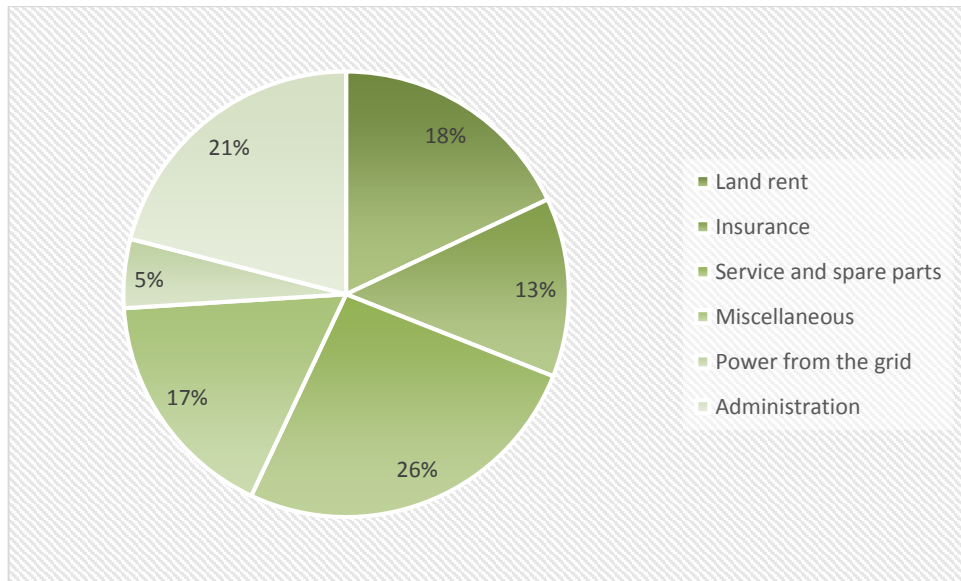
#### 4.2.2 Cost Levels

The total costs of wind power is consisting of different pieces during the development, construction and operation. The profitability is a difference between total costs and annual energy production. The incomes are beside the annual production depending from electricity and green certificate prices. The only sure way to affect the incomes is to enlarge the rotor diameter, raise the hub height or improve the efficiency with some other technical way and be able to produce more electricity. (Arapogianni 2011)



**Figure 25: Cost structure of wind energy (Arapogianni 2011)**

The costs are easier to be decreased than the incomes. The total cost is consisting of operation & maintenance costs and capital costs. Operation and maintenance costs are including all running costs like services, administration, insurances etc. (Arapogianni 2011)



**Figure 26:** Operation and maintenance cost structure (Arapogianni 2011)

Based on the goal of this thesis the most important costs are the ones emerging from the maintenance services and during the construction period.

Historically the Nordic countries have been the most expensive ones with Switzerland, when comparing the European countries. The price level index for household final consumption expenditure (HFCE) gives an idea also of the construction costs. Sweden was 2015 the fourth most expensive country in Europe only Switzerland, Norway and Denmark were more expensive. (Eurostat 2015). This leads also to the conclusion that wind power installations and operation is in Sweden more expensive than for example in Germany, which naturally reduces the profits. HFCE index for Sweden is 126, when it in Finland is 122. So the price levels are quite the same in both countries. On the contrary in Germany the index is only 101, which is also the average in Europe. (Eurostat 2015)

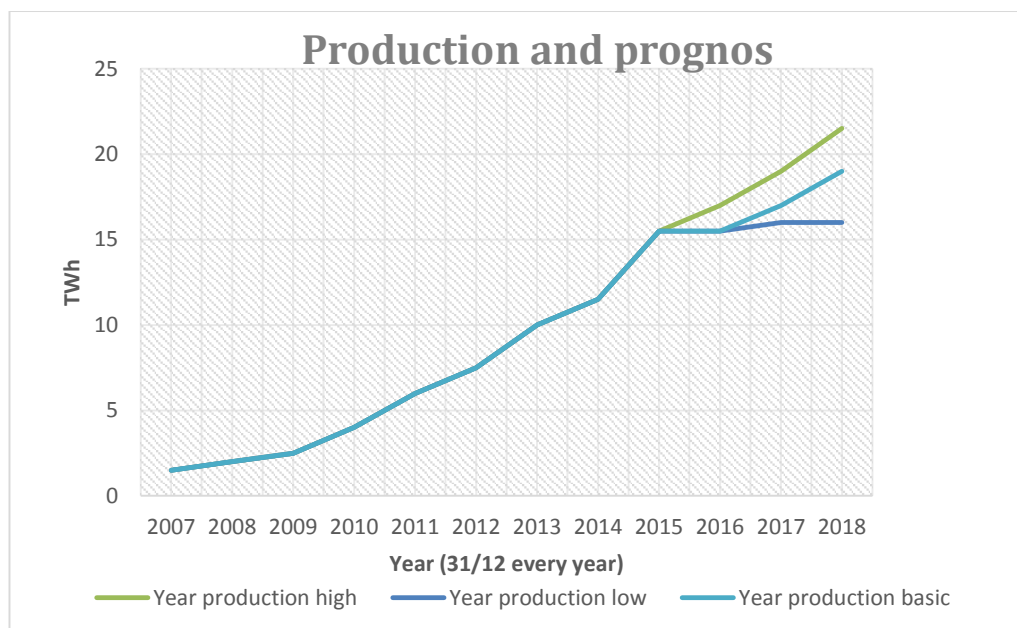
### 4.2.3 Market Situation and Future Development

The wind power market is in Sweden right now partly on hold. In most areas no new WTGs are being built although there are valid permits. The main reason for this are the low electricity and green certificate prices. Investors are not able to get the profit they are aiming for with current pricing and that's why even the ready to be built projects are waiting for higher prices. Other reason could be that many of the current projects are developed in the areas with low or medium wind speeds. This lowers the incomes even more. (Montelin et al. 2015)

Despite the current market situation wind power is still one of the most preferred ways of produce green energy. There is will to support the construction of new wind power. The green certificate system was adjusted in the October 2015 and as a result of this the new investments are waited to proceed in the near future. Some of the older projects that have

