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# Global Talent and Mobility

The Significance of Employing Expatriates for High-Technology Firms in Trondheim Region

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## Abstract

In 2010 the municipal authorities in Trondheim Region approved a strategic development plan to increase the region's share of national GDP in Norway. One of the goals in the plan included that the region would be the most attractive city region in Norway. Underneath this goal was a strategy that Trondheim Region will be better to retain foreign workers that settle in the region. Tekna Magazine published that around 15,000 foreign engineers work in Norway, at the same time a labor market report from NAV stated that there was a shortage of 4200 engineers in Norway in 2012. In Trondheim Region, the technological industries have doubled in size since 2006 and have recruited a large number of foreign engineers, or expatriates, as a result.

This thesis asks *why is it significant for high-technology companies in Trondheim Region to hire expatriates*. In this report three international high-technology companies of varying sizes are investigated in order to find how global markets, skill shortages, knowledge management, and innovation are connected with the hiring of expatriates. The thesis argues that hiring expatriates is significant because it is a means of investing in new innovation activities in Trondheim Region despite skill shortages. Expatriates are significant for further growth and development for high-technology firms located in Trondheim.

Nevertheless the expatriates themselves are also dynamic actors whom have backgrounds and experiences in which have implications for company organization and strategy. The thesis also asks *how expatriates themselves influence company organization and strategy*. It is argued through theory and empirical evidence that diversity in an organization can contribute to creative processes in groups, but on the other hand can also create conflicts in groups. However this is not only a cross-cultural management issue, but also a knowledge management issue. It is noted that expatriates can contribute most to creativity the longer they stay in the company. Yet there is a process of settling in a new country for the expatriates that has implications for their decision to stay or leave Norway. As it is in the best interests of the company to retain these employees, the company should therefore develop a strategy around the settlement process of employed expatriates and their families.



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# Table of Contents

Acknowledgements.....	v
List of Figures .....	xi
List of Tables .....	xi
<b>1 Introduction .....</b>	<b>1</b>
1.1 Report Outline.....	4
<b>2 Literature Review.....</b>	<b>7</b>
2.1 Introduction.....	7
2.2 The Significance of Hiring Expatriates.....	9
2.2.1 Globalization and Mobility .....	9
2.2.2 Knowledge flows in a Global Economy .....	11
2.2.3 Competing in Global Knowledge Economies.....	15
2.2.4 Global Talent and Firm Competitiveness.....	17
2.3 Expatriates' Influence on Firm Organization and Strategy.....	18
2.3.1 Diversity and Innovation in Firms .....	18
2.3.2 Attracting and Retaining Foreign Workers .....	21
2.4 Innovation and Skill Shortages in Norway.....	24
2.4.1 Innovation in Norway.....	25
2.4.2 The lack of qualified labor in Norway .....	27
2.4.3 Is recruiting expatriates solving skill shortages?.....	30
2.5 Summary.....	31
<b>3 Methodology .....</b>	<b>35</b>
3.1 Study Questions.....	35
3.2 Propositions .....	36
3.3 Choice of Case Firms.....	37
3.4 Informants .....	38

3.5	<b>Logical Linking of Data to Propositions</b>	40
3.6	<b>Criteria for Judging Research Designs</b>	41
3.7	<b>Ethical Considerations</b>	42
<b>4</b>	<b>Cases</b>	<b>43</b>
4.1	<b>Introduction</b>	43
4.2	<b>Case Context</b>	43
4.2.1	Technology in Trondheim Region	43
4.2.2	The need for human talent in Trondheim	45
4.3	<b>Case 1: Software for the Oil Industry</b>	49
4.3.1	Informants in the company	49
4.3.2	Before the strategic growth plan in 2010	50
4.3.3	The company after the strategic growth plan in 2010	51
4.3.4	Value of Hiring Expatriates	53
4.3.5	Work Environment	55
4.3.6	Social life at Work	57
4.3.7	Life in Trondheim and Norway	58
4.3.8	Concluding Remarks	59
4.4	<b>Case 2: Wireless Electronics</b>	61
4.4.1	Informants in the company	62
4.4.2	From Consulting to Products	63
4.4.3	The Importance of Human Talent	65
4.4.4	Recruiting Talent	66
4.4.5	Work and Social Environment	69
4.4.6	Life in Trondheim	71
4.4.7	Concluding Remarks	72
4.5	<b>Case Study 3: Microcontrollers</b>	74
4.5.1	Informants in the Company	75
4.5.2	Recruiting Human Talent	77
4.5.3	Retaining Human Talent	80
4.5.4	Work and Social Environment	81



4.5.5	Situation for the spouse of the Polish Employee.....	82
4.5.6	Concluding Remarks .....	84
<b>5</b>	<b>Discussion.....</b>	<b>85</b>
5.1	Knowledge Environments and Firm location in Trondheim Region.....	86
5.2	The Significance of Hiring Expatriates.....	89
5.3	The Importance of Diversity for Knowledge Development .....	95
5.4	Expatriate Life Situation and Strategy for Retaining Expatriate Employees .....	100
<b>6</b>	<b>Conclusion.....</b>	<b>103</b>
6.1	Implications of study .....	106
6.2	Suggestions for further study.....	107
<b>7</b>	<b>Works Cited.....</b>	<b>109</b>

**Appendix A: Interview Guide – Representative from Management**

**Appendix B: Interview Guide – Norwegian Employee**

**Appendix C: Interview Guide – Expatriate Employee**



## List of Figures

Figure 1 - Number of Patents Granted by USPTO, 1963-2001. In Powell & Snellman (2004; 204)	15
Figure 2 - The Policy Synchronization Method Applied to SIC (McElroy 2001)	21
Figure 3 - Global Innovation Index in INSEAD 2013	26
Figure 4 - Share of Total Employment of Persons in STEM fields aged 25-34 (OECD 2010)	29
Figure 5 - Persons 30-35 with Long Higher Education in Scientific and Technical Fields (SSB 2013)	30
Figure 6 - Combined Revenue of Tech Companies in Trondheim (Impello 2013)	44
Figure 7 - Share of Companies with R&D activities (Finne 2007; 84)	44
Figure 8 - Exports by County in NOK Millions (Finne 2007)	45
Figure 9 - Home County Before Studies, County of Employment Today (NTNU 2013)	47
Figure 10 - Invested Equity of the First Case Firm (Purehelp 2013)	52
Figure 11 - Company Working Income (purehelp 2014)	64
Figure 12 - Wages (Purehelp)	76

## List of Tables

Table 1 - Backler's (2004) Knowledge Categories	12
Table 2 - NHO Business Barometer (Jensen 2013)	28



# 1 Introduction

According to Tekna Magazine, over 4200 engineers of different nationalities were hired by Norwegian employers between 2010 and 2012 (Krogsrud 2013; 13). At the end of 2013, an estimated number of 15,000 foreign engineers were currently employed in Norway. In other words, an average of six engineers are “imported to Norway” every day (Madsen 2013). Erna Solberg, the Prime Minister of Norway, told Dagens Næringslivet (2013) that:

*We must ensure that Norway is more attractive for highly skilled workers from other countries...there are engineers that come here, but Norway is not the most attractive country for immigrants with higher education*

The conservative party in Norway has, as a part of its political platform, that labor immigrants are important for growth in Norwegian industries. Erna Solberg goes on to claim that immigrants have accounted to two thirds of employment growth in Norway, but she notes that compared to Great Britain, for example, only a small portion of these immigrants have higher-education.

Richard Florida (2005) states that the places that are able to recruit and retain talent win and those that don't lose. In a cooperative report written by the City Regions of Norway's Chambers of Commerce (Jensen 2013), the need for a comprehensive skilled immigration policy is outlined. The report argues that skilled immigration is important for growth in Norwegian industries. Authorities, as outlined in the chamber of commerce report, must ensure that Norway is not only an attractive place for skilled immigrants to migrate, but also that it is an attractive place for these immigrants to stay. According to the report not only should national authorities develop policies around skilled immigration, but the regional authorities and industries as well. Trondheim Region, and its authorities and industries are included in this report.

Trondheim Region is a regional collaboration body between the municipalities of Trondheim, Klæbu, Malvik, Melhus, Leksvik, Stjørdal, Rissa, Skaun, and Orkdal in addition to the Sør-Trøndelag County Municipality. The collaboration focuses on economic development, the goal of which is to increase the regions share of GDP equivalent to its share of the Norwegian population (Trondheimsregionen 2014). In order to reach this goal Trondheim Region should be the most attractive city region in Norway. One such strategy is to ensure that Trondheim Region is better to retain foreign workers in the region.

Why is important for employers to hire foreign engineers and why are the Chambers of Commerce's and Norwegian authorities interested in ensuring that Norway is attractive for these engineers to move and stay? Trondheim Region has as a main goal to increase its share of national GDP, but how does the strategy of retaining skilled foreign workers in the region contribute to this goal? In order to answer these questions it is important to develop an understanding of the growth and needs of the technological industries in Trondheim Region.

An Impello report (2012) shows that the technological industries in Trondheim are a high growth sector. Between 2006 and 2012 the industry has almost doubled in size. However in order to support this high growth there has been a growing demand for skilled labor. The chambers of commerce's report (Jensen 2013; 10) referred to a NHO business survey that showed that 37% of companies surveyed stated that skill-shortages were a major investment hindrance. According to Madsen (2013), immigration has been an important factor in reducing skill shortages. In 2012 there was a shortage of 8000 engineers, but the year after the shortage was reduced to 4600.

In order to investigate why hiring foreign engineers is significant for high-technology firms, a multiple case study was conducted for this research project. The cases in this research project included global and high-technology firms located in Trondheim Region that hire foreign engineers. High-technology firms are defined as firms that use "scientific technology involving the production or use of advanced or sophisticated devices especially in the fields of electronics and computers" (Merriam Webster Dictionary 2014). High-technology firms are studied because human resources in these firms are important for innovation and development. Blackler (2004) argues that it is the "knowledge workers" in high-technology firms that own the means of production, which is knowledge. Talented workers who can contribute to innovation, according to Florida (2005) are a key resource for high-technology firms, as it is innovation that keeps firms competitive on global markets. Therefore hiring skilled foreign engineers must have an important significance for high-technology firms, as human resources are important for the firm.

The foreign engineers in this thesis are referred to as expatriates. Although the traditional definition of expatriate in the Merriam-Webster dictionary (2014) is "to leave ones country and live somewhere else", Gatti (2009) defines expatriates as educated persons who travel for professional reasons, including studies or employment. According to Florida (2005) such highly educated persons are highly mobile, in that they have skills that are demanded throughout the

world. Therefore these “talents” have more choice in where they will choose to live and develop a career, and will choose the places and careers that are the most “attractive”.

The place that is studied in this report is Trondheim Region – Trondheim Region is a suitable place to study the phenomenon in question due to the high growth in the technological sectors and the interest among authorities and firms to attract and retain expatriates in the region. Only those firms that operate on global markets are studied in this thesis, as they are more likely to be hiring expatriates. The reason being is that the firms studied have English as a working language, as their customers in other countries require communication in English. Therefore it is argued that since the companies have developed English as their work language, there is a lower threshold for non-Norwegian speaking expatriates to be employed. The firms studied are also less dependent on local economic flows, as their customers and markets are abroad. Thus these firms need to hire expatriates as their growth exceeds the supply of local labor. The question that will be answered through the study of these firms is *why is it significant for high-technology companies in Trondheim Region to hire expatriates?*

Another area that is investigated is the influence expatriates have on company organization and strategy. In the theoretical chapter theories about social innovation capital are outlined. Social Innovation Capital is the relationships and systems within an organization that bring about innovation can be affected by diversity both negatively and positively. It is therefore asked *how expatriates as dynamic actors themselves act in accordance with their backgrounds, experiences, and life situation and the implications for company strategy and organization.*

Expatriates themselves are dynamic actors who bring different resources and perspectives to the company, and thus influence company strategy and organization. Holden (2002) sees culture as intersecting pools of knowledge, in which diversity can influence company culture. Here it is asked whether expatriates contribute to innovative activities in the organization. The expatriate's life situation in Trondheim Region, and their perception of living in Trondheim Region are also investigated. It is understood that an expatriate's decision to either stay or leave Trondheim has implications for their employers. As such decisions have implications for the firm, it is investigated what strategies firms develop around the issue.

## **1.1 Report Outline**

The thesis presented is divided into six chapters: Introduction, Literature Review, Methodology, Cases, Discussion, and Conclusion.

The first section of the literature review in chapter two will discuss the theoretical perspectives that outline the significance for companies to hire expatriates in regards to globalization, knowledge management, innovation, changes in firm organization, and skill shortages. The second section of chapter two will discuss expatriates as dynamic actors themselves whom influence company organization and strategy. Here the concept of social innovation capital is discussed as well as the influence diversity has on group creativity and innovation in the firm. Expatriates are also presented as dynamic actors whose experiences, life situation, and backgrounds are important for their decision to both move to Norway and their decision to stay or leave after a period of time. It is discussed how expatriates influence company strategy as a result. The final section of the literature review presents the reader with the connection between innovation and skill shortages in Norway, and how skilled immigration has reduced skill-shortages.

Chapter three presents the research methods used in order to further investigate the arguments brought up on the literature review chapter. The research involves a multiple case study approach, in which three high-technology firms of varying sizes are chosen as the cases. The informants in the firms include a representative from the company's management, a Norwegian employee within the company, and an expatriate employed in the company. Interviewing is the main method used, and focuses on understanding the manager's reflection on company history, growth, and the decision to hire expatriates; in addition to company organization and strategy as a result. Norwegian employees are interviewed in order to confirm the reflections made by the management representative in addition to reflections over the influence expatriates have had on the company organization. Expatriates are interviewed in order to understand their motivations, experiences, and skill-backgrounds that led them to work in the firms studied as well as their reflections over their life situation in Norway and their motivations to stay or leave the company as a result.



In chapter four the results from the case studies are presented. The first section of the chapter provides an understanding of Trondheim Region and the important knowledge environments that have been developed as a result of the Norwegian University of Science and Technology. The companies studied both founded and embedded in these environments. The next three sections present the case companies, their history, competitive situation, organization, and need for human resources based on the interviews with the management representatives and the Norwegian employees. It is then discussed the significance of hiring expatriates for the companies in addition to the influence the expatriates have had on company organization and work systems. In the end the expatriates themselves are presented through their life situation and perspectives on integrating in Trondheim, as well as their future plans to stay or leave Trondheim.

Chapter five discussed the empirical evidence presented in chapter four in light of the theoretical perspectives presented in chapter two. Theories of knowledge management and local knowledge flows are discussed in light of the reflections made by the representatives of management interviewed. The influence that diversity has on innovation and group dynamics is also discussed through the empirical evidence, in addition to the importance of developing a strategy of retaining expatriate employees.

Chapter six includes the conclusion and summarizes the main argument made in the thesis. The chapter also discusses implications for public policy in regards to stimulating innovation, investments, and dealing with skill-shortages in Trondheim Region. In addition the chapter discusses some further areas of research in regards to the themes presented in this thesis.