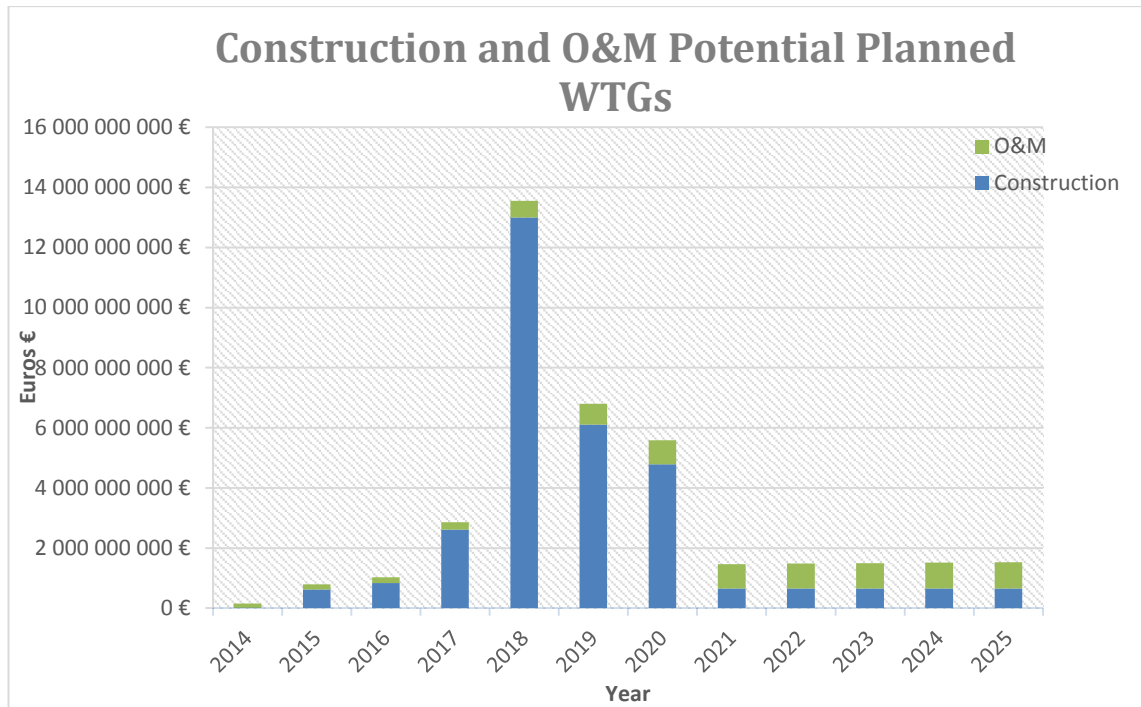
already done the permitting process are now reprocessing the permits for larger turbines and higher production. This is one way of achieving the wanted profitability also with lower electricity prices. Generally in recent years the major trends have been increase in size and hub height of turbines, the efficiency has proved steadily and investment costs have decreased, although there are some deviation from this trend. The turbine hub height and the efficiency of production are determining the production from the turbines. (WindEnergyThe Facts 2007)

There are 853 wind farms running in whole Sweden and the production at the end of 2014 was about 5 425 MW (Thewindpower 2015). The production has been growing steadily from the 1997 with the average yearly increase of 10 to 40 percentage compared to the year before. During the three first quarters of 2015 276 MW of new wind power was installed and the total installed capacity is estimated to be 608 MW. The total wind power capacity at the end of 2015 is estimated to be about 6033 MW which is produced by 3 244 wind turbines. For the year 2016 there are some construction projects starting on but the number is still unclear. (SvenskVindenergi 2015) The prognoses of wind power development made by Swedish wind power association are shown in the figure 27.



**Figure 27:** Past production and future prognoses of wind power development in Sweden (SvenskVindenergi 2015)

It is expected that in the future the electricity prices should rise. One of the reasons is Sweden's decision to give up nuclear power. Third of its nuclear power will be soon phased out. Not only will this affect the electricity prices, but also the demand of wind power and other renewable energy sources. The demand of electricity will not decrease significantly so an increase in wind power investments is expected. Also the government objective to reach 50 % of consumption produced from renewable sources before 2020 could be a driving factor for wind power investments in the coming years.



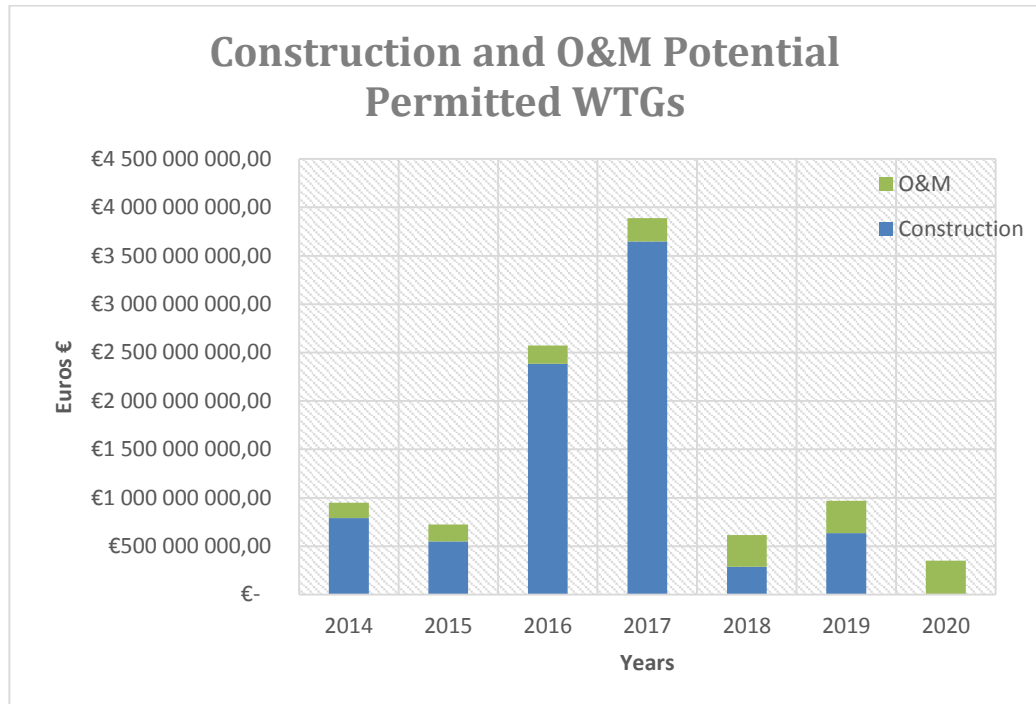
**Figure 28:** Swedish wind power market potential including construction, operation & maintenance and value added services of all planned wind farms