## 2 Literature Review

### 2.1 Introduction

*“In today’s global economy the places that attract and retain talent will win, and those that don’t will lose” (Florida 2005; Location 130)*

According to Florida (2005) firms that compete for the talented individuals, as human resources are a key competitive advantage for high-technology companies. The ability to mobilize talent, or to easily recruit a number of skilled professionals at a given time, is a major advantage for firms. Talent is also important for firms as it improves innovation and firm competitiveness. Florida argues that the ease of mobilizing talent is a key for innovation, however he does not explain how “not being able to mobilize talent” or *skill shortages* can impede innovation. According to Cohen and Zaidi (2002), companies may deal with skill shortages by simply not hiring new employees or restructuring work systems. Firms, for example, may choose not to invest in new projects, or may outsource such investments where talent can be more easily mobilized. A lack of investments in growth and R&D activities may impede innovation, according to Spilling (2006).

Florida (2005) argues that if a firm is not able to easily mobilize talent then it will either lose its competitive standing in the global markets, or may choose to relocate to place with better skilled labor markets. However why then would firms choose to be located in a place with skill shortages, and respond by hiring expatriates that involves higher relocation and training costs in addition to regular wages? The problem with Florida’s argument is that he does not mention the other factors that bind a firm to a specific place. In Florida’s argument (2005) the world is one large playing field, and people and firms have a tendency to move to the places that are hubs of global economic power. He notes that places like London, New York, Berlin, Tokyo, etc. account for most of the economic power in the world, and argues that these places are attractive for firms and people alike, not just because of economic power but also because they are attractive places to live for creative people.

Florida’s argument is too general, and focuses on the processes that occur in the world as a single geography, whereas in reality such processes are much more complicated. Economic and political processes, according to Dicken (2011), occur rather in multiple geographies and therefore one should focus not only on *globalization*, but also on *localization*, *regionalization*, and

*nationalization*. According to Dicken, firms are indeed embedded into regional and national economic and political systems, and must relate to economic and production flows that occur in different geographies.

The problem with Dicken's theories, however, is that he makes a general statement for all global industries. What economic and political processes mean for a manufacturing company may be very different from a high-technology company. Whereas production systems are important for both, a high-technology company has greater focus on knowledge activities (Blackler 2004). Such companies are not only dependent on capital and labor flows, but also knowledge flows according to Blackler.

Therefore it is interesting to look at the knowledge theories of Blackler (2004), who although does not make an argument for globalization, nevertheless explains how knowledge can be categorized as *embrained, encultured, embodied, encoded, and embedded*. The transferability of knowledge is dependent upon its type. Some types of knowledge are tacit in that they can be transferred only from person to person, in other words locally, while others can be encoded and transferred through communication technologies, or globally. Firms are also embedded and encultured in local knowledge and innovation systems, and therefore it may not be relevant for a firm to relocate.

Nevertheless for firms to innovate, it is important that they are able to draw upon external knowledge flows and to change knowledge and work systems within the firms. McElroy (2002) argues that firms are not just dependent upon human capital (i.e. the creative talent of individual members in the firm), but also social innovation capital (i.e. the group processes that create creative output in the firm). Here expatriates are understood not just as factor for firm strategy, but also as dynamic actors themselves who cause implications for firm organization and strategy. Holden (2002) argues that firms should not treat diversity through cultural management, but rather through knowledge management – as the expatriates experiences and culture can be considered as types of knowledge important for a firm's organizational development.

Millken, Bartel and Kurtsberg (2003) argue that diversity in some cases improve social innovation capital within the firm. However they also argue that diversity is a double-edged sword that can also create conflict in teamwork, especially in the early stages of the group's life

cycle. Generally diversity creates the best effect in the later stages of teamwork. Therefore it is argued that the firm benefits the most when hired expatriates stay longest in the firm. It is expensive for the company when an expatriate employee chooses to end their contract early within the company, as the company loses out on its investment, according to Jensen (2013). Therefore it is not only interesting to understand the dynamics of the firm, but it is also interesting to note the dynamics and perception expatriates have in regards to their career and their life situation. Stalker outlines the different theoretical perspective on why labor migrants relocate between countries. Kennard (2012) explains that in some cases immigrants leave a new country because of the difficulties that occur for the spouse's integration in that country.

In the end the theory presented provides a framework to better understand why it is significant for firms in Trondheim Region to hire expatriates. Here it can also be better understood how expatriates themselves influence company organization and strategy.

## **2.2 The Significance of Hiring Expatriates**

### **2.2.1 Globalization and Mobility**

The mobility of firms, capital, and people in global markets is often discussed under a discourse of *globalization*; so to answer the question of why it is significant for high-technology firms in Trondheim Region to hire and import expatriates to their location in Norway, it is important to include the discourse into the theoretical framework. A simple definition of globalization explains that economic, culture and polity are “transformed, reshaped, and reworked to produce a more global world and a heightened global consciousness” (Short & Kim 1999; 3).

Hyper-Globalists, according to Dicken (2011), argue that the “world is flat”, and that as capital becomes more globalized, finances are less dependent upon local capital flows. In this sense location and place are less important and firms can mobilize to wherever production is most cost-effective. Florida (2005), however, argues against this discourse, arguing that place is indeed important. He notes that the world is “spiky”, in that most economic power is located in relatively few cities around the world. These cities are not only attractive to firms, but also have a large portion of what he calls the *creative class*. Florida defines the creative class as highly educated portion of the population whom are involved in creative processes that produce new services and products. As the economies of advanced industrial nations shift from manufacturing-based to

knowledge-based economies, Florida argues that being able to mobilize talent is a key competitive advantage for firms.

Florida argues therefore that place is important, in that the places that develop cultures and infrastructures that are most attractive for the creative class are the places where firms choose to locate if they have the resources. Members of the creative class are mobile, Florida explains, and can easily move to the most attractive places, and therefore places must compete to be attractive for this group.

Although Florida's theories (2005) do explain the significance for firms to hire expatriates, his theories are too general and oversimplified and are not sufficient to explain the significance of hiring expatriates for high-technology firms. The problem is that Florida perceives labor and capital flows occurring in the world under a single, global economy. However that comes with the assumption that firms and people are easily mobile. Here is argued that there are more complex processes involved, and to understand the hiring of expatriates, a different understanding of globalization is needed.

Dicken (2011) argues that globalization is a complex series of processes, and that instead of thinking about the world as a one, single geography, as Florida does, global processes are rather reflected and influenced in multiple geographies. The global economy is not a function of the quantitative spread of economic relationships and people (as Florida often tries to show through the use of different quantitative indexes), but rather it is a function of the "qualitative transformation" of economic relationships across a geographical space (Dicken 2011; 7). Dicken explains that globalization is made up of *localizing*, *internationalizing*, *globalizing*, and *regionalizing* processes that operate unevenly in time and space (Dicken 2011; 8). The world is indeed globalized in that there is a high degree of functional integration, but is increasingly localized through geographically concentrated economic activities. Economies are also becoming regionalized in regards to new economic agreements and internationalized in regards to the spread of economic activities across borders, but with a low level of functional integration (Dicken 2011; 7).

Although Dicken provides a useful argument that the world cannot be understood as a single geography, Dicken's argument that firms are embedded in economic and political systems on

local, regional, and national levels as well as global is incomplete. In Trondheim (Impello 2012), for example, there are international firms whom have neither Trondheim nor Norway as a sales market, but rather operate in global markets. Nor are these firm's production facilities located in Trondheim. However these firms are highly embedded in local R&D environments, and draw upon knowledge resources from the research institutions in the region. Therefore it is important not only to build a theoretical framework around economic and production flows in multiple geographies like Dicken does, but to also take in consideration the knowledge flows in these different geographies. Here Dicken only mentions briefly local innovation clusters, but does not go further into this argument (Dicken 2011; 102). Knowledge flows, based on theories of Holden (2002), are defined as the transfer of knowledge that occur on multiple geographical levels and are facilitated by the movement and communication of individuals and systems. In this thesis it is proposed that firms hire and relocate expatriates as a result of the knowledge assets these individuals hold that are difficult to acquire because of skill shortages in Norway.

### **2.2.2 Knowledge flows in a Global Economy**

Advanced industrial nation's economies have become increasingly *Knowledge-Intensive* (Powell & Snellmen 2004), high-technology firms not only rely on the accumulation of capital or production processes in order to remain competitive, but also knowledge resources, therefore globalization is also a result of knowledge management and innovative economic activities. Gertler argues that innovative economic activities depend on the combination of locally and non-locally sourced knowledge.

*The collection of individuals and the relationships that bind them together – are alleged to be the key mechanism for the production of both strategic and routine knowledge within firms (Amin & Roberts 2008; 2).*

Some forms of knowledge have indeed a tangible element that indeed cannot be traded only through formal communications over global channels, in consonance with Gertler.

By building upon theories of knowledge management, one can get a better understanding of why it is significant for firms to recruit expatriates to their location, instead of outsourcing the work to other locations. Frank Blackler (2004) categorizes "knowledge" as *embrained, embodied,*

*encultured, embedded, and encoded* – the mobility of organizational knowledge depends on the type of knowledge, as shown in Table 1.

**Table 1 - Backler's (2004) Knowledge Categories**

<b>Type</b>	<b>Description</b>	<b>Transfer</b>
Embrained	Based on Conceptual and Cognitive Abilities. Ability to understand abstract rules.	Between persons of the same cognitive level
Embodied	Practical thinking and problem solving techniques based on situational knowledge	Between persons with the same situational understanding
Encultured	Shared Understandings and Cultural Meaning Systems	Between persons of the same cultural understanding
Embedded	Knowledge resided in systematic routines	Between persons of the same organizational understanding
Encoded	Information conveyed in signs and symbols	Between persons who can read and understand the same signs and symbols

Blackler (2004) points out that the advance in computer technologies has made it possible for organizations to encode working patterns and to operate relatively independently from geographical location (Blackler 2004; 349). The computers, nevertheless, require that their users have an understanding over decontextualized and abstract symbols as well as the cognitive abilities to understand them and knowledge of procedures to work with them within the firm. Either way, Blackler argues that these categories of knowledge cannot, necessarily, be separated from each other. Engestrom, as referred to by Blackler, explains that work settings explicitly avoid separating individuals from the collective, and the social from the technical. Activity systems are socially distributed. Brown and Dugid, according to Blackler, explains that learning



is socially constructed and emerges from practical collaboration between persons (Blackler 2004; 353). Relations are essential to work systems and are mediated by factors such as language and technologies, as well as implicit and explicit social rules that link them to broader communities.

Based on Blackler's and Gertler's theories, it is argued in this thesis, that a R&D department of a firm is embedded in a particular location, as it is in that location where a firm has developed a unique community that is an asset for the firm in regards to innovating and competing in global markets. It is argued that because this unique community is based on tacit knowledge, or knowledge that can not be easily coded and transferred, then it would be difficult for a firm to relocate innovation activities to another location. Therefore firms will prefer to invest in the location where its knowledge resources are prevalent.

So in other words some types of knowledge are mobile and independent of location, while other types of knowledge are tacit and situated. Either way location is still of significance in the global economy. Blackler (2004) explains that *knowledge-intensive firms* place key emphasis on embodied skills of key members. In firms where communication plays a central role in the organization, it is important that experienced consultants are available to other staff members for comments or guidance. From Blackler's theories it is proposed that the location of a firm is situated around the key members of the organization. In addition social learning systems and processes within the firm can be situated around encultured and embedded knowledge systems, that are only partially explicit. These key members have embodied knowledge and form an important part of the firm's community, that as said before is bound by implicit social rules that are not easily transferred. The firm is only mobile to the extent that its key members are, and in addition transferring encultured and embedded work systems can be difficult. Based on these theories of knowledge management within organizations, it is argued that hiring expatriates is significant for firms to invest in new activities and being competitive while at the same time developing and maintaining a particular location. However as will be explained in section 2.4, expatriates also themselves have both positive and negative implications for this community.

Traditional literature on globalization, as stated by Dicken (2011), has focused on that as capital and knowledge become more mobile, that geography matters less. Literature has focused on the natural degree that the world economy is interconnected, with focus on global production networks that span across boundaries. Short and Kim (1999) state that as capital is more

globalized, that finances become less dependent on local financial flows. However this does not mean that the market is not less dependent upon the supply of local labor flows. Firms have a tendency to locate in places where there is the largest supply of talented labor, referring back to Florida (2005). A common assumption, according to Huggins is that firms will locate in places where labor costs are the lowest. Huggins argues against this assumptions however in that:

*“Although low labor costs may initially contribute to the attraction of business investment to an area, such costs are in many ways a ‘double-edged sword’, resulting in employees working for lower wages than their counterparts in other localities and regions. Therefore, it can be argued that true local and regional competitiveness occurs only when sustainable growth is achieved at labor rates that enhance overall standards of living” (Bristow on Huggins 2005, 289)*

So in other words for firms it may not be a reasonable strategy to move to area’s with low labor costs. As explained by Florida, knowledge-intensive firms whom are dependent on human capital will locate in places where such talent can be easily mobilized.

So why then would firms locate in places that have high wage costs in relation to productivity, and places that do not have a pool of talent that is not easily mobilized? As explained before by Blackler (2004), knowledge-intensive firms that depend on the embrained knowledge skills of its key members and the firm work systems are embedded and encultured in a particular location. In addition knowledge-intensive firms may benefit from being embedded in local innovation systems and proximity to other firms. It is not enough for talented individuals to cooperate across long distances on R&D projects. As I will explain later in section 2.4, individuals do not necessarily give the company an innovative advantage, but rather it is the relations between individuals, and the company culture and work systems that give a firm it’s innovative advantage.

What Blackler’s theories on knowledge management and the challenge of firm mobility as a result show, is that firms are embedded in local knowledge systems. Therefore it may not be feasible for the firm to relocate or outsource parts of its R&D facilities. It is proposed in this thesis that it is significant for firms to hire expatriates in order to both have access to human talent and to be able to develop their current location, despite difficulties in recruiting talent. However the next question is why is it important to firms to have access to human talent and how does it influence innovative processes and firm competitiveness.

### 2.2.3 Competing in Global Knowledge Economies

Frank Blackler (2004) refers to the political economist, Robert Reich's argument that the world is divided between the production of standardized products and high-value problem solving. High-Technology Firms are less interested in production and more interested in exploiting specialized knowledge as a competitive advantage. Malmberg states that "In today's knowledge-based economy, the ability to innovate is more important than the cost efficiency in determining the long-term ability of firms to prosper" (Malmberg 2003; 145). Powell and Snellman define knowledge economies as:

*The production of services based on knowledge-intensive activities that contribute to an accelerated pace of technical and scientific advance, as well as rapid obsolescence. The key component of knowledge economy is a greater reliance on intellectual capabilities than on physical inputs or natural resources (Powell & Snellman 2004; 199)*

As mentioned before when referring to Blackler (2004), knowledge intensive firms have a key focus on embodied knowledge, that is focused around intellectual capabilities. In order for firms within this industry to compete, the firms are dependent upon innovative talent within the firm. Therefore it is significant to recruit expatriates who have competence and knowledge within needed areas and can contribute to innovative output in that area.