The total Swedish wind power market potential is shown in the figure 28. The potential calculations is based on the assumed annual megawatt (MW) investments and current installed MWs. The calculations are done without the index-adjustment. The calculations measurements here are picked up from the literature. The investment value is calculated by using 1.3 million €/MW, which is accepted value in Sweden and Finland. For operation and maintenance (O&M) services the value of 30 000 €/MW is used. (Blomqvist 2009; Arapogianni 2011) The operation and maintenance assumption takes into account the already installed and new WTG's and it is not considering the warranty periods from the turbine manufacturers. As a summary there is estimated to be huge increase in construction during the following years. This assumption is based on the planned wind power project list from Swedish Wind Power Association (SWPA). According to that list there will be 10 000 MW of new wind power installed in year 2018. The amount is huge and probably some of the projects will be moved forward to the future. (Montelin et al. 2015)

The more accurate view for wind power future installations can be achieved by taken a look only to permitted wind power projects. See figure 29. These are projects that have all the right permits and are ready to be built. The time schedule for the construction for some projects is already finalized, but some are still estimation and can move further to the future. When comparing the planned and permitted capacities the difference is enormous. For example in 2018 the permitted capacity is about 2 800 MW, which is less than the third of the all planned projects. This deviation gives the market a lot of insecurity related to planned market entry. That said also 2800 MW is an admirable number of new



installations if it will be realized. The amount is over double of current Finnish wind power capacity (1/2015) and it is planned to be built in one year.



*Figure 29: Market potential based on the permitted and constructed WTGs*

If the electricity and green certificate prices raise in the near future, most of these already permitted wind farms will be built along with the planned ones with a big certainty. If the prices stay low the situation is more unclear. Some of the projects will be finished, maybe with bigger turbines, but some will be frozen or even cancelled. Shortly there is lot of projects permitted and the potential is huge, but due to electricity market uncertainties some or even most of the projects can be moved further to the future or cancelled.

#### 4.2.4 Legislation

Knowing the local law is important so that you don't get any troubles later on because of some misunderstanding or false information. The best way is to work with local experts in understanding the laws that control the business in the new market. There are many different factors to know and learn from the personnel laws to taxes and custom duties. Next there is a narrow look into the permits and laws regarding the wind power business. (Cleverism 2014)

The actual permitting process for wind farm is in Sweden quite complicated and it can take several years before the wind farm is ready to be build. The most time consuming part is the environmental permitting process, which is handled by the County Administrative Board for the area. Besides the environmental permitting also grid connection has to be assured. For that Elmarknadsinspektionen is responsible. (Montelin et al. 2015)

When the environmental permit for the project is received the projects are often sold from the developer to the equity investor or companies interested in to buy renewable energy. These end owners then build the wind farm using subcontractors. The investors will tender the project out usually as an EPC contract following the EU competition regulations. (Montelin et al. 2015)

For the construction period there isn't available a comprehensive list of needed permits and notifications, but at least the following aspects have to be taken into account when constructing a wind farm in Sweden (Montelin et al. 2015).

- The limitations coming from the environmental permit (unique for each locations)
- Sound regulations during construction period
- Restrictions regarding the transportations
- Temporary building permit if some buildings are needed during the construction
- Permit for the road connection between the public road and access road
- Foreign workers need to be reported
- Civil works including blasting need to be reported to the police

The above mentioned facts are the most important ones regarding the construction. There could be some other permits needed for example if needed to work on a public road, but the need for these has to be evaluated case by case.

## CONTRACTS

In a wind farm construction phase the contracts involved are usually engineering, procurement and construction (EPC) contracts. The most common EPC contract is made between the investor/developer and main contractor. The full EPC contract includes all the engineering and construction of roads, platforms, foundations and internal grid. (Montelin et al. 2015)

In Sweden few standard contracts are created and they are applicable if it is referred to in the main contract between the developer and contractor. The most used contracts are **AB** (Allmänna Bestämmelser Entreprenad), **ABT** (Allmänna Bestämmelser för Totalentreprenad) and **ABK** (Allmänna Bestämmelser för konsultuppdrag) together with **AMA** (Administrativa föreskrifter med råd och anvisningar för byggnads-, anläggnings- och installationsentreprenader).

**AB** contract is used, when the client is providing technical descriptions and have the design responsibility. In this case the contractor is responsible of the actual construction work, but not the design. In the **AB** contract the contractors work responsibility and amount of it is clearly agreed. The **ABT** contract is used for the turnkey projects. Here the contractor takes also beside the execution the full responsibility from planning and design. **ABT-U 07** is designed to be used between the turnkey contractor and subcontractor and **ABT-U 06** between the investor and EPC contractor. **ABK** includes the general

regulations for technical consultancy. AMA is a reference documentation for the administrative regulations. AMA is not designed only for construction but it is common to all areas and is designed to simplify the process of formulating the requirements of the purchaser. (Montelin et al. 2015)

For Empowers scope the ABT contracts would be the most suitable contracts. That way the developer or owner is transferring the whole planning and execution responsibility to Empower and company is working as a main contractor.

#### **4.2.5 Actors on the Market**

As described in the chapter 3.1 the actors on a wind power market can be divided in several different categories. The most important actors in a construction phase of a wind farm are wind power owners, turbine manufacturers, service providers for construction and in the last stages grid companies. Because grid companies are usually local and depend just from the location of a wind farm they are not deeper introduced here. In this chapter the biggest players in the previously mentioned sectors are shortly introduced and their internationalization degree is analyzed. When analyzing the market, knowing the main players gives valuable information about the market. Knowing the main players and creating relationships with them easiest up the market entry and internationalization process remarkably.

The information of Swedish wind power market actors is collected from the several sources in the internet, using SWPA databases, third party market survey and information gathered from the Vind 2015 exhibition in November 2015. The following list is not comprehensive but includes the main actors on the market.

#### **TURBINE MANUFACTURERS**

Turbine suppliers are with some exception widely international. There has been a total of 174 turbine manufacturers, from which all are not operational anymore (Thewindpower 2015). Siemens, Vestas and GE Wind have the biggest market share worldwide. GE Wind is concentrated its business on the US markets, but has also smaller operations in Europe. (Windpowermonthly) In Sweden the biggest actors in the sector of turbine manufacturing are Siemens, Vestas, Enercon, Senvion, Gamesa, Nordex and Dong Fang. Also other players have installed some WTG's in Sweden but can't consider to be big part of the market. All above mentioned turbine suppliers have operations in several countries and none of them is originally Swedish. (Montelin et al. 2015)

Historically the biggest turbine supplier in Sweden has been Vestas. Vestas is over 100 years old and has started as a crane company. 1970s they started to innovate a turbine that could transform the wind energy into the electrical energy. 1979 Vestas did sell and install their first turbine in Denmark. It had a 10 meter rotor and capacity of 30 kW, which seems

really small compared to the MW size power plants installed today. Already in 1997 Vestas installed at that time the biggest wind turbine in the world with 1.65 MW capacity. It was 55 times bigger than the first one installed 18 years earlier. Nowadays Vestas have installed 22.1 percent of worlds wind power and is one of the leading providers with headquarters still in Denmark. The revenue of 2015 is expected to be over 8 milliard euros and EBIT margin before special items over nine percent. (Vestas 2015)

## DEVELOPERS, OWNERS

In a Swedish wind power market there are several developers and owners that are concentrated only to wind power, but also some energy market players with some wind power on their scope. The following list is not comprehensive list but introduces some main players on the market:

- OX2
- Stena Renewables
- E.ON Wind Sweden
- Vattenfall
- SCA
- Nordisk Vindkraft
- WPD
- Arise
- BayWa.Re

From above mentioned companies OX2, Stena Renewables, Vattenfall, SCA, Nordisk Vindkraft and Arise are originally Swedish companies although most of them have expanded their operation to foreign markets. These companies have started from Sweden and then moved to other attractive markets. For example OX2, WPD and Nordisk Vindkraft are operating also in Finnish wind power market.

OX2 is one of the Sweden's largest wind power developers and managers, which usually sells the ready farms to investors. OX2 is founded already in the beginning of 1990s and was operating under the name Vindkompaniet until 2005. Vindkompaniet has started as a planning company for wind power and nowadays OX2 can cover the whole value chain from initial project development until operation and management. OX2 was the first company I Sweden to finance wind power projects. OX2 has realized some 800 MW of wind power and the future project portfolio is impressive 2000 MW. The headquarters is stated in Stockholm, but they have side offices also in Finland and Poland. The turnover 2014 was 1,808 million SEK (OX2 2015)

## SERVICE PROVIDERS

Service providers can include the services during the construction, before or after it. Before the construction the services needed by developers are mostly connected to planning and design. They concentrate to the services that consultants and design companies can

offer. Most of the consultant companies are international like ÅF, Sweco or Ramboll. The consultant companies can often act also as a designers. (Montelin et al. 2015)

When starting the construction most of the developers or owners are contracting the actual work to EPC contractors. On a Swedish market there are some big players that are beside their main business also capable of building a wind farm infrastructure. These are for example NCC, Skanska and PEAB. They take the turnkey project from the developer and then subcontract parts where their expertise isn't. There are also few companies that are specialized just in building the wind farm infrastructure and foundations; Kanonaden, Stenger & Ibsen and Mobjer Entreprenad. When thinking about Empowers market entry, these three are the major competitors on the market. They have references and expertise from the Swedish market and know the pricing and subcontractors well. Kanonaden and Mobjer Entreprenad are purely Swedish companies who have no actions abroad. Stenger & Ibsen on the other hand is originally a Danish service provider, who have manage to grow to Swedish market. (Montelin et al. 2015)

Service providers have also demand after the construction. Often owners are contracting the operation and maintenance of a wind farm to some other actor. There are few big owners like Vattenfall, who have also other companies wind farms under their operation. Maintenance is often at the beginning of a wind farm life cycle manage by the turbine manufacturer. The warranty periods can be over 10 years and during that time turbine supplier is taking care of the turbine. After the warranty period, market is open, but suppliers like to continue the maintenance. The dominance of turbine manufacturers make the maintenance business very challenging and narrow. In Finland the number one maintenance provider after turbine manufacturers is Empower and in Sweden that role is reserved today by Total Wind Service. Total Wind Service is specialized in turnkey solutions within transportation, installation, service and maintenance and sale of spare parts for turbines. The company is founded in Denmark by an old Vestas technician, who was open to new challenges. Nowadays company is operational in 11 different countries, and through its clients internationalization projects also Total Wind Services is growing internationally. (Total Vind 2015)

## MARKET ACTORS NETWORK

The business networks within wind power in Sweden and not yet wholly developed and the market is not impenetrable for a newcomer. Especially larger developers who use independent consultants in the EPC procurements are more transparent. Smaller developers tend to use the same well known EPC companies, with whom they are used to work with. Most developers have no interest in special EPC contractor, but are more focused on minimizing the risks and time schedule. If an EPC contractor can prove their capacity and their pricing is a fit with the owner's idea, there are no showstoppers for newcomer to get projects in Sweden. (Montelin et al. 2015)

The most critical part of market entry is to gain footing from the market. Although developers have nothing against new service providers it is crucial to create relationships with the market players to gain project tenders and create visibility within a market. If nobody knows you are on the market, you are not able to get any tenders or projects. As a first step it is important for newcomer to gain visibility and spread awareness of your existence on the market. When the developers know who you are and what you are doing it is easier to start creating a relationship and further get the first projects.

Starting the business network in a new market can be challenging. The best way for a company like Empower to start creating the business network in Sweden would be contact those already familiar developers or owners. There are several developers who are active both in Sweden and Finland. Those, like OX2 or WPD, could be the perfect starting point for a business network.

### **4.3 Internationalization and Market Entry Possibilities for the Case Company**

In this chapter the previously stated information about the internationalization models, Swedish wind power market and about Empower are further analyzed and the market entry possibilities are evaluated. Here a more general viewpoint of the Empower internationalization is taken and based on the thesis conclusions a business plan for Empower is made. The business plan is company confidential and it isn't part of the thesis.

As already summarized in the chapter 3.2 none of the current internationalization models alone is good enough to be followed. When several different models are used and their results sum up quite comprehensive outcome can be achieved. First an internationalization possibility analysis for Empower is made using Porters diamond model, Uppsala model, Ahokangas first internationalization strategy, Churchill's and Lewi's growth model to detect problems and finally networking model from Johansson and Mattson. With these models possibilities, means and problems are detected.