Researchers have pointed out changes in advanced industrial society's that have previously focused on manufacturing based economies, have more focus now on service-based economies. Spilling (2006) attests that innovation has two benefits for such an economy: cost-reduction of goods and the development of new goods and services. Powell & Snellman justify this theory by

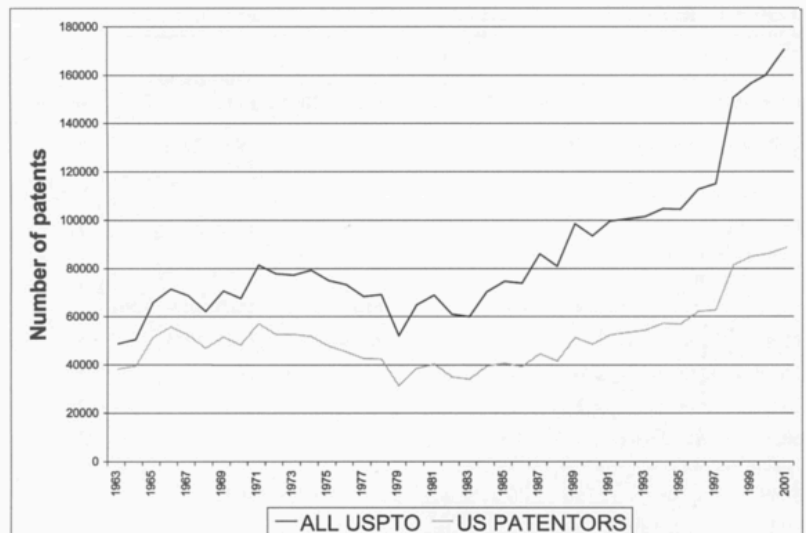


Figure 1 - Number of Patents Granted by USPTO, 1963-2001. In Powell & Snellman (2004; 204)

pointing to the number of patents – in the US there was no specific trend between the years on 1963 to 1983, but after 1983 the number of patents started increasing, and after the 1990's the number of patents increased sharply. Over 20 years since 1983 the number of patents increased from 47,642 to 168,040. It was not just large countries such as the United States however that experienced the boost in innovation, Finland also saw a major shift in economy. Whereas before the Finish economy was based on forestry and paper production, Finland had grown a telecommunications industry. In 1990 only 8.9% of finish patents to the European Patent Office were in the high-technology industry, but in 2000 the share of high-technology patents was 50% (Powell & Snellman 2004; 204).

Another study shows that the number of science and engineering jobs in the U.S. had increased from 159% from 1980 and 2000. The employment growth rate in science and engineer fields has increased at 4.9%, compared to 1.1% for the entire labor force. The result of the growing knowledge economy is a larger need for talented labor especially in science and engineering fields, according to Powell & Snellman. In the United States, in order to deal with the larger need for skilled labor, recruiting candidates from other countries has been a longstanding trend, according to Cohen (2002).

Evolutionary approaches in geography and economy have often been referred to regarding the importance of “knowledge, education technological development, and R&D” for economic growth (Godø 2008). Innovation is considered a purposeful generation of variety through “search activities” or “purposeful, intentional actions by humans where the anticipation of obtaining an innovation is an important dynamic factor.” (Godø 2008; 22). In others words innovation is a purposeful contribution to variety with the aspect of generating something that is new. When firms innovate they create diversity in product/service markets.

Spilling (2006) explains that firms often undergo continuous “entrepreneurial” life cycles in order to survive. As a firm launches a new successful product in the market, the firm will continue to grow until the market is saturated – either by the firm’s products or other similar products that have been launched by other firms. Therefore the firm needs to start the process of improving the existing product or launching a new product in order to sustain continued growth. “Creative Destruction” is a term coined by Schumpeter (Spilling 2006) who described that if one firm or industry experiences an economic stagnation and eventual decline, then resources are eventually

released that other more innovative firms can take advantage of. Therefore firms, especially in the knowledge-industries need to innovate, and are dependent upon “creative capital” in order to do so. However if the costs for innovation are too high, then the firms may be hindered to invest in innovation activities.

#### **2.2.4 Global Talent and Firm Competiveness**

According to Cohen, skill shortages occur when there are “are unfilled vacancies in positions where salaries are the same as those currently being paid in others of the same type and quality” (Cohen & Zaidi 2002; 6). In a static labor shortage theory if the supply of workers does not meet the demand in an occupation, then the wage level for that occupation will rise. Wages in the market will continue to rise in order to meet the shortages, as people move to areas where wages are the highest. However Cohen and Zaidi explain that skill shortages occur when there are restrictions to the amount of wages that can be paid. According to efficiency wage theory, a firm is limited to the amount in that it can increase wages in order to attract new workers. It is also challenging for the firm to selectively increase wages in certain occupations as it increases the gap between the wages earned in one occupation to another, that could in the end reduce the productivity for workers in the other occupations (Cohen & Zaidi 2002; 7).

Cohen and Zaidi explain that according to the insider-outsider theory, it can be consequential for a firm to pay newly employed “outsiders” more than the older employed “insiders”, and therefore there is a limit to the fluctuation of wages in an occupation. If the firm gives an increase of wages to outsiders, then the firm needs to do the similar for insiders. Another option may be to replace insiders with outsiders, but the consequence of this is that the firm loses specific talents within the firm. Another option for the employer is to restructure occupations and duties to deal with the shortage.

Therefore a consequence of a shortage of labor is that the wages in a particular occupation go up, while productivity remains stagnant. The economic consequences of this is that it firms lose their competitive ability against other firms to produce products or services at competitive costs in the global markets. However as said before innovation is a key for reducing costs or creating more competitive products in the market. Nevertheless productivity in regards to the ability to innovate

at lowers costs is still a challenge. If firms do not have the economic capacity to innovate, then they are unlikely to invest in such activities.

Hiring expatriates maintains a growth in productivity in firms. It is argued that the significance of hiring expatriates is that it allows high-technology firms to continue investments in R&D activities in a particular location, despite skill-shortages. Without the ability to hire expatriates costs for such activities would raise and the companies would not be able to release competitive products and services in the global markets. Another option for a company may be to simply not invest in new activities, but then as Spilling (2003) explains, firms risk losing ground in global markets. Another option a firm may have is to outsource activities, but as explained before through Blackler, company's key resources are embedded in the knowledge of their embrained members and communities specific to a location. Therefore a firm's growth and innovation is connected with their ability to recruit expatriates when faced with skill shortages.

## **2.3 Expatriates' Influence on Firm Organization and Strategy**

### **2.3.1 Diversity and Innovation in Firms**

Previously it was discussed the significance for high-technology companies to hire expatriates in order to deal with skill-shortages in Norway. In order for firms to invest in innovative activities, they need to easily mobilize talent and as there is a lack of qualified professionals in Norway, this may prove to be especially difficult. Therefore companies have responded by hiring expatriates and as a result they are able to continue to invest and grow in Trondheim Region. As a result these firms are able to be more productive. Nevertheless this understanding only sheds light one side of the phenomenon, as it views the high-technology firm as an actor, but the expatriates themselves are also dynamic actors whose experiences, background, and life situation has implications for the firms organization and strategy.

Literature on cultural diversity in organizations is often focused on cultural differences as being something to be managed and cultural shock to be coped with. Holden, in his book *Cross-Cultural Management*, defines culture instead as an object of knowledge management. Firms do not only manage culture, but are continually in a process of creating new cultures. Diversity in an organization leads to new cultures that are formed within the organization. "Cultures are better conceived as intersecting zones of collaborative learning, pools of common knowledge" (Holden

2002, 285). Holden claims that these new cultures become an important part of the firm's organizational portfolio.

Holden argues that if cultural values and utility is not recognized as knowledge, then it is a dead resource, where otherwise it could be a part of the firms organizational capabilities (Holden 2002; 289). Diversity in the organization can be a competitive advantage for that organization. Therefore organizations should go about cross-cultural management in the way that they go about knowledge management. Knowledge management for firms is important for competition. Holden quotes Spender who states that:

*“Since the origin of all tangible resources lie outside the firm, it follows that competitive advantage is more likely to arise from the intangible firm-specific knowledge that enables it to add value to the incoming factors of production in a relatively unique matter” (Holden on Spender, 2002; pg. 73)*

Innovation, according to Spilling (2006), is defined as creating something new with an economic significance, often by creating a new combination. Yet the quote by Spender shows that internal resources in the firm such as human resources and how these are organized is a key for innovation in the firm. Milken associates innovation with creative output in that the defining qualities are fluency, flexibility, originality, and usefulness (Milken 2003; 34).

Diversity in a team, according to Milken (2003), is often associated with having a positive influence on creativity in a team. Although diversity may not, in itself, produce creative output - creative output can rather be an outcome of the process of working in a diverse group. There is an assumption that diverse groups ought to produce more creative output because of a range of skills and resources to draw upon, but Milken points out that these skills can only produce creative output if they are utilized, and one of the negative aspects of a diverse group that they produce negative reactions and members are less willing to contribute ideas and knowledge with each other. Milken suggests a group life-cycle approach where they identify the challenges and opportunities during the life cycle that eventually lead to the quality and quantity of creative outputs.

*“Such processes also increase the depth of information processing whereby work groups evaluate their different perspective and alternative and move toward convergence to develop a product that meets their performance standards.” (Milken 2003; 59)*

When group members are attuned to differences in the group in the early phases, they exhibit a stronger attraction towards members who are similar to themselves, ultimately isolating certain members. However the effect is lessened if group members have prior experience with working with people who are different from them.

Diversity in ethnic background is often said to increase the quantity of creative output, but a study carried out by Mcleand and Lobel (Milken 2003) showed that groups whose members have diverse ethnic backgrounds produced not necessarily a larger number of ideas, but rather the a better quality of ideas in brainstorming tasks. Based on this report Milken (2003) raise the possibility that difference in member's perspectives may help the team to evaluate the utility of specific ideas, an element of convergent thinking.

Nevertheless Milliken and Martins (1996) prefers to consider diversity as a double-edged sword, one that can prove to be both a challenge and an opportunity. As mentioned before diversity within the organization becomes a part of the organizations capabilities, as Holden puts it culture should be an object of knowledge management instead of cross-cultural management. McElroy (2001) argues that current conceptions of knowledge management, or management of intellectual capital, often do not take in consideration "Social Capital" within the firm. McElroy (2001) defines social innovation capital is the firms collective ability to innovate, previously firms focused on human capital and structural capital, but failed to take into account the relationships that persist between people in firms and in other firms.

*Social innovation capital, then, refers to the collective manner in that whole social systems (i.e., firms) organize themselves around – and carry out – the production and integration of new knowledge. (McElroy 2001; pg. 4)*

It is therefore recognized that the firm's ability to innovate is not only based on the intellectual creativity of individuals, but rather the output from the social processes in the company. However given this perspective, it is argued that the managers of said companies should be better to recognize and manage their social innovation capital.

HR-Managers should take into account the "Ethodiversity" of the firm, that is "the diversity of values and worldviews that a firm will have at its disposal as it attempts to learn, innovate, and



adapt.” (McElroy 2001; 13). Ethodiversity is a factor that can improve the social innovation capital of the firm as shown in figure 5.

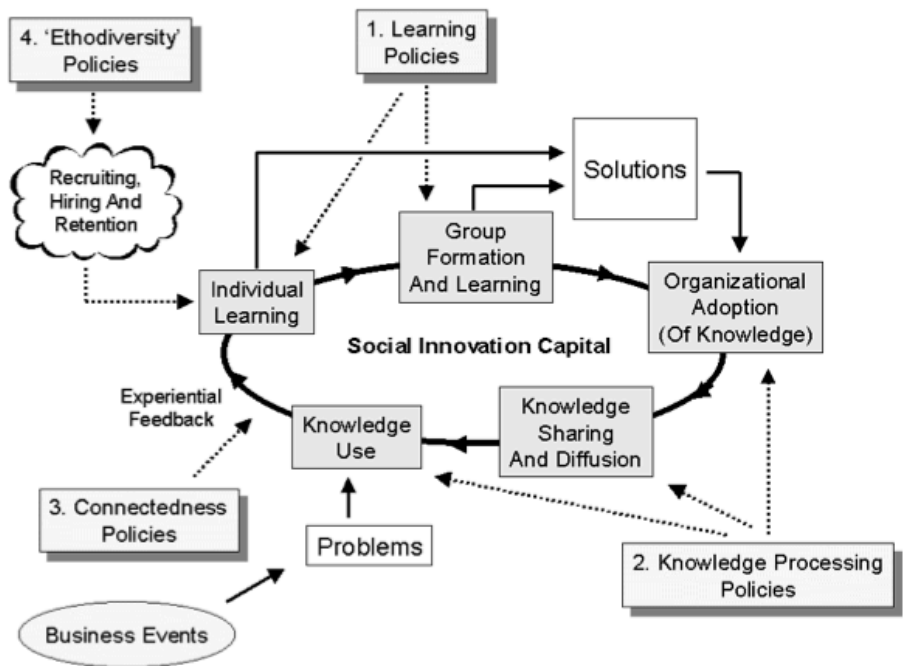


Figure 2 - The Policy Synchronization Method Applied to SIC (McElroy 2001)

So in regards to ethnic diversity in the company, that can be said to be a double-edged sword on one hand leading to differentiation, conflict, and isolation can hamper innovation – on the other hand, depending upon the experience of the group with diversity and the social processes that the company builds around diversity, the company can indeed improve innovation. That being said social convergence in creative groups is more apparent on the later phases of the group life-cycle, and it is at this point when group members are most likely to be open in regards to sharing ideas and perspectives. Thus it can be assumed that the maximum potential for innovation can be reached, when new members (with different cultural backgrounds), have longer experience working in the group.

### 2.3.2 Attracting and Retaining Foreign Workers

The distribution of headquarters of major multinationals is indicative of the concentration of economic decision making power in particular cities according to Florida (2005). Florida claims

that indeed the world is not flat, but rather spiky, with the amount of innovation and economic power concentrated only in a few mega-cities around the world.” However according to Farsund and Leknes (2010) even though mega cities play a large role in social development, and the Norwegian cities are quite small, the growth of cities is still an important factor for social development

However despite global flows of capital and knowledge, talent has proved to be less mobile. People are less mobile than money or goods, and movement is restricted dependent upon passports, visas, residence, and labor qualifications. People are bound by nationalities, but when they do move, it may not necessarily be money flows that they follow. Rather developing cultures that attract diversity and talent seems to play a key role. “Globalization puts pressure on cities to develop their specific cultures in ways that attracts businesses, investment, high-technology professional and that convince their own residents and entrepreneurs to remain” (Short & Kim 1999).