First let's use the Porters diamond model for Empowers internationalization case. The goal for Porters model is to explain the competitive advantage, what affects it and where is it coming from. The demand factors can be found from the target market analysis. The Swedish wind power market seems to be growing rapidly during the next years based on the permitted WTGs. The owners and developers are usually contracting the actual building work to subcontractors the demand for turnkey contractors is existing on the market. There are few turnkey contractors, but according to market analysis there is space for one more, especially in the next years. There are three bigger rivals, Stenger & Ibsen, Kanonaden and Mobjer Entreprenad, who do most of the construction projects now. Their service scope is similar to the one Empower is offering in Finland apart from the information management services. The factor conditions include the Empowers internal resources and knowledge. There are lot of knowledge inside the Empower but the problem is that the

knowledge is in Finland and there are none in Sweden. The challenge is to transfer the knowledge to the Swedish organization and because of that some of the Finnish personnel have to work partly with the Swedish market at the beginning of the internationalization. Related and supported industries can be shortly summarized to the needed subcontractors and turbine manufacturers. Finding the right subcontractors especially to the excavation works is important for the competitive pricing and achieving high quality results. In summary when analyzing the Empowers possibilities for success based on the Porters model they are good in the terms of demand and rivalry, but there are some challenges to be resolved regarding the factor conditions and supported industries.

The Uppsala models central idea is that firm collects experience from the domestic market and later increases their international commitment. The model describes quite well how the situation have developed inside Empower. First a good functioning service scope and organization have been developed into the Finland. A lot of experience have been collected from the several wind farm projects both from development and construction phase. Now the company wants to grow and internationalization is a good way to do it. The collected experience can be transferred to the new market and along the way learn the new points from the new market. The main idea is the continuous learning, first domestic and later international. Empower has a good foundation to build up operations in Sweden and have an advantage from the experience collected in Finland.

Third viewpoint to the evaluation of internationalization possibilities of Empower can be taken as a resource based. Ahokangas resource based internationalization model separates five different strategic ways to internationalize. All can be useful, but for Empowers case the foundation could be the first and the fifth; customer oriented diversification and domestic networking & foreign customer selection. In the first strategy Empower is trying to find a new market for a current product portfolio. The current portfolio is carefully developed to serve the needs of Finnish wind power market and can be seen that there could be a demand for it also in Sweden. Domestic network is a result of a long term successful work in the Finnish market and can possibly be an asset also in the Swedish market. There are few customers that are operating in both countries and which could be the best way to get the first pilot project and later a foothold from the market.

The Churchill & Lewis growth model is dividing the growth in five stages and describing the challenges occurring in each stage. At the beginning of a internationalizing the three first stages are the ones worth for considering. In the first stage, existence, the main challenges occurring can be for Empower the following; obtaining customers, providing the services good enough, how continue from the pilot project and having enough cash flow to cover the expenses of start-up marketing, When proceeding to the second phase the problems shift from the relationships between revenues and expenses. Is the cash flow enough to stay in the business is the main problem. At the third stage the problems are related to the growth decisions; if the company should keep the achieved size or grow more.

The last and most important internationalization model for Empower and wind power is the networking like model by Johansson and Mattson. In networking model the internationalization is explained to happen in three phases; expanding to new networks, deepening the relationships within a network and integrating between the different networks. In this case a new network can be considered to be the Swedish wind power industries network. So expanding into it and creating new relationships and a new business network is the first step. Without any contacts or relationships it is impossible successfully operate on the market. The relationships can be born, develop and end all the time. Four different internationalization situation can be seen depending on the degree of internationalization within the market and firm. The Swedish wind power market is already quite international with lot of international developers and also few international service providers. Because of that the Empowers situation on a market is the late starter or international among others. The market is highly developed, but still especially in the service sector there could be a slot for new comer. A slot where the Empower is better than the competitors operating longer in the market have to be found. The competitors can resist the newcomer's market entry to avoid harder competition. Few strengths, where Empower is in its strongest, should be pointed out and marketed to the market.

Above the Empowers market entry possibilities accompanied with possible challenges is presented according to most suitable internationalization models. As a summary Porters diamond is quite favorable, but not the best possible. From the growth model the possible challenges can be pointed out and based on the Uppsala model the continuous learning is extra important. The networking model highlights the importance of a relationships and building up a functional business network. To the Empower business plan learnings from the models has been taken and in the next chapter some common key steps that are usually present in the early stages of internationalization are presented.

### **4.3.1 Developing Market Entry Option**

A few key steps can be identified at the beginning of a good internationalization strategy, regardless of the internationalization or market entry model used. These steps are commitment, identifying entry points, defining market entry strategy, assembling a plan, doing research, testing, ramping up and creating an exit strategy.

First it is extra important to identify who you will be selling to. Sounds simple, but usually there are overly optimistic idea to catch all the possible customers and huge share of the market. It is better idea to start first with the goal of a smaller market share and then when everything is starting proceed well, widen the target. Setting up a clear timeframe and targets for it is also important for evaluating the internationalization progress. (Cleverism 2014)

Identifying the entry points can be also formed as building up a service scope. Minimizing the initial investment and maximizing revenues is the goal. For that weighting pros and



cons of each have to be done after which the informed decision is to be made. Empowers scope of work and doable locations for each is further analyzed in the business plan. The idea is that not all the services provided in Finland are not directly established on the Swedish market. The next key step is to define market entry and internationalization strategy. This is long analyzed in the previous chapter and the strategy will be based on a combination of few different internationalization models. Based on this a business plan is created with a detailed action plan. (Cleverism 2014)

The preliminary market analysis of a Swedish market is made, but before the full market entry some extra research should be made. This reduces the risk even more. Extra research should be targeted directly to the customers and be focused on finding out the real service scope needed and other factors like pricing related to this. This enables the company to do changes before the full internationalization. Another good way to reduce the risk is a trial run or test. A carefully defined pilot project in the target market that is big enough to give accurate results, but not too big to cause big losses, is maybe the most efficient way of testing if the plans and ideas are working. After trial, changes are still possible to be made and plan to be developed into the more efficient direction. Last but not the least key step is planning the exit strategy. Planning both the success and failure is important in keeping the total view. What happens if you don't reach the set milestones for internationalization? Will you try to learn and continue or cut out before further resources and time is wasted?

When the target market has been chose, it has been analyzed, different internationalization strategies are evaluated and important points figured out, it's time to develop a market entry strategy. Because Empower have some infrastructure already in place in Sweden an organic approach can be taken. The other good option would be a joint venture or partnership. The joint venture will need much mutual trust and similar goals plus it will take more time to build up a relationship like that. If that could be possible in the reasonable amount of time would this option be less risky and very good. Even though an organic approach is taken a partnership with some good subcontractor would be ideal. In an organic approach the most important steps are developing a business plan, case for investment and implementation work plan, including owners, timelines, tasks and key milestones to enter. Based on the organic approach a market entry plan has been done to the Empower wind sector as a separate document. (Cleverism 2014)

### **4.3.2 Organization at the New Market**

The wind power BoP deliveries are from their nature project oriented. If there are no projects there are no work. That makes the project business challenging and especially at the start of a new business or a new market. Creating a project organization is an important part of the normal project tendering and planning process, but when taking this to the new market it becomes crucial.

Based on the Empowers project organizations in the previous projects in Finland the two most important positions are project manager and site manager. To accompanying those two the project needs grid designer(s) and project engineer. If substation is included to the project also substation project manager and designer are needed. Beside the internal personnel several subcontractors are needed for the excavation and foundations works. With the subcontractors a local network is often beneficial.

When entering a new market and building up a project organization the professional skills of the personnel are playing an important role. When the market is new the organization has to be full of bullet proof professionals who are ready to learn new. The best possible combination would be an experienced site or project manager accompanied with young and enthusiastic project partner.

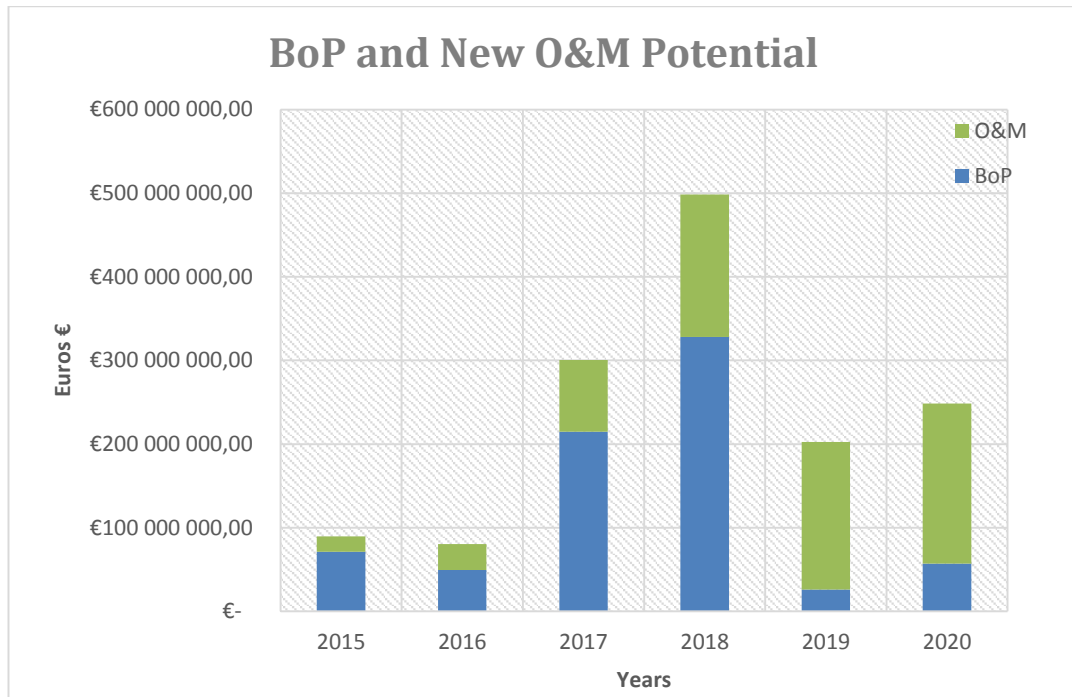
In addition to project organization selection also a location for the organization has to be chosen. Basically company has four options; 1) organization in the homeland 2) some of the organization in the goal country some in the homeland 3) all in the goal country 4) some in the goal country and some in the immediate vicinity. The location decision is affected by establishment and maintenance costs, practicality of activities and environmental factors. (Karhu 2002) In this case the most effective way is to choose option two and have some of the wind power knowledge and experience from the Finland accompanied with the local knowledge from Sweden.

The ratio of Finnish and Swedish personnel has to be further analyzed. It is important to have and transfer the knowledge and experiences from Finland, but its almost impossible to have the whole project organization from Finland. It is also very expensive to sent the whole team from Finland to foreign assignment. The expenses can be even four times bigger compared to the personnel direct from the destination. (Dawei 2008) Especially the site manager, who have to be lot with the subcontractors and on the site, should be Swedish to ease up the communication and co-operation. It would be ideal if the whole project team would speak Swedish even passably.

### **4.3.3 Financial Figures**

Empower has already active business in Sweden in the areas of telecommunication, power network and substations. Therefor the wind power business internationalization to Sweden is more easy and profitable, when it is not necessary to build up the whole infrastructure from the start. The office and basic services are already in place. The main cost for market entry will come from the marketing and site personnel employment. Also most likely the profit margin in the first projects has to be kept quite low, to achieve the trust among the investors and first of all to get the projects. Critical part is to find trustworthy and suitably priced subcontractors, which can be challenge with at the beginning limited market network.

The market potential in the Swedish wind power market is huge in the following years based on the permitted and planned projects. The current investment environment isn't very favorable right now because of the low electricity and green certificate prices, but even though there has been built almost the same amount of wind power 2015 as in whole Finland during the last 20 years. Just 2018 the estimated market potential for BoP deliveries based on the permitted wind power projects is over 300 million euros.



**Figure 30:** Market potential for balance of plant, operation & maintenance based on the permitted WTGs

The yearly operation and maintenance potential is assumed to be summary from the new WTGs built after 2015. The real potential for Empower isn't so big because of the long warranty periods of turbine manufacturers.