Stalker (1994) outlines some of the approaches to why individuals migrate. The individual approach considers migrants as rational human beings who evaluate a range of accessible destinations and choose the best combination of wage rates, job security, cost of travel, etc. People move to where they can get the best return for the skills and experience they employ. A structural perspective however views that individuals' fates are more determined by circumstances that create push-pull factors such as social, economic, and structural factors that shape their lives (Stalker 1994; 22) Stalker also explains that first migrants, or pioneers, often lead the way for more migration:

*“Individual ‘Pioneer Migrants’ help those who follow to settle and find work. These networks often begin with an individual choice...when he or she tells of the rewards of this it encourages future migration and establishes new migration structures” (Stalker 1994; 22)*

So some migrants' experiences of a particular location are shared with other prospective migrants. For high-skilled migrants who have connections in other countries with other high-skilled migrants, this may serve as an advantage for a company that wishes to hire more professionals from abroad.

It is important therefore that not only are firms able to attract foreign workers as a result of the career, but also that the city where the firm is located is also attractive for foreign workers, and that foreign workers have a good experience (such that they share their experience with other prospective migrants). People do not necessarily move to the place where they can find the highest wages, but rather the best quality of life according to Florida (2005).

According to Cohen and Zaidi (2008) barriers to mobility may however make it difficult for firms to hire foreign workers. Such barriers can include high costs of relocation and training, restrictions on immigration, or other institutional barriers may restrict the ability for markets to adjust to skill shortages. (Cohen & Zaidi 2008; 12). So if the costs associated with hiring foreign workers are too high, then this may restrict the ability for companies to do so.

Relocation costs may be high if, for example, visa processes are difficult, difficulties in finding housing, difficulties with welfare and integration, difficulties with schooling for children, etc. The more difficult it is for a labor migrant to settle, the higher the risk for the company that the migrants will choose to quit their jobs, and choose to move to their home country or another location. A company therefore may choose to invest time and resources into relocation services, or may choose to hire an external relocation service. Either way, the costs for hiring foreign workers will increase as a result.

Florida refers to a 2004 survey in the United States carried out by the Santanlego group that visa delays cost U.S. Businesses around 30 billion USD in two years (Florida 2005; Location 2059). Such Visa delays, according to Florida, also discourage new migrants from moving to the United States. Florida notes that if migrants are discouraged from entering the US they can be motivated to go to other countries. If the cost is increased and the ease reduced of recruiting foreign talent, Florida argues that some firms may choose to relocate out of the United States. "Other countries are investing in R&D, and are putting resources into higher education, and open themselves up to foreign-born talent quickly move up the scale." (Florida 2005; location 2183).

As mentioned before, outsourcing may not be an option for companies if they are embedded in local innovation systems and are dependent upon key members of the company, also social innovation capital within the company is encultured within a particular location, then this may be difficult to transfer to new locations. Florida does not mention such factors that bind a particular

R&D department of a company to its location. However if the company has new investments planned then it may choose to invest in other locations where talent can be mobilized, instead of investing in its current location. Therefore the company's ability to recruit foreign talent may be important in regards to choosing the location of its investments.

One risk for firms to bring expatriates to their location may be that the expatriate becomes dissatisfied with their life situation in the location. Although the worker may be pleased with the work situation, he or she may not be necessarily happy with living in the city. Such dissatisfaction may lower the threshold for the foreign worker to quit his or her job and move to another location.

In her dissertation at Alliant International University, Elizabeth Kennard, interviewed several expat families in silicon valley and found that while the some of the expatrites who was recruited by a company in silicon valley had a support network and a career, the partner of the expatriate had no support system and difficulties finding a career and/or was dissatisfied with their life situation. According to the Brookfield Global Relocation Services 17% of the cases where expatriates decide to leave their current assignments early was because of partner dissatisfaction. (Kennard 2012; 5). It is apparent that it is important not only for the main worker to be satisfied but also his or her family.

If an expatriate decides to leave his or her position before the contract or a short time after being hired, then this can be costly for a company. Some companies invest a certain amount of resources in relocation services and training, and to get their return on these investments it is important for the employee to work for a longer period. Also as said before, foreign workers are able to best contribute to the innovation processes in a group when they have been working in that group for a while. Therefore if the firm is to get the best return from their investment, then it is important that the employee stays in the company for a longer period of time.

## **2.4 Innovation and Skill Shortages in Norway**

In the previous sections it was argued through the theoretical perspectives that hiring expatriates is significant for high-technology firms because it allows such firms to invest in innovation activities in a particular location despite skill shortages. In addition it was discussed that expatriates themselves influence innovation in companies as diversity had an important factor on

group creativity processes, depending upon the dynamics within diverse groups. In order to further discuss the connection between hiring expatriates and innovation, it may be interesting to first look at how Norway fares in its innovation activities compared to other countries in Scandinavia.

#### **2.4.1 Innovation in Norway**

According to different indexes access to human capital and innovation are often correlated. By looking at the Global Innovation Index (INSEAD 2013) it can be shown that Norway scores lower than other Scandinavian countries both regards to innovation and the availability of human capital in science and technical fields. From these indexes it is argued in this thesis that Norway, by hiring expatriates, is improving its access to human capital and thus improving innovation. Although it is noted that human capital is only one factor in a series of complicated factors, that determine how “innovative” a country can be compared to other countries. Norway is often compared to other Nordic countries (Sweden, Denmark, Finland, and Iceland), in regards to similarities in population and economy.

In the Global Innovation Index co-published by Cornell University, INSEAD, and the World Intellectual Property Organization, Norway ranks 16<sup>th</sup>. The index is built from five pillars: institutions, human capital and research, infrastructure, market sophistication, and business sophistication.

Global Innovation Index (average)					
Rank	Country	Score	Value	Percentage Rank	Score View
1	Switzerland	66.6	-	92.1	
2	Sweden	61.4	-	61.7	
3	United Kingdom	61.2	-	58.1	
4	Netherlands	61.1	-	82.2	
5	United States of America	60.3	-	39.7	
6	Finland	59.5	-	53.1	
8	Singapore	59.4	-	14.8	
7	Hong Kong (China)	59.4	-	23.4	
9	Denmark	58.3	-	45.3	
10	Ireland	57.9	-	60.2	
11	Canada	57.6	-	52.4	
12	Luxembourg	56.6	-	77.3	
13	Iceland	56.4	-	79.4	
14	Israel	56.0	-	73.7	
15	Germany	55.8	-	72.3	
16	Norway	55.6	-	43.2	
17	New Zealand	54.5	-	36.8	
18	Korea, Republic of	53.3	-	33.3	
19	Australia	53.1	-	18.4	

**Figure 3 - Global Innovation Index in INSEAD 2013**

As shown figure 2.2, Norway lags behind the other countries in Scandinavia (Sweden, Denmark, Iceland, Finland) in the global innovation index. In the country analysis the index shows that although Norway scored well on factors like creative outputs, researchers, infrastructure, and business environment, it had scored poorly on graduates in science in engineering, high tech and medium outputs, and creative goods exports. Whereas Norway scored 15<sup>th</sup> on Human Capital and Research, Finland scored 1<sup>st</sup>, Sweden 4<sup>th</sup>, Iceland 5<sup>th</sup>, and Denmark 7<sup>th</sup>. On knowledge creation Norway scored 20<sup>th</sup>, while Sweden scored 2<sup>nd</sup>, Finland 10<sup>th</sup>, Denmark 13<sup>th</sup>, Iceland 14<sup>th</sup>. Based on this index it can be questioned if skill shortages in Norway are a hinder towards innovation, considering other countries in Scandinavia score better both on innovation and human capital and research.

The Global Talent Index by Hedrick and Struggles measures the current state of global talent in the world by measuring economic indicators, cultural contexts, trends in education, foreign direct

investment, mortality, health, and market fluidity. In the Global Talent Index, Norway is one of the highest scoring countries and is in 4<sup>th</sup> place, behind the US, Denmark, and Finland. Norway does well on education quality, university education, and proclivity in attracting talent but is again behind its Scandinavian neighbors especially in regards to the quality of its labor force (Rank 11), for example in technical skills. Denmark 1<sup>st</sup>, Finland 2<sup>nd</sup>, Sweden 3<sup>rd</sup> are on the top of the list (Iceland was not on the list). In the Human Capital Index (2014), Norway ranks low (29<sup>th</sup>) in the ease of finding skilled employees. Finland however ranks 1<sup>st</sup>, Denmark 20<sup>th</sup>, Iceland 6<sup>th</sup>, and Sweden 10<sup>th</sup>. These rankings are based on the 2013-2014 executive opinion survey carried out by the World Economic Forum.

What the indexes show is that Norway lags behind in regards to its innovative capacity in comparison with its Scandinavian neighbors. The quality of Norway's skilled labor force and the lack of ease in finding skilled labor, in addition to the low number of science and technological graduates is a hamper for innovation in the country. Although there are many other factors involved (for example, Norway spends less on R&D than its Scandinavian neighbors (Finne 2007; 79)), the shortage of skilled labor is one of the factors. Hiring expatriates as explained before is a means to dealing with skill shortages; the question is however, how can skill shortages hinder innovation in Norway?

#### **2.4.2 The lack of qualified labor in Norway**

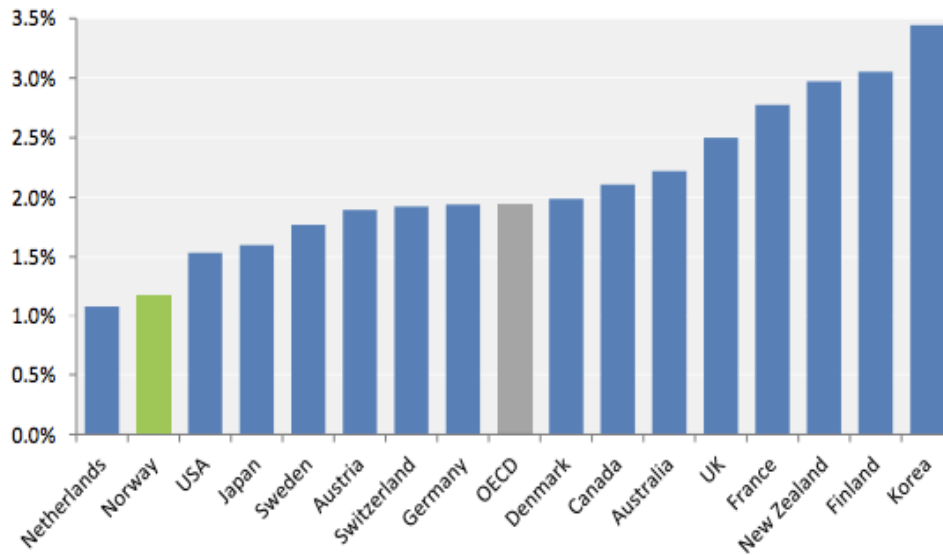
As discussed previously, skill-shortages, according to Cohen, can be an investment hinder for firms. A firm may try to increase wages, but if the firm is unable to remain competitive, then it may simply not invest in new activities and new employees. Table 2 shows that a large percentage (37%) of the companies surveyed in NHO's Business Barometer (Jensen 2013) considered the lack of access to qualified candidates as a major hinder for new investments.

<b>Investment Hinder</b>	<b>Percentage</b>
Lack of a qualified labor force	37%
Decreasing Revenue	34%
Reduced Sales Prices	32%
Weak Cost Effective Competitive Ability	27%
Increased Prices on Equipment	15%
Lack of resources for adaption	15%
Lack of Access to credit and finance	13%

**Table 2 - NHO Business Barometer (Jensen 2013)**

For High-technology firms in Norway skill shortages are a particular problem due to the low number of persons with qualification in STEM fields (Science, Technology, Engineering, and Mathematics) compared to other countries. According to an OECD report (2010) only 34% of the students in Norway aspire for a science related career at the age of 15, that although this fits the average for rest of the OECD, it is below the 40% mark for US and Canada. Only 1% of employed 25-34 year olds have qualifications in science related fields, while the average of the OECD is at 2%.





**Figure 4 - Share of Total Employment of Persons in STEM fields aged 25-34 (OECD 2010)**

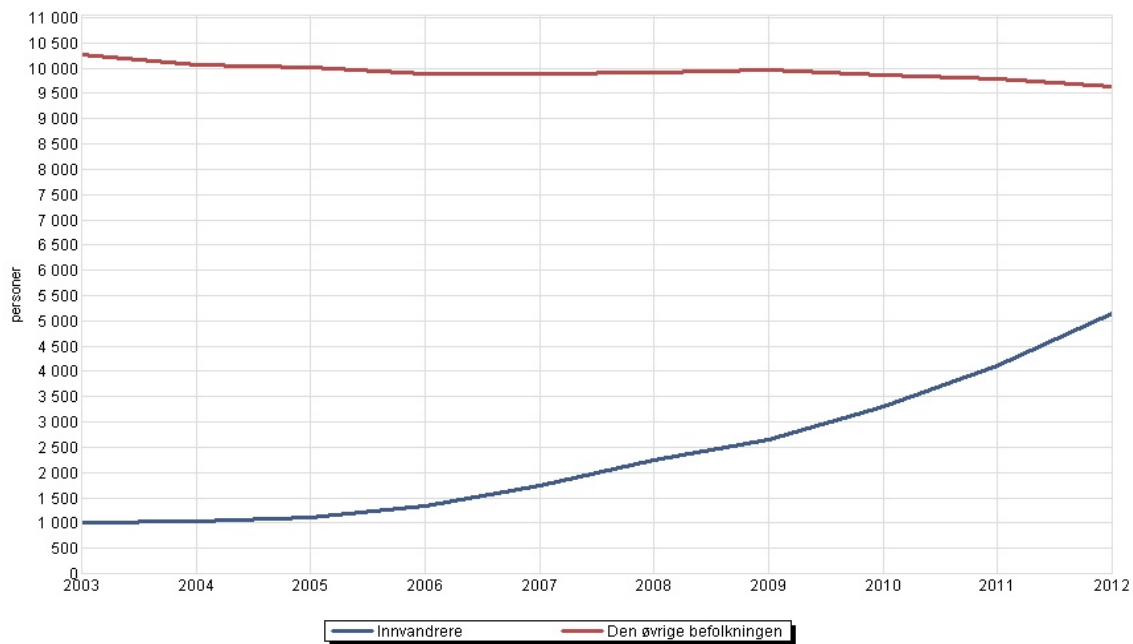
Thus the share of individuals in Norway with competence in STEM Fields lies at the lower end of the scale in OECD countries (OECD 2014; 59). A closer look at the statistics in Norway will show that the number of graduates between the ages of 30-39 in science and technological studies has only increased 1.1% since 2001 to 2012 (SSB 2013). This number has stagnated at around 20,000 since 2001. At the Norwegian University of Science and Technology in Trondheim, for example, the number of graduated engineers since 2001 has only increased from 524 in 2001 to 680 in 2012 (DBH 2014). So based on this statistics it can be assumed that one major cause for skill shortages in Norway is the lack of graduates in technological fields.