There are few important questions that should be asked when entering the new market regarding the cost of doing business. Is your new target market mired in unnecessary or exceptionally high taxes? Are there import duties that you need to consider? Are there any hidden costs that may emerge later on? (Cleverism 2014) If the answer to some of these questions is negative, the risk regarding the issue should be carefully evaluated. All these need to be factored into the plan for entry so that you will be able to have a competitive pricing strategy.

## **5. RESULTS AND CONCLUSIONS**

### **5.1 Summary**

During the past few decades several internationalization models have been developed and they can be divided into five different categories. Traditional models like Porters diamond model, behavioral based models like Uppsala model, resource models like the one from Ahokangas, growing models and networking models. The main focus in this thesis is in networking models, because they are newest, most comprehensive and most suitable for energy sector. The main point for networking is to increase the resources and know-how, which ultimately leads to economic benefits. For example at the construction phase of the wind power, the working networks between developers, owners, service providers and subcontractors are the most important asset what company can have.

The wind power sector includes a whole punch of different kind of actors from the developers to the grid owners and to different kind of consultants and authorities. The wide range of different business fields and company sizes also leads to the situation, where companies have to have totally different internationalization strategies. In this thesis the focus was on wind power service providers and how their internationalization can be planned and managed.

As one research method, a case study was used together with the theoretical information from the literature. The internationalization theories were first pre-analyzed and later tested on a case company, Empower. The company is eager to grow on a Nordic wind power market and their internationalization possibilities were evaluated based on the theories. As a part of the case also Swedish wind power market was analyzed. The further development after the thesis includes at least a business plan for the case company.

### **5.2 Role of the Internationalization Theories in the Wind Power Business**

As already pointed out before in the thesis none of the so far developed internationalization models alone is perfect for wind power. Some lack of the actual internationalization strategy and are only describing the internationalization conditions within the company or within the target market. With some of the models the situation is the opposite and they don't consider the market conditions widely enough.

As a conclusion after the evaluation of all models and wind power business environment, the recommendation is to do a mix of different internationalization models. Taking the best parts from several models and combine them, so they would cover most of their individual weaknesses. One effective combination would be Porters diamond model,

Uppsala model, Churchill & Lewis growth model and Johansson & Mattson networking model. Porters' model describes the internationalization possibilities on a general level, while Uppsala concentrates to the actual internationalization process with different steps. With the Churchill and Lewis growth model it is possible to detect the probable future challenges before they occur. Lastly the networking model would keep the focus in relationships and business network building, which is proved to be more and more important in today's business world. With this kind of combination most probable challenges and possibilities can be detected and a feasible internationalization plan created.

From the previously stated models, a few parts are the most important ones, when starting the internationalization process within a company. First two are part of the Porters diamond model; internal company condition and external market condition. In summary, what are the main factors and resources inside the company which would make the internationalization successful and what is the situation in the market. Market conditions, like rivalry and demand are perhaps the most important facts to find out before entering the market. If there is no demand for the company's products or services, it will be very difficult to successfully operate in the market.

When the target market and internationalizing company are both carefully evaluated and chances assumed to be good it is time to think about the implementation. What, where, who how, with whom? This is where the networking model steps in to the picture. When entering a new market, it is vitally important to understand current players and form beneficial relationships with them. Company will need an effective network of different kinds of relationships, in order to succeed in internationalization process.

Wind power sector within one country is always quite narrow business field and in most countries it is just developing. Therefore the relationship with the main player(s) can be critical considering the success. For example relationship between the biggest wind power developer and a service provider can be critical for the service providers' success but also economically very beneficial for the developer. Operating constantly with the same people and knowing the normal ways of working will eventually lead to the financial and time schedule benefits. Building new long-term relationships at the target market is one of the keys to the success of internationalization. It is also one way to start the internationalization process: the rapid growth and market entry of a firm appears as a result of their involvement in international networks.

The main point for the growth models, like one from the Churchill and Lewis, is to detect the problems that may occur during the company growth. Because internationalization can be seen as a way for the company to grow, these models are applicable also during the internationalization. As company is growing, the challenges are changing. At the beginning, most problems are related to finding customers and becoming visible in the market. On a later stage, the challenges are more related to financial issues and personnel increase. Most of the challenges at the beginning of internationalization can be avoided

or minored by using business networks. And this is where the growth models and networking models confront each other. Using the networks it is easier to do the marketing and get visibility and more contracts.

A combination of different theoretical internationalization models, with emphasis in networking models, can be a real asset when starting the internationalization process within wind power business. The models help to identify the critical points of the process and to organize the steps before and during the market entry.

### **5.3 Proposals for the Case Company**

Internationalization process of a wind power business can be handled, when a comprehensive collection of existing internationalization models is created. The collection is used to analyze and do action plans for the company. In the internationalization case the target market was Swedish wind power market. The market has potential for rapid growth, if all the permitted projects were to be built. Based on the market study companies providing comprehensive services packages within wind power business are a rarity.

Based on the finding and analyses in this thesis the internationalization possibilities for the case company on a Swedish wind power market look promising. In the following, few of the most important points for the case company to be considered are introduced. They are more comprehensively evaluated in a market entry plan, which is separate from this thesis due the company confidentiality agreement.

As already previously pointed out business networks, building and managing them, are one of the most important things when entering a new market. Comprehensive business network easiest up the process of starting a new business unit. The challenge is to achieve enough visibility and sufficient trust among the market players in order to be able to get tenders and projects. In short the best network building steps and actions for Empower according to the thesis findings and Johansson and Mattson network model can include at least some of the following:

- Gain visibility among market players; exhibitions, advertisement
- Direct approach towards market actors; phone call
- Collecting local contacts
- Learning the language
- Using consultants
- Partnering with some other contractor or builder
- Project export
- Doing a test run or project
- Having reference projects
- Positive attitude

Visibility is best achieved by participating few big wind power events, like exhibitions, and have publicity in the wind power magazines. When the visibility is achieved, the exhibition etc. don't play as important role. Another good way to build the network is the direct contact. Finding out who are the responsible persons in the companies with biggest project portfolios and to call them. On a Swedish wind power market the biggest portfolio owners are OX2, Rabbalschede, Vattenfall, Statkraft, Jämtkraft, Eolus Vind and Enercon. These are the companies recommended to approach closer.