The skill shortage in Norway results in a low unemployment rate for engineers. In 2013 there was only 3341 unemployed in 2013, making up only 1.4% of the total engineering work force. In 2002 there was access to 7,340 positions and in 2012 there was access to 23,428 positions. In a survey carried out by NITO, 90% of the students in engineer studies had a job before 6 months after they graduated, in a similar study by Tekna the number was a 93% (Adressaavisen 2014). Low unemployment rates, as will be explained further in the case context (section 4.1), make it more difficult for companies to mobilize a workforce for investment processes, as it would require pulling out employees from other companies.

Yet despite the obvious strong demand for engineers, according to a NAV business survey the shortage of engineers was halved from 8000 in 2012 to 4600 2013. In a comment in Tekniske Ukeblad, Knut Sunde in the Chamber of Commerce for Norwegian Industries explained that many of projects have moved abroad as there were engineers in Singapore, for example, whom could run the projects much cheaper than in Norway (Amelie 2014). Another factor is the large number of expatriates that have been imported to Norway.

### 2.4.3 Is recruiting expatriates solving skill shortages?

According to an article in Tekna Magazine, Norwegian employers have hired 4200 foreign engineers between 2010 and 2012 (Krogsrud 2013; 18). At the end of 2013 there were 15,000 foreign engineers working in Norway total - 40 percent higher then two years ago, immigrants in Norway today account for 20% of long higher education in science and technology, while the number of higher educated among Norwegians has stagnated among Norwegians since 2003 between the ages of 30-35. That number of immigrants between the ages of 30-35 with education in science and technology has increased from 1000 in 2003 to 5149 in 2012 (SSB 2013).



Kilde: Statistisk sentralbyrå

Figure 5 - Persons 30-35 with Long Higher Education in Scientific and Technical Fields (SSB 2013).

In a chronic in Aftenposten written by Christian Nørgaard Madsen (2013) the Administrative director for Multiconsult, he argues that labour migration is not enough. Every day since 2011 there has been an average of 6 “imported” foreign engineers. The engineer shortage has been reduced 50% while the number of engineers imported has increased exponentially by 40%. Despite these numbers, however, there is still a shortage of 4600 engineers. Christian argues that it is an education problem, for universities it is much less expensive to educate a lawyer, for example, than an engineer. So therefore the politicians should reprioritize investments in education. Nevertheless the hiring of expatriates has been significant to companies in Norway, in order to adapt to skill shortages, and to continue investments in Norway.

So in other words based on the statistics provided it is shown that there is indeed a skill shortage in regards to technical fields in Norway. These skill shortages, according to the indexes, are much higher in Norway than in other Scandinavian countries. In addition innovation levels are lower in Norway than the other Scandinavian countries. However the increased number of immigrants with technical backgrounds in Norway, has to some extent reduced skill shortages. It is argued through the theoretical perspectives that hiring expatriates is important for high-technology companies in Trondheim, because it is a means to invest in innovation activities despite skill shortages.

Another argument in this thesis, as outlined in section 2.3, is that also hiring expatriates brings diversity in regards to culture, perspectives and backgrounds that would otherwise be difficult to find in Norway. So therefore in regards to improving innovation levels in the country, the hiring of expatriates may not be only important in regards to coping with skill shortages but also by improving organizational development in firms.

## **2.5 Summary**

In this chapter a theoretical framework has been presented in that certain propositions are underlined in regards to the research questions. First it is asked *why is it significant for high-technology companies in Trondheim Region to hire expatriates?* Florida (2005) argues that companies are dependent upon mobilizing talent and therefore will locate to where there is a large pool of talent. Although the need for firms to mobilize talent is not disputed, in this thesis it is argued that economic and labor flows cannot be understood as processes that occur on a single

global geography. Rather as Dicken (2011) argues companies are dependent upon processes that occur on multiple geographies. However whereas Dicken only takes in consideration economic and production flows, it is argued that knowledge flows are also important factors. Based on theories of knowledge management, according to Blackler, having access to pools of talent is not just important, but also that firms are integrated into knowledge environments and also are located where the key members of the firm live. So a firm may stay located in one place, despite skill shortages.

Nevertheless skill shortages are a hinder for investments, and as Cohen (2002) argues a company may simply choose not to invest in new activities if the company does not have access to skilled labor. Even if a company can increase wages to attract professionals from other companies, it can only do this to a certain extent, as it needs to develop products that are competitive in global markets. If a company chooses to not invest in innovation, however, than it risks losing its standing in the global markets according to Spilling (2003). Thus it is argued that the significance of hiring expatriates is that companies can continue to invest in innovation activities while developing a location, despite skill shortages.

Yet this only describes one-side of the phenomenon. It is also important to understand how the expatriates themselves, as dynamic actors, have implications for company organization and strategy. It is first argued that managing multicultural organizations should not be understood only as a cross-cultural management topic, but as a knowledge management topic according to Holden (2002). Expatriates with their skill sets and different backgrounds form an important part of a company's organizational portfolio. Expatriates bring diversity to a company, that according Millken, Barket and Kurtsberg (2003), has an important implications for creativity in groups both negatively and positively. Although diversity can cause conflicts in the beginning phases of a group life cycle, it can also contribute to the quality of creative ideas in the latter phases of a group life-cycle. The more comfortable a group is with diversity, the more its members can contribute. This has important implications for firms, as hiring expatriates is not only important for firms to invest in innovation activities, but also as a means to build social innovation capital in the firm. Therefore it is important diverse groups to have time to foster.

Therefore it is important for firms to build a strategy around retaining expatriate employees. However an expatriate also has his or her personal life situation and motivations for staying or

leaving Norway. If an expatriate and his or her family is not well integrated in the local society, then they may choose to leave. Therefore the company needs to develop a strategy around the integration of expatriate employees in local society.

In the final section of the chapter the subject is examined in Norway and it is shown that Norway compared to other Scandinavian countries scores lower on the INSEAD innovation Index (2013). In addition Norway also scores low on the access to human talent compared to the other countries, and therefore it is argued that skill shortages are a hinder for innovation. However it is shown that immigrants also have helped reduce skill shortages in Norway, and therefore going back to the argument that expatriates are significant to firms in these regards. The arguments drafted from the theoretical perspectives outlined in this chapter will be investigated through empirical study of three high-technology firms in Trondheim Region.



### **3 Methodology**

Yin (2003; 13) explains that a case study research design is “an empirical inquiry that investigates a contemporary phenomenon within its real-life context especially when the boundaries between phenomenon and evidence are not clearly evident.” The proposed phenomenon being studied in this research project is the hiring of expatriates by high-technology firms in Trondheim Region and the implications expatriates have for company strategy and organization. In order to understand how this study seeks to investigate the proposed phenomenon, there are some components of the research design, according to Yin, that should be outlined, including: study questions, propositions, choice of cases, selection of informants, logical linking of data to propositions, and in addition outlining criteria in order to judge research design. Ethical considerations of the project will also be discussed in this chapter.

This study employs a multiple case study research design with three case studies of firms that hire expatriates. The firms include a small, 30 employee company, a medium, 185 employee company and a large, 5000 employee multinational company with a 200 employee R&D department in Trondheim. In each company a representative from management, a Norwegian employee, and an employed expatriate are interviewed.

#### **3.1 Study Questions**

The phenomenon of firms in Trondheim Region hiring expatriates is investigated through a multiple case study research design. Case study methods are used in this study as they employ an embedded design, or multiple levels of analysis within a single study (Yin 2003), that allows for an in-depth description of a phenomenon occurring within its context, without interference from the researcher.

In the previous chapter a theoretical framework was outlined that sought to outline different perspectives on firms involved in knowledge intensive activities and their supposed dependence upon local knowledge systems in addition to the firms need for knowledge workers. It is therefore asked *why it is significant for high-technology companies in Trondheim Region to hire expatriates?* The study specifically chooses to focus on high-technology companies as these are firms where, Blackler describes, “knowledge is applied to human work” and where the

employees of the company owns the knowledge that is essentially company's means of production. Therefore, it is argued, that human resources for such firms are important.

Another area investigated is the influence expatriates have on company organization and strategy. In the theoretical chapter theories about social innovation capital were outlined. Social Innovation Capital is the relationships and systems within an organization that bring about innovation and can be affected by diversity both negatively and positively. It is therefore asked *how expatriates as dynamic actors themselves act in accordance with their backgrounds, experiences, and life situation and the implications as a result for company strategy and organization*. The previous chapter on theoretical framework outlined several propositions to why it may be significant for companies to hire expatriates and how expatriates influence company strategy and organization. Yin refers to an approach is case study research called pattern matching that takes several pieces of information from empirical evidence and relates them to the proposed propositions. Therefore it is important to propose how the research design presented will logically link empirical evidence to the propositions discussed in the theoretical chapter.

### **3.2 Propositions**

Based on the theoretical framework presented in the last chapter, these four propositions will be studied as a means to provide a scope for the study.

1. For the high-technology knowledge assets are embedded in a particular location and it is the firms strategy to develop this location.
2. Firms respond to skill shortages by hiring expatriates in order to stay competitive on global markets.
3. Diversity is important for innovation in the firm as it redevelops work systems and organization portfolio.
4. Firms gain more return on investing in expatriates the longer expatriates stay in the company. Therefore it is important that the expatriates do not decide to leave Trondheim.

Ragin (1992) argues that a case study approach is used when theoretical constructs are understood through empirical evidence when the cases are determined to be entities bound by a particular location and a current situation in time. In order to understand the significance of hiring



expatriates as well as understanding how these expatriates influence company strategy and organization, it is important to first explain the case studies and informants in the research.

### **3.3 Choice of Case Firms**

In this study three high-technology firms with research and development activities in Trondheim were chosen for a multiple case study analysis. The firms chosen are of varying sizes and a number of their employees are expatriates. These companies also operate in global markets as their customers are abroad, in addition to having production facilities and sales offices in other countries as well. One of the firms is in the oil industry and the other two firms are in the microelectronic industries.

There are several research designs that can be chosen for case study analysis. Yin states that one can choose between single case studies or multiple case studies, each with their own benefits and disadvantages. Yin (2003) argues that selecting multiple cases does not follow a sampling logic, where cases are selected to represent a general community, but rather a *replication logic*. *Replication logic*, according to Yin (2003), is an approach to determine if evidence from multiple cases can be drawn to support main conclusions about a phenomenon. Such cases could follow a *direct replication*, which would argue that cases are similar and it is assumed that evidence will be similar. In this study however a *theoretical replication* is used as the case studies chosen differ according to variables that are assumed have predictable determinants. According to Yin (2003) if the varied cases arrive towards the same conclusion then the external generalization of the study will be expanded. In this research study it is proposed that the size of the company will have a determinant factor on the study. Here *analytical generalization* is used, in which, as according to Yin (2003), a previously developed theory is used as the template with that to compare the empirical results of the case study. If two or more cases are shown to support the same theoretical replication may be claimed. Thus the object of the empirical study is to be able to discuss this theoretical replication.

The proposed cases are high-technology companies that operate on global markets whom have R&D activities based in Trondheim. High-technology companies are chosen because, as according to Blackler (2005), they invest in knowledge-intensive activities and hire workers whose knowledge is a means of production in the company. Therefore the skill sets of the

employees are important for these type of companies. In order to choose these companies the organization Trondheim Region provided a list of technological companies in the region that hired a number of expatriates. I then narrowed down the list to companies that had sold products or services to customers in countries other than Norway. The reason being is that these type of companies operate in global markets, and that the companies are then reliant on global trends, not only local trends, which in return may cause a mismatch between firm growth and local labor flows. As stated through Dicken (2011) companies may operate according to different processes that occur during different geographies, thus there may be a need to hire expatriates as local labor flows do not match company skilled labor needs.

From the first round of companies I had sent a request for interviews, I received a positive response from one of the companies. The company was a medium sized firm (185 employees) that produced microelectronics for wireless devices. The HR-advisor in this company later recommended that I take contact with another company whom sat on the same HR network group. The company I was referred to was a large multinational company with 5000 employees worldwide. The department with 200 employees in Trondheim was an R&D department that focused especially on developing microcontrollers for electronic devices.

Finally I took contact with a small company that produced software and consulted for the oil industry. This company was also on the list of companies that hire expatriates. I had spoken to the finance manager of the company on the phone and she had granted me an Interview.

### **3.4 Informants**

Thaagard (1998) explains that a strategic choice of informants includes choosing informants that are typical in regards to the phenomenon being studied. Flowerdew and Martin (2005) also explain that when recruiting informants for an interview then it is not a question of choosing a representative sample of informants, but rather an illustrative sample. In other words there should be a theoretically motivated decision to talk to a particular informant in regards to understanding how the empirical evidence gained is connected to the theoretical propositions in the research study.

So in regards of exploring the propositions explained in section 3.2, it is thus interesting to determine who is best suited to provide information in order to shed light on these propositions.

Originally the plan was to talk with the HR-managers of the companies, as their duties include organizational development and helping leaders in the company recruit new employees, according to HR Norge (2014). HR managers, according to HR Norge, also often sit close to the management in the company, and therefore have an insight in strategic processes in the company. However as it turned out when I contacted the companies I was referred to the persons with the most experience and know-how about the topic. In the first company it was the finance manager, in the second it was the R&D Director, and in the third it was the HR manager – all three of them have been with the company since almost the start.

The value of interviewing the informants in this study is that they were able to reflect upon company development throughout its history, the history of company strategy, and the company's current competitive situation. In context of this information it was assumed that they could also reflect about the company's decision to hire expatriates. These informants could also act as gatekeepers, whom according to Gillham (2000), can direct the researcher to other relevant informants. Some of these informants include Norwegian employees, defined here as an employee outside of management and who has a Norwegian citizenship. It was determined that these Norwegian employees should have a long experience within the company (at least 5 years), and they should be leaders for groups mixed with other Norwegian employees and expatriates. The reason being was that if these employees have longer experience in the company, then they could also validate the statements made from the managers in regards to the development of the company. In addition they would also have a direct experience of working and leading expatriates, and having a perspective of the influence diversity has on group dynamics.

The last set of informants in the firms studied would be the expatriates themselves. The expatriates are defined as employees without a Norwegian citizenship who had immigrated to Norway for economic reasons i.e. work or education. Based on personal experience (as I have worked with several migrant groups myself), it is assumed that labor migrants are often freer to stay or leave Norway as compared to refugees or family members to refugees or Norwegian citizens. The goal of talking with these informants is to see how they perceive group processes when working in a diverse team. It is also to understand their previous experience and life situation throughout the time before they decided to move to Norway, after moving to Norway, the settlement process and their life situation now. Thus getting a better idea of why expatriates

come to Norway and why they may decide to stay or leave after a certain period of time. Through their experience it can be better understood how they influence company strategy and organization.

Qualitative Interviews was chosen the major research method in this study. Typically most case studies are qualitative as, according to Ragin (1994; 14), “*cases are conceived in qualitative sociology as the intensive study of individuals whom provide a window on the community, in the process of finding individuals through individuals, empirical limits are established*”. In this study the individuals interviewed are to provide such window towards the firm as a dynamic organization in that upon they can reflect at the current time, the shifts in organization as a result of adapting towards global markets and hiring expatriates. In addition the expatriates themselves provide a window towards their experiences that may influence company strategy and organization.

Interviewing is preferred, as according Gillham (2000; 2), they are used “*to obtain information and understanding of issues relevant to the general aims and specific questions of the project*”. Interviews in other words are a means to have a conversation with the individual about his or her understanding of the issues as proposed previously. In this study unstructured interviews were used as it involves using natural conversation as a context to ask research questions relevant to the issues within the study. An interview guide was used that would outline the important topics that needed to be discussed, and as the conversation progressed it would be ensured that all the topics were covered.

In the end for each company a member of management, a Norwegian employee, and an expatriate where interviewed. In addition some extra data was collected online from company websites, articles about the companies, as well as yearly economic reports from Purehelp.no (2014)

### **3.5 Logical Linking of Data to Propositions**

Yin describes pattern matching as a mean of analyzing pieces of evidence collected of empirical investigations and matching them with theoretical propositions outlined. The main means of collecting data from the informants as explained in section 3.4 is through unstructured qualitative interviews. Gilliam (2000) states that the overpoweringly positive feature of interviews is the richness and vividness of the material it turns up. For this study rich material is importance as it

is a case study that seeks to draw conclusions from a particular situational context unique to the case studies, which would be difficult to describe without rich detail (Ragin 1999). The unstructured interviews lasted for around one hour each and followed a series of themes connected to the propositions stated before.

In order to analyze the empirical evidence collected from the interviews, all of the interviews were first transcribed. Afterwards evidence from the transcripts was encoded according to the propositions discussed earlier.

### **3.6 Criteria for Judging Research Designs**

Yin (2003) describes that to judge if a research design logically represents a set of statements, he describes that *construct, internal, and external validity* should be determined as well as *reliability*. *Construct validity* is to “establish correct operation measures for the concepts being studied. *Internal validity* is to “establish causal relationships whereby certain conditions are shown to lead to other conditions”, *External validity* is to “establish the domain to which the studies findings can be generalized”, and *Reliability* is to “demonstrate that the operations of the study, such as collection procedures can be repeated with the same results”.

*Construct Validity* in this project is validated as each case used multiple sources of evidence (i.e. articles, interviews with different members of the firm). The study also focuses on specific changes within each firm (in this case when the company started hiring expatriates). So to some extent operation measures were taken to establish construct validity.

*Internal Validity*, according to Yin (2003), is achieved through pattern matching. For example in the theoretical propositions it was argued that growth and investment are connected to hiring expatriates, so therefore during the investigation investments at certain time periods (found through Purehelp budget reports) were correlated to when the company started hiring expatriates. Life situations for expatriates were also compared in order to explain their motivations to stay or leave the firm.

*External Validity* was established by testing replication logic in the multiple case studies. This test determines if the studies finding are “generalizable beyond the immediate case study” (Yin 2003; 37). In other words the theoretical propositions that sought to explain the phenomenon of hiring expatriates, outlined in the previous studies were tested in each case study through going

through specific topics during the interviews. *Theoretical replication* was used in order to determine that size of the company has implications for the evidence gathered, in order to provide a wider range of generalizability. In other words if, for example, only large companies were studied, it could only be determined that it is significant for large companies to hire expatriates. *Reliability* is validated here by outlining the case procedures in this chapter thoroughly so another research could try to validate the propositions outlined in the theoretical chapter.

### **3.7 Ethical Considerations**

According to Thaargard (2009) all scientific ventures require the researcher to relate to ethical principles in relationship to the situations. Accuracy in presenting the research findings and reflection on the researchers work is one rule. Another important subject is consent and it is important for the researcher to obtain consent and explain how the results from the interviews will be presented. In this study it was explained to the informants that the names and firms will remain confidential, however country and position in the firm would be stated in the report. The anonymity of the firm was not chosen for ethical reasons, but rather to focus more on the phenomenon investigated and not on the particular company. However it was explained to the informants that the company would be recognizable from the details in the report.

Since the firms and informants are not fully anonymous, this had implications for the investigation, as it meant the informants were careful about what they said as to not implicate themselves, others, or the company in a negative way. In the report the informants are recognizable by others in the company, but not necessarily by those who do not know the informant personally. It was important, nevertheless, that the details that would be published in the report was explained to the informants, according to ethical rules outlined by Thaargard (2009).

## **4 Cases**

### **4.1 Introduction**

This chapter will first provide information about Trondheim Region as to give the reader a perspective of the local context in that the firms studied operate. It is interesting to look at the growth of technological industries in Trondheim and the knowledge environments in the region. Afterwards the three case firms are presented starting first the small company that produces oil software. Secondly the medium company that produces wireless technology is presented, and thirdly the large multinational company that produces microcontrollers for electronic devices is presented. The case studies start with some details about the informants interviewed in the company, and later with a discussion of the firm's history. It is explained at what point in time the company started to hire expatriates and how this was a result of adjustment processes in the firms. It is also presented why recruiting human talent is important for the firms. Afterwards the work environment and social environment in the firm is examined in regards to the effects of diversity in the firm. Lastly the experiences from the expatriates interviewed are discussed in regards to their motivations to move to Trondheim and whether or not they plan to stay.

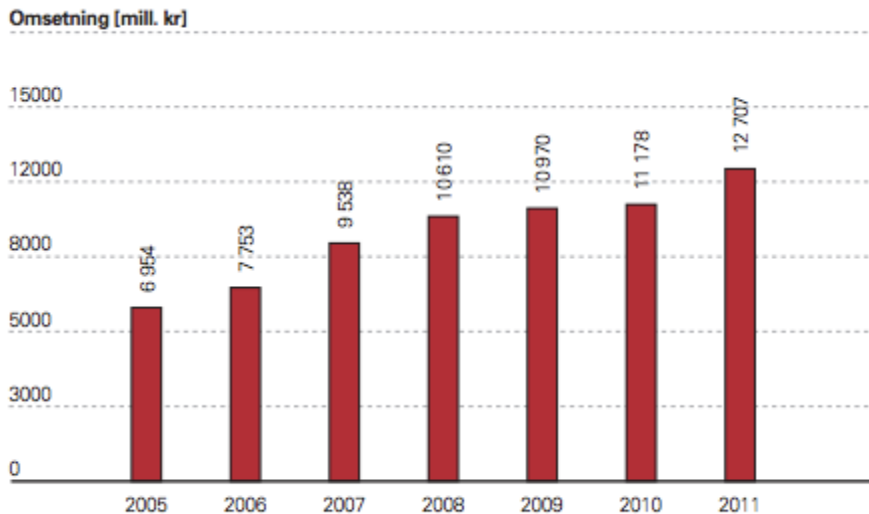
### **4.2 Case Context**

#### **4.2.1 Technology in Trondheim Region**

As explained before by Dicken (2011) firms do not just operate according to processes that occur on a single geographical level, but rather on multiple geographical levels. Dicken understands these processes to include Globalization, Nationalization, Regionalization, and Localization. In chapter four global trends are outlined, as well as some trends in Norway. However before going into the empirical evidence that will be presented through the case studies, it is important also to outline regional processes. This way the reader will get an understanding of place and how the firms are embedded. In this assignment the place is Trondheim Region that includes the municipalities of Trondheim, Stjørdal, Rissa, Leksvik, Stjørdal, Klæbu, Orkdal, Skaun, Melhus and Malvik. The case firms themselves were all located in the city of Trondheim in the country of Sør-Trøndelag. It is important to gain an understanding of the current situation for Trondheim

Region, meaning the economic and political framework in that both influence and are influenced by the technological industries in Trondheim Region.

According to Impello (2012), the 469 technological companies in Trondheim Region employed 9,872 persons and had a collected profit of 12,7 billion NOK. The industry has grown almost 6 billion NOK since 2005, and is still in continual growth (up 14% since last year). The number of employees in the technological companies has increased from 8633 since 2009 (Impello 2012).



**Figure 6 - Combined Revenue of Tech Companies in Trondheim (Impello 2013)**

Trondheim has often been deemed to be Norway's Technological Capital (Trondheimsregionen 2013). The story behind this reputation lies behind the history of The Norwegian University for Science and Technology (NTNU) and the regional innovation systems that were built from the university. There are 22,000 registered students at NTNU and around 5000 employees (60% are in academic positions) (NTNU 2014). The university has a budget of 5.3 billion NOK. NTNU was established in 1910 and is Norway's foremost university in technological education; half of its students are registered in science and technological studies. NTNU has the largest number of engineer students in Norway and educates a large majority of the civil engineers in Norway.

In addition Trondheim is home to Scandinavia's largest independent research institution, SINTEF. SINTEF has 1500 employees in Trondheim and contributes to the R&D development of more than 2000 Norwegian and International companies. In addition to other R&D institutions,



SINTEF and NTNU form a basis for R&D and technological development in Trondheim (Trondheimsregionen 2014).

Sør-Trøndelag is only behind Oslo in regards to the total amount of R&D spent both in research institutes, universities, and in companies. Trondheim also has the highest concentration of companies with R&D departments in Trondheim, as shown by the graph to the left.

Although Trondheim has the highest concentration of companies with R&D activities in the region, there is less innovative output in Trondheim than there is in Oslo, Bergen, and Stavanger (Finne 2007). In regards to patent applications per capita, Sør-Trøndelag also falls behind Oslo and Rogaland. That being said patent applications are not necessarily a dependable indicator of innovation, as it is highly dependent on the type of industry and since the application is a long procedure, patents are not always in use. Nevertheless although Trondheim has some of the largest R&D spending per capita, it is lower than Oslo and Rogaland compared to the number of patent applications (Finne 2007; 88). On the other hand Sør-Trøndelag also has the largest concentration of Skattefunn projects in Norway.<sup>1</sup>

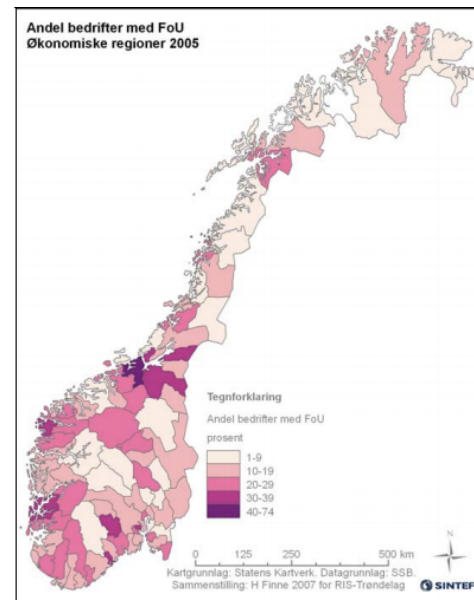


Figure 7 - Share of Companies with R&D activities (Finne 2007; 84)

#### 4.2.2 The need for human talent in Trondheim

Before I started my research in the case companies, I conducted two interviews of experts in order to get a general picture of the situation of high-technology companies in Trondheim Region. I sought out experts who had a general oversight and understanding of the situation from their professional stand-point. One of these informants was the director of the work agency, “Ingeniør-Companiget Midt-Norge”, which specializes in recruiting engineers, both native and foreign, for temporary projects for companies in central-Norway. The second expert that I had

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<sup>1</sup> Skattefunn is a national scheme which grants tax breaks for R&D projects. The Norwegian Research council is responsible for the scheme (Finne 2007)

spoken too was the International Business Manager in the Chamber of Commerce in Trondheim Region (NITR). The International Business Manager works with internationalization and the framework needed for businesses to internationalize.

*“We see that businesses in Trøndelag need to reach out to global markets, Norway is too small of a country, and if the region is to grow and have large value creation, then our companies need to be more international.” (International Business Manager)*

According to the International Business Manager companies in Trondheim are good at technology, and the region is good in regards to making new companies, but the technological industry is still quite young. The region is not so international in regards to export numbers compared with Stavanger and Bergen. Figure 8 shows that Hordaland (County to Bergen) had exports for 5.2 billion NOK and Rogaland (County to Stavanger) had exports for 3.7 Billion NOK. Trøndelag, however, only had exports for 800 million NOK. These numbers are from January 2011 to January 2012.

In a report by SINTEF it was shown that the companies in Trondheim Region have a large need for competence in regards to exports, but exporting was only the priority to 5% of the companies surveyed (Finne 2007). Nevertheless Trondheim has a potential to become better with its technological industries, which are getting better at internationalization, according to the International Business Manager. However, the “Achilles Heal”, as claimed by the International Business Manager, for Trondheim is the lack of technologists, especially engineers, and if the companies in Trondheim Region want to sell innovative products and services abroad, than they need to have access to competence.

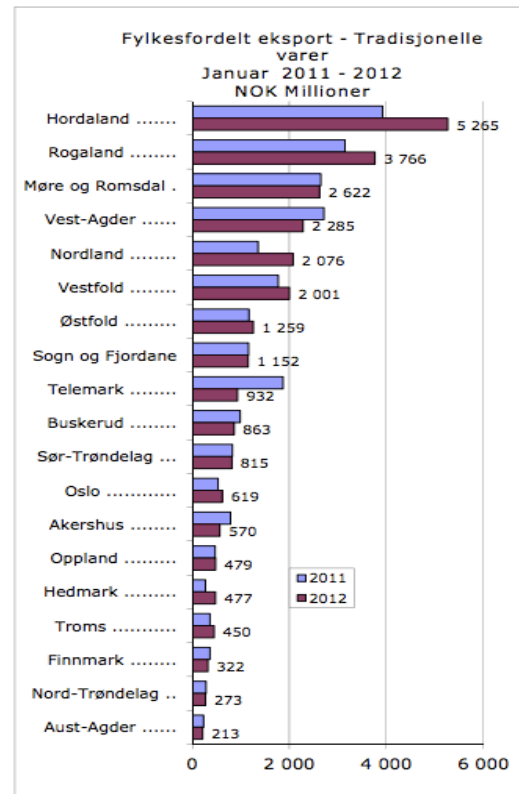


Figure 8 - Exports by County in NOK Millions (Finne 2007)

Oslo, Stavanger and Bergen are quite international already, so they have a competitive advantage in regards to attracting professional immigration according to the International Business Manager. There is a different infrastructure that is more open to expatriates, for example more direct flights and better flight connections. Nevertheless has NTNU provides a competitive advantage for the firms in the region, in regards to the access of engineers.

A survey was run by NTNU that surveyed 3360 graduated candidates at NTNU about their current career situation (NTNU 2013). The survey showed that for every student from Sør-Trøndelag that studied at NTNU, Sør-Trøndelag received two students back. Of the 3360 responses in the survey 26% of the respondents had a job in Trondheim after their studies. In second place was Oslo also at 26%, in third place was Rogaland at 6%, and in third was Bergen at 5%. In other words NTNU is an important source for highly educated individuals for the region.