Local contacts are always very important when new in the market. In Sweden there are many international companies in the market, but it is good to have some local contacts. Especially as a subcontractors. Local companies can ease up the communication between the residents and authorities. They know the way of working and possess valuable inside information about the market. When working with the companies within the market the cultural aspects like native language can play an important role. Even though, Swedish people mostly speak good English, it is always easier to do business with the native language. To ease up the communication, the recommendation is to have at least one Swedish speaking member in a project team.

At the beginning of an internationalization, receiving enough information about the market, market participants and common ways of working is important. For this consults are a good choice. They have detailed information about special subjects and can help with the information gathering within the market. Another good way to speed up the knowledge gathering is a partner. A local partner who already knows the habits and can help the newcomer to adjust. Finding a right partner is a harder thing to do. Partner shouldn't be too big nor too small, have knowledge and preferably experience from the business sector. Mutual goals is a good starting point. For Empower, good partner would be some smaller civil engineering company, who wants to concentrate on wind power. Another good option would be maintenance service company, so that the customers can be served with the comprehensive offering from engineering to operation.

The first step after market evaluation would be a pilot projects, preferably with the selected partner. In order to get the first project good knowledge of the market and references should be in place. In Empowers case the references from Finland are convincing. Getting the first project is always hard, but to do it successfully in a new market can be even more difficult. The first project always includes a lot of learning and trying, which makes it more challenging than the project following the first one. The first project is the acid test, after which some adjustment and decisions should be made to assure the profitability and success in the projects following.

Last but not least, the internationalization process should have comprehensive support from the top management. The historical experiences about the internationalization shouldn't affect the current market entry. Setting up collaborative practices, ensuring

transparent business and being open to changes in your plans is important for the right results to be achieved.

## 5.4 Conclusion

Any of the theoretical internationalization models by themselves are not comprehensive enough to be used alone as an internationalization strategy of a company operating on wind power business. That said, when a comprehensive collection of those models is made, they are very useful asset during the internationalization process.

The presented internationalization models lack of the overall picture of the process required for internationalization. Other model categories, like networking models, are further developed and are based on the previous more traditional models. They still have some shortages like ignoring the possible challenges of a market entry. Based on this, a suggestion of a more comprehensive internationalization approach is created. Combining models from several different model categories gives a more versatile results. The combination suggested and tested on a case study was; Porters diamond model, Uppsala model, Churchill & Lewis growth model and Johansson & Mattson networking model. When the emphasis is in networking model, the model collection reflects most the current business environment. Networks are truly important, as all business is based on relationships within companies and individual persons.

The key to success in a new market seems to be the broad understanding of the market nature and what the unmet needs are. When the understanding of a new wind power market is reached, using the model collection, a comprehensive internationalization plan can be created. Following the plan, a successful internationalization and market entry can be achieved.



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## **Interviews**

- Widberg Stefan. Project Manager, Eolus Vind AB. Stockholm. 4.11.2015
- Andersson Ulf. Senior Communications Advisor, Vattenfall AB. Stockholm 4.11.2015
- Sjölin Tornbjörn. Country Manager, Connected Wind Services A/S. Stockholm 4.11.2015

Nyman Markus. Sales Manager, VEO Oy. Stockholm 4.11.2015

Wind Analysist and Sales Manager. Statkraft AS. Stockholm 4.11.2015

Claesson Daniel, Grid specialist; Bernholdsson Anders. Nordisk Vindkraft. Stockholm 5.11.2015

Minns Colin. Country Manager Sweden, Nordex Energy GmbH. Stockholm 5.11.2015

Håkan Wallin . CEO, BayWa Re Scandinavia. Stockholm 5.11.2015

Business Development Manager, E.ON. Stockholm 5.11.2015

## APPENDIX A: ASSIGNMENT FOR THE CONSULTANT

- An overview of the business ecosystem
  - Participants on the market
    - Main utility and energy investor customers
    - Service companies (competitors, partners)
    - Authorities involved
    - Market Participants portfolios. Future projects etc.
  - Future Market development ( growing/decreasing)
- Description of the business relationships in the ecosystem
  - Types of contracts/agreements
  - Terms of agreements/contracts
  - Depth of relationships
- New on the market
  - Market atmosphere towards newcomers
  - Suggestion of the service scope (More demand on project management services or BoP or infra or something else)
  - “How to get the first contract?”



## APPENDIX B: INTERVIEW QUESTION PLATFORM

### QUESTIONS:

1. What was the company's first country to expand the business after the motherland? Is that country/market still the secondly important market? Has the company changed its orientation?
2. What was the company's first operation abroad? Did you start the first abroad operation by doing export, establishing a side office with limited service package or bringing the whole operation at once?
3. You are now operating on the Swedish Wind Power Market. Would you describe the market low/high internationalized? Why? Do you see the market environment to be changing in the near future?
4. Your company has decided to try the growing by expanding to for example in Greece Wind Power Market. The Market is fairly small and quite unknown. What would be the key-factor or the main resource why you think your market entry will be successful?
5. As a Market newcomer what would be your first step to building a business network? Exhibitions, contact investors, contact subcontractors, contact authorities...
6. If you were a strategical manager and you would have to choose one of the following options which one would you choose: 1) Familiar Customer wants to expand and would like to have a familiar contractor in a new market. You do a Market entry together but without any business network in the goal country 2) An unfamiliar Actor is tendering their project. You will be offering your services together with some other subcontractor to share the risk and start the business network 3) An unfamiliar Actor is tendering their project. You will be offering your services alone and hoping to build a network when doing the project.
7. You have developed a working business scope. You have also find a promising target market, where according to market analyst is demand for your scope. What's your estimation: From the market entry, how long did it take that the company has a fluent business network and profitable business abroad.
8. What kind of projects you have ongoing? What about in the near future?
9. How have you subcontracted the projects?
  - a. Packages: Pre- engineering, Wind measurements, Foundations, Infrastructure, Substation, Internal grid, Turbine delivery, Project Management
10. What do you consider to be the three most important qualities from the firm you would choose as your subcontractor? Money, Swedish personnel, People Chemistry, liability, size, can offer a whole package, good references...
11. You have started a new project and you need a subcontractor for example for internal grid. With which company(ies) you usually work? What would you need from the new subcontractor that you would choose them instead of the old and familiar?

12. Can you shortly describe your tendering process? What kind of subprojects you tender? To how many companies you sent the tender out? (How to get the first contract from the market?)