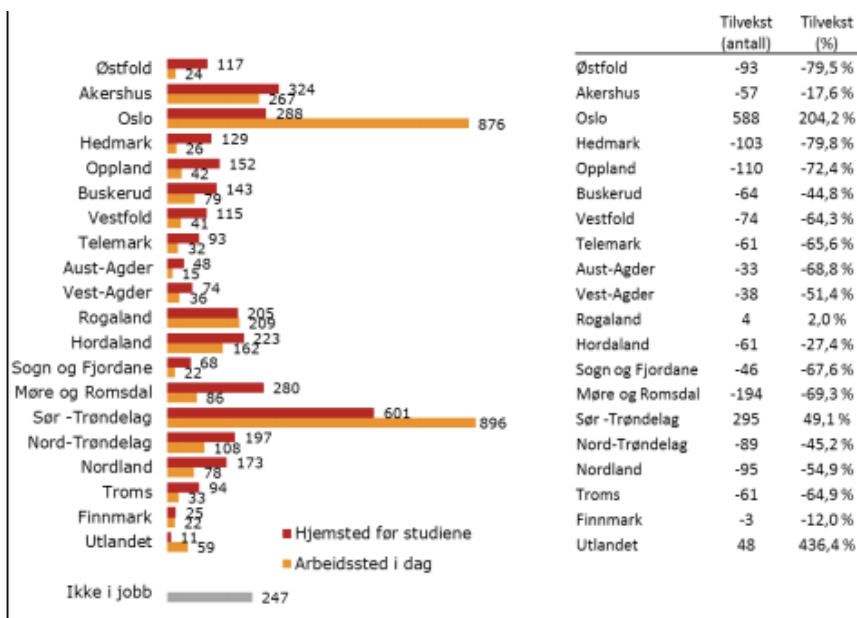


Figure 9 - Home County Before Studies, County of Employment Today (NTNU 2013)

Nevertheless from the research in this thesis it is found that technological companies are competing heavily to recruit students from NTNU. For example large companies sponsor business presentations and recruit students for summer jobs. 56% of the students had a job at a company with more than 250 employees after their studies (NTNU 2013; 35-38). A number of

the graduate that are hired is by oil companies (16%), consultancy firms (13%), and ICT firms (7%); What the numbers show is that there is a large competition for the students at NTNU, where the largest firms in oil and consultancy often dominate.

However companies, according to the director for Ingeniør-Companiget Midt-Norge, are not only having a problem with hiring enough students, but they also need to hire more experienced personal. The companies in Trondheim also have a need for consultants with more competence and expertise. Although most companies prefer to hire Norwegian consultants, most Norwegian engineers today have a job and if you need to recruit experienced Norwegian engineers then you would need take them away from their current job. There are also free-lance consultants, but these are also people who do not want to work in a permanent position. They earn quite well, and they can say no to projects that they do not like, according to the Director for Ingeniør-Companiget Midt-Norge.

*“Trondheim has very many small technological companies, they are dependent upon growing with personal with professional experience, and they would like to work in a International market, so they would like to have international candidates” (Director Ingeniør-Companiget Midt Norge)*

According to the leader for IC Norge more and more international companies are starting to look towards candidates with a foreign background, as they need to have access to the skills and experiences, while at the same time building an international profile. Often companies have need for competences and experiences in which also are difficult to find in Norway, as there is not a strong tradition in some fields.

Therefore there is an important significance of hiring foreign workers for high-technology firms in Trondheim Region. “Importing” expatriates is an important source of skill for these the technological industries. According to Trondheim Region (2013) half of the labor growth in the region can be attributed to immigration. As the technological industries in Trondheim Region are growing, and there is increasing competition for candidates from NTNU and for expertise. Expatriates as will be shown through the case studies, are a important source of human talent. It is argued that without this group that growth in the technological industries in Trondheim Region would be hindered. By examining the cases studies a better picture will be provided on why this is the case, in addition to how these expatriates themselves influence company organization and strategy, such as contributing to innovative processes in the company.

### **4.3 Case 1: Software for the Oil Industry**

My first case includes a small company, with around 30 employees, which consults on risk and integrity management and develops products for the oil industry. The company has its main office in Trondheim and a sales office in Texas and has a revenue of around 30 million NOK.

The company started as a spin-off from SINTEF research in the early 2000's. SINTEF was working on developing a repository for information on performance analytics for oil wells. A group of employees within the field from SINTEF spun-off the company that would consult oil companies on the basis of the expertise and data from the repository. In 2010 the company designed a strategic growth plan that focused on developing software products with consulting as an additional service. The growth plan was developed in cooperation with several investors; the two main ones own 50% of the shares in the company. It was after the growth plan in 2010 that the company began to hire foreign employees.

The company works within a niche market in the global oil industry as there are no competitors in Norway and few abroad, so despite its size the company is a global leader in its market. However according to the finance manager the real competition is whether a potential customer decides to use such a service at all. The company has 8-10 non-Norwegian workers, 6 of which whom work at the main office in Trondheim and the others work in the USA office. The company has a project-based office in United Emirates and is planning a new sales office in Australia.

#### **4.3.1 Informants in the company**

My main gatekeeper in the company was the finance manager, whom after calling, was interested in my project proposal and had invited me to conduct an interview with her. As the finance manager, my informant was well aware of the recruitment needs in the company, and why they had chosen to hire international engineers. She was part of the discussions in the company on the strategic growth plan, and thus was well aware of the changes in the company that occurred as a result of the plan.

The finance manager referred me to two employees in the company whom I could interview. The first employee was a Norwegian who had been with the company since nearly the beginning of the firm, and was one of the senior engineering consultants in the company.

The other employee I was referred to was from Pakistan and was the first expatriate to be employed in the company. He was hired in 2010 right after the development of the strategic growth plan. The employee had previously been studying a master degree at NTNU before he started working at the company. Before the employee's studies at NTNU he had several years of job experience working in the Middle East. The employee from Pakistan was one of the only junior consultants who had a specialization with risk and reliability engineering, while the other employees had knowledge in reservoir or petroleum engineering, so in this way he was an important resource for the company.

#### **4.3.2 Before the strategic growth plan in 2010**

*"The company you are at today started in 2010" - Finance Manager*

According to the finance manager, the company had undergone a major shift in strategy in 2010, by focusing on software products, and less on consulting than they did before. In order to understand the motivations of the company to employ foreign workers, it is important to understand the changes that the company underwent as a result of a shift of strategy in 2010. The company has its history within SINTEF environments that developed a database of well-reliability experience. The group of SINTEF employees that would eventually spin-off the company in 2010, had the expertise to consult oil companies on well reliability and integrity, with the software database developed by SINTEF as a basis in their expertise. So in the years before the change in growth strategy the company had worked mainly as a consultant company. The Norwegian employee that I interviewed, whom was also working in SINTEF, had described the time before 2010 as mainly carrying out expert studies for customers (although he still works with such expert studies). Relations during the studies were the most important, as there wasn't a proactive sales project, but rather that customers would require their services again and refer the firm to other customers.

The finance manager described the time before 2010 as the company being for the most part 7-8 Norwegian men who had all come from the same engineering background from NTNU, and thus there was not much diversity in the organization. The Norwegian employee had also referred to most of the employees as being from the same study background at NTNU. However the Norwegian employee explained that reaching out to customers in global markets was not so

difficult as there were not many competitors in the market, and therefore they could work within their own premises. They were able to sit in Trondheim and work for the most part, and there wasn't as large of a need to be able to "match" their customers or to really advertise the company. According to the finance manager the company before 2010 was not quite an international company, because although they had customers from around, she also noted that the employees in Trondheim were usually sitting in Trondheim and working, despite the customers being in other countries. For the finance manager having a multinational portfolio in the firm and being proactive in the global markets was important for the firm to be "International".

Before 2010 the company was working with multiple international companies as well as Norwegian companies. In their previous experience most of the experts were quite used to speaking English as their customers also spoke English, or for the companies in Norway, usually there were foreign workers who were only speaking English. The consulting and sales of consulting was usually from engineer to engineer, so the employees were quite used to speaking about their technical expertise in English. However, before 2010 the employees spoke Norwegian with each other. The Finance manager expressed that it must have been difficult for the first international employees because the files, hours, etc. was in Norwegian, even though the work for the customers was in English.

#### **4.3.3 The company after the strategic growth plan in 2010**

*"In the beginning we were a consulting company that had software, but now we are right in the middle of a big change towards becoming mainly a software company, with consulting as an additional service. This is a big difference, and very different way to run a business" - Finance Manager*

According to the finance manager because of the shift between focus on consulting, to focus on software, the company had a much larger need for more employees with different experiences. Since 2010 the company has grown from 7-8 employees to 30 employees with 2 employees in an office in the United States. There are around 10 non-Norwegian employees working in the company. The company only started hiring expatriates after the growth plan, the first employee being a Pakistani International student from NTNU that had a master in risk and reliability

engineering as well as having worked in the middle east before he had started his studies at NTNU.

One of the reasons why the company started to hire expatriates, is that it was decided under the strategic growth plan that if they were going to transform the company then they would need to hire specific expertise – no matter who or where the person came from. Although there was not a direct strategy to hire expatriates, it was clear that the company had to be open with who they would hire, in order to have access to the expertise that they needed, as explained by the finance manager.

The strategic development plan was developed together with two large investors in the Trondheim Region. The invested equity of the company increased from 750 thousand NOK to around 15.7 million NOK in 2010, 35.7 million in 2011 and 37.7 million in 2012 (purehelp.no). With the investments the company was able to increase its number of employees, build a sales office in Houston, and a project office in the United Emirates, and is planning a sales office in Australia.

One of the largest investments is producing the software products for oil companies. The company spent around 2.8 million for R&D in 2011, and 5.7 million in 2013 (purehelp.no). The software is to be used for well performance analytics. According to the Finance Manager the competitive advantage that the

company has over other companies is that the software is built around the knowledge of the experts, while in other companies the software is made first and then the experts are employed after. The programmers thus work closely together with the experts when building the software.

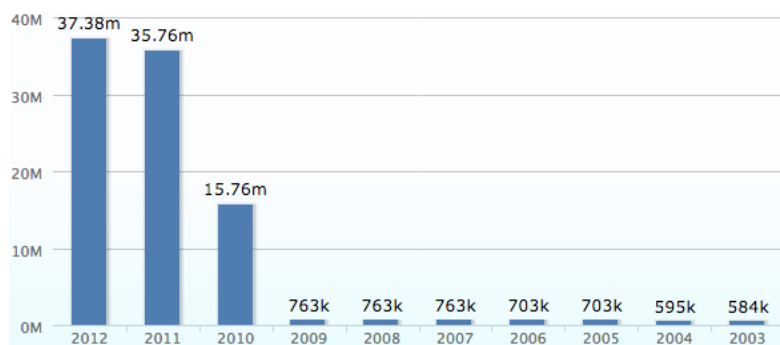


Figure 10 - Invested Equity of the First Case Firm (Purehelp 2013)



According to the Norwegian employee the costs for developing the new software were high, as it was important to make software that appeals to many persons.

*“The general problem is to make something that will give a value equal to what it costs to develop it, such that it creates value for the company. It is hard as before we were spoiled as consultants, because it was the customers who came to us for services, but now, here and there, we need to show what we can do and create the demand in the market.”*

Although before the software was made so that it could be tailored to the customer, now the software needed to appeal to a large market.

The company, then, is reliant on expertise in order to do so, and the finance manager explained that they are not concerned where the employees are coming from, but rather they are interested in the expertise. By working this way the number of potential applicants for position increases.

However, the company has mainly hired expatriates whom have had a degree of connection to Norway. Some international workers have been recruited through NTNU – the Norwegian employee also explained that recently they have worked together with quite a few international students on master projects. Some of the employees have also been spouses to other foreign workers who are employed in Trondheim. The reason being that the company was still quite small and did not have the resources to go to other countries to hire a software engineers.

#### **4.3.4 Value of Hiring Expatriates**

*“I believe that it is valuable that we have international employees...our customers are quite multinational, and they also have employees from many different countries. It is then an advantage if we can match that. So the fact that we have employees from Serbia, Pakistan, Norway – it is not so important in regards to the product that we deliver, but the fact that we are multinational and are customers are as well, that makes a good match” - Finance Manager*

The finance manager explained that the oil industry has always been quite international in regards to hiring expert, no matter what their nationality is. The finance manager explained that having international employees helped make the company be more internationalized, even though the company had worked with customers in other countries before. As the quote above describes, having international employees helps the company match the customers better.

One example that the Norwegian employee gave was that it was useful to have for example Chinese employees that can work on projects in China and be a translator, or persons who have worked in Saudi Arabia and are well known with the environment there. When I talked the International employee from Pakistan, who had experience working in the Middle East. He described the culture like this:

*“Here in Norway most of the time we do not go for the process of tendering, they come to us and we tell them the price, and we do not negotiate, but in the middle east there is a lot of bargaining, and it is part of a cultural value, about negotiating the prices. This was something that the company was not really used to, but they wanted to be global. So we found that we should start with this price and negotiate the price afterwards. This company needs to see how the cultures are working.”*

There is inherent value then in working with different ways of thinking in cultural values and also transnational experiences, going back to what the finance manager explain about the need for the company to match other companies internationalization activities. The employee from Pakistan had a background working in the Middle East and had knowledge of the culture there that is useful for the company.

The Norwegian employee also gave an example of his colleague in the United States who works with sales in Houston. When he was working in Houston he had noticed that it was:

*”More American, show me the money, Jerry Maguire, typical business - Houston is a tough city...whereas Norway is quite small, and in Norway we are not so good with international business, especially with other businesses then oil. The company had previously tried to sell to businesses in the USA without much luck, but when they hired an American employee, she had managed to set up a whole week of meetings with customers within a half an hour. She was not afraid to pick up the telephone, whereas in Norway we are a bit more careful”.*

According to the Norwegian employee it was useful to work with persons from different backgrounds – *“to make a symphony you need a lot of instruments”*. The Norwegian saw it as a bit negative to all be graduates from NTNU and to be so alike to each other. In business there needs to be creative discussions, and not everyone should agree.

### 4.3.5 Work Environment

*“It is important that we have people with different backgrounds and not that everybody comes from the same department at NTNU with the same professor. We see it as a advantage instead of all of us speaking the same language that our customers do not understand, therefore it is important to have people from different universities” - Finance Manager*

The Financial manager explained that the expatriate’s backgrounds provided the company with useful knowledge, such as language skills. These backgrounds, according to her, gave the company a more international profile. Another example that the finance manager gave, was that now the company, after working with American colleagues, has a better understanding of international time zones and that the employees in the company can not just stop working at 4 pm, but sometimes need to take a telephone call on a Friday at 7pm.

The Norwegian employee also described that after the changes in the company the working environment was a bit different. Before the new employees arrived seniors in the company were used to working individually to some extent, but now they needed to guide and work on studies together with the new employees. There are teams now in the company, and there is a divide between the seniors and juniors of the company, but for the most part the company organization is unstructured (although formally structured on paper).

The employee from Pakistan described the work environment in the company as having quite a flat structure as compared to his experiences working in the Middle East.

*“It is relaxed, there is no pressure. Not that the workload is less, there is a lot of work. But if you can do it then you do it, if you can’t do it then just say so. There is no one who can say I can fire you if you don’t do it. I believe that when be have a fear of losing their job, then they will do everything to keep the job.”*

The employee also explained that in the first years there was not a team leader, but in the last 6 months there has been. Even though it was easy to jump into any of the employee’s offices, even the administration, but the problem with administration was that they were not around so often, so then it was a bit difficult. However it was easier when there were team leaders who were more available than the CEO.

The Norwegian employee also agreed that the structure was quite flat, but he explained that there is a group of senior engineers like himself, whom have been working in the company for quite a long time and then there are the junior engineers whom have to work to put there foot down in the organization. Most of the international employees are junior engineers. These junior engineers in order to gain more responsibilities and better contact with the customers, need to first build a contact network and experience according to the Norwegian employee.

*“You have to get some more years before you have contact with the customers. But now they are “juniors” establishing a customer relationship with every study, so maybe it will come in some years. I have done over 100 studies with over 50 customers. But they have worked with just 3-5, so it takes time to work with more and build a reputation”*

According the Norwegian employee it is important that the company is able to recruit talented individuals, as part of the profile of the company is the experts and the customer relationships to the experts.

*“Especially when you have other people who are doing the same job, as it is my reputation and such. However it takes a while before the employees are able to make a put there foot in, but they are not quite at the level yet.”*

Although the company recruits people with expertise and experience, it still takes a while to teach people the methods of the company according to the finance manager. How much resources and time it takes depends on the person. Some can start working after three months and others can take two to three years, but it is important to have a long term perspective to persons living in Norway, and that is another reason why the company generally hires international workers whom have a previous connection to Norway.

The employee from Pakisitan I had talked working with the software that was being developed with the Norwegian employee. As the Norwegian employee was going to start work soon with a PHD, the foreign employee is the only one who knows the software well. Although they are working on teaching others the software, the employee realized that it would be quite difficult if he needed to take a sick leave for example.

The foreign employee described that the work environment is quite nice in that he can jump into somebody's office and start a discussion. The hard part is that people become very specialized in his field, and this gets boring something's when working with the same thing most of the time.

#### **4.3.6 Social life at Work**

*“I think I can say that I set the way for everybody else (as the first foreigner in the company), because they (the Norwegian employees) are all human beings and when you first hire a foreigner you do not know how it will go. I am not saying they were skeptical or distrusting, but maybe there we a bit afraid about what would happen to the company, as it was a very small company. But they hired me and they were very nice - everything went well” - Employee from Pakistan*

According to the finance manager the company was not always arranging social activities, although it was social at work, the old employees were used to having their own network, but now there is a personal union that arranges activities such as sports, parties, with and with out families. The Norwegian employee gave an example of a “lutefisk” tasting that they had some started three years ago after the hired the first foreign employee. When I asked the employee if he likes to have contact with people around the world he said, yes, that he was a humanist with belief in people, and it has been enjoyable. *“It is important to think outside the box, and that globalization has come to be, the Internet has arrived and things will be more international.”*

The employee from Pakisitan explained that language is a big barrier in the company. He knows that others expect him to learn Norwegian, but it is difficult when the have a dialect, especially during the lunch breaks when his colleagues are speaking *“real Norwegian with each other and you need to guess most of the time”*.

The finance manager explained that it is not so important to engage the employees to speak Norwegian, although they offer the course to their employees, but it is up to them if they want to go or not. Although the company knows that the employees need to speak Norwegian, as it is important when living in Norway, they don't press the employees as the work language is in English. However the finance manager understands that for other companies, it is important for the employees to know Norwegian. When the she was at a bank conference a while back she noticed that there was not one expatriate there – but this perhaps has to do with the industry. The oil industry has always been international, but in the bank industry if you have teams that speak

Norwegian, with some persons not speaking Norwegian – or if Norwegian is being spoken in small talk, and then one sentence in English, then this is not very effective. So in that case it is important that the employees can speak Norwegian, while in oil industry most of the work is in English.

The employee from Pakistan had a bit of stress in the beginning because he felt that we had to make a good impression since they were going to hire other foreigners. By the felt that the Norwegians opened themselves up to them, for example they took consideration to him of having special eating needs.

#### **4.3.7 Life in Trondheim and Norway**

*“I had no problem adjusting (to Norway) because I had exposure from the university. Compared to the people who have not attended NTNU, I have not had a rough time compared to those people.” - Employee from Pakistan*

According to the finance manager it is hard to say if Norway is attractive for talent from abroad, there is the climate and a way of life that is perhaps difficult to come from abroad and live, but Norway is known to be a good place to live, with a high living standard, good society, and a good place for children to grow up.

*“But I believe it is important to be taken care of socially, and that they are able to get a network. It is not so easy to make Norwegian friends, because we have a culture where we divide between colleagues and private life. Many of us have our own social networks, so there needs to be an arena where a person can meet friends and build a network, this is extremely important in order to stay. It is easy for us in the company to work within the workspace, but the question is how to handle the whole package, how daily life is, how life will be if I shall live in Trondheim” - Finance Manager*

The company has recently been using relocation services from a company called Expat Midnorway, even for some persons who have been in Norway before working at the company. The reason being was that there were some visa rules in regards to bringing family after getting married in which expat helped with the process. The foreign manager explained that one challenge that she did not expect, was that Norwegians have a good passport to be able to travel anywhere, while for foreign workers this is more difficult. She gave an example of a Canadian

employee who needed to go on a trip with Abu Dhabi, but had to go all the way back to Canada in order to fetch his high school diploma so that he could apply for a visa to Abu Dhabi. The foreign employee also explained that immigration rules in Norway were quite challenging. For example the fact that one needs to renew a working license every year.

The foreign employee said that he would recommend to others to live in Trondheim, because the positive side is larger than the negative side. Although there is strange day and night hour, the social set up is strong, there are high taxes and you get benefits, other places you pay taxes and you don't get much. The employee said that we would rather live in Trondheim than Stavanger, as Stavanger seemed to be a *“crazy oil city with a lot of money and everything is expensive”*.

The employee explained that it helped to get involved with Norwegian social life, the employee had several evenings together with colleagues and when they meet he got to realize about the culture, Norwegian values, and *“those kind of unspoken laws”*. So first you have to understand the culture, and then you can be a part of it.

However when I asked the Pakistani employee if he would stay in Trondheim and Norway, the employee said that he would stay in Norway but was considering moving to Oslo. As he likes bigger cities and it is easier from there to take flights abroad. His brother had also recently been living to Oslo. However the employee from Pakistan liked Trondheim for its bus system, as it is much cheaper than Oslo. Although driving a car in Trondheim is expensive because of the toll roads. Another important aspect of Trondheim was the International Schools – as there are three and they are affordable compared to Stavanger, for example, where they are quite expensive.

Living in Trondheim, however, is a bit more difficult for the employee's wife as she is pregnant with a child and raising another. It is a bit scary for her to walk outside when she is pregnant, as it is quite cold and there is ice on the roads. But she is learning Norwegian and goes to some activities at church where there are opportunities to discuss opinions. *“It is important that there are other people to talk to, I mean if you are only talking to one person a week, me, then it would drive you crazy”*.

#### **4.3.8 Concluding Remarks**

Perhaps the most important point to be up for discussion of this case study is the decisive step that the company had taken in changing its strategy, business plan, and market. It is quite clear

that the shift in strategy was the main reason why the company had begun to hire foreign workers. Considering the company had a large inflow of investments, in which they quickly doubled the size of their workforce, it was necessary for them to be more open to whom they hired. As I have discussed before the market for engineers in Norway is quite tight, and to only focus on hiring Norwegian engineers would have raised the costs and time of recruiting. In addition it was vital to the company to hire employees with experience and expertise, as this is an essential part to the companies profile.

It was clear that the working environment changed since the strategy shift in 2010, partially because of the new business plan but also because of the increase in junior engineer consultants. There is a larger need to work in teams and the juniors will have to work a while in order to build a reputation – so mainly the senior consultants facilitated contact with customers at this point. However both the Norwegian employee and the finance manager felt that there was an inherent value in working with foreign employees as it helped bring more diversity to discussions, and gave the company a more international profile. It also had value in that the Norwegians themselves could learn more about cultural understanding.

Hiring foreign employees is an investment as there is sometimes a need for relocation services and working with visa rules. It was important that the employees had a long-term perspective of working in the company, as said before it takes a while in order to gain the experience and build a reputation. So therefore it was important for the company to be open to the expatriate employees socially, which seemed to be apparent by my discussions with the pakistani employee.

The pakistani employee I talked to had been with the company for four years, and was starting to develop seniority. It seems that he is an important resource for the company with his knowledge in risk and reliability, work experience from the Middle East, and that he is responsible for the software being developed by the Norwegian employee. Therefore it is perhaps important for the company to keep this employee. The employee mentioned that since the company was being sold, that he was unsure how the new management would be. There was this and also the employee could consider moving to Oslo as it seems to be a bigger city with more happenings.



In the end it seems that the company in this study relies on its employees and that they are able to stay in the company for a long time – as their expertise is an important part of the companies profile.

#### **4.4 Case 2: Wireless Electronics**

My second case is a medium-sized company with around 185 employees that works with the production of microelectronics. The company was started in the early 1980's and has a revenue of around 130 million USD. The company was founded in Trondheim as a spin-off from the former Norwegian Technical Institute (today's NTNU). Today the company has the location of its headquarters and R&D center in Trondheim and marketing, European sales, and customer activities office in Oslo. In addition, the company has sales and manufacturing coordination offices in Hong Kong, Japan, Philippines and Taiwan. There is also a sales, marketing, and customer activities office in the USA.

The company began as a consulting company in the 1980's, but then started with production of microelectronics in 1996. The first international sales office was established in 2004/2005, although third party sales offices were used before that. In 2002 the company stopped its consulting activities and began working with only production.

The company produces wireless components for keyboards, mouse's, sports devices, etc. According to the former R&D director, the company controls around 5-8% of the global market in wireless components. There are few competitors and customers in Norway, yet there are several multi-national competitors and customers in other countries. This case company works with several large producers of electronic devices, and produces millions of components for its customers every year.

According to the R&D director of the company, human capital is the most important resource the company has, as it is vital to be able to attract and recruit the best and the brightest, no matter where they come from. Because of the lack of workforce within specific fields in Norway, the company needs to recruit talent from abroad. The company language is officially English, as the background documentation for the companies products are in English and most of the companies customers and many of the employees work with English.

The company started recruiting foreign employees in the late 1990's, although the company had mainly Norwegian employees until 2004. This was a result of the company deciding to stop consulting activities, and to work with products. There was then a much broader need for competence and experience with electronics production. It is difficult to find this experience in Norway, as the industry is not as well developed as in other countries, so therefore the company started hiring more expatriates.

#### **4.4.1 Informants in the company**

My first contact person in the company was an HR-Director who was recently hired in the company. The company did not previously have a HR-advisor and my contact was quite new at the job. Nevertheless she set me in contact with the former R&D director of the company, who was now the director for research in the company. Thus, the R&D director was the gatekeeper in this case.

The R&D director I had met had been with the company since the beginning in the early 1980's. In the late 1990's the R&D department began to hire foreign workers, and the R&D director had been in the company when they started hiring these workers. When the company transitioned from a consulting company to a company that worked solely with producing microelectronics, then they had started to hire more and more expatriates.

The R&D Director also referred me to a Norwegian Informant, who was the leader for systems integration management in the R&D department. This employee had been working in the company since 1995, and was now the leader of a group with 30 people, 22 in Trondheim and 8 in Oslo. His department was responsible for the digital design and coordination of the components designed by other groups into one final product. Within his department there are 25 Norwegian employees and 8 non-Norwegian Employees.

My last informant was an employee from India that had been working in the company for five years. He is now a senior R&D engineer working with embedded software with low-energy Bluetooth technology. The employee from India had been working in India and the United States with software before, and had been recruited to the company through a friend who had referred him to a open position in the company. He lives here in Trondheim with his wife and children also moved to Trondheim from India.

#### 4.4.2 From Consulting to Products

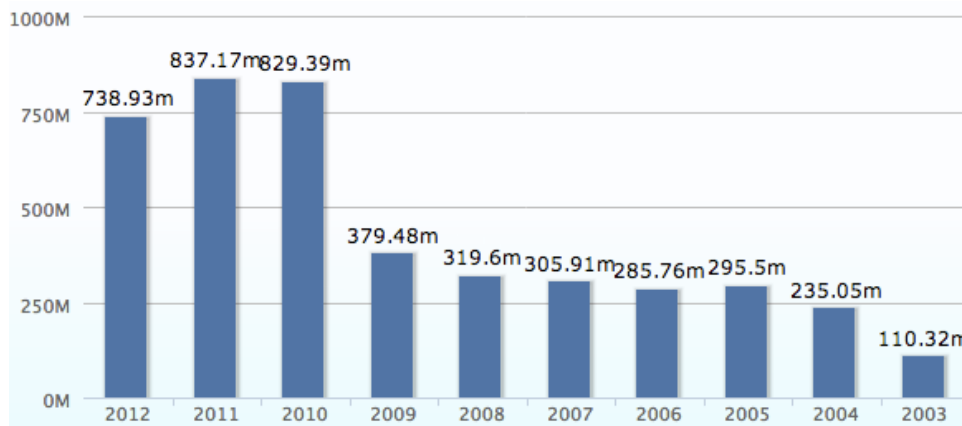
Between the early 1980's and until 1996 the company worked mainly as a consultant company. In 1996 the company started with the production of wireless components, and then transitioned completely to microelectronics in 2002. It was also in 2002 that the company had switched the company language to English as most of the background documentation about the products was in English, according to the R&D director. The company started with using third-party sales distributors, but in 2004 they had established a sales office in Hong Kong, the reason being is that most of the production was in China and therefore it was needed to have a sales and technical services office nearby.

The company ventured in wireless electronics early on during the development of the technology in the global markets. It was especially gaming technology where there was a large potential for the use of wireless products. The company worked hard to build relationships with large multinational corporations that produced electronics, as it was these corporations that delivered products to the corporations within gaming technology, and therefore produced in large volumes. It was important for the company, as claimed by the R&D director, to be able to work with these large actors in order to ensure large volumes of production, which was vital for keeping costs down on the products. However making a deal with these types of companies was difficult, as there was a demand for quality and qualifications in large volume production.

*It was difficult to come in at first with the large actors. Because one can have the worlds best technology, but they ask for quality and qualifications, and you have to show that you can deliver in volume, and when I am talking about volume I mean tens of millions of components every year.*  
(R&D Director)

According to the R&D director, despite the challenges as described in the citation, the company chose to focus on working with large multinational actors, as it was thus much easier to get a understanding of the workings in the international market, than it would be if they were to talk to the smaller companies. This way the company could get a better understanding of what the needs in the next one or two years, and understand what the important additional improvements or additional functions should be. The company was able to keep the development costs down on their products, and at the same time, work towards qualifying their technology for their customers on a global scale.

Another way that the company was able to get in with the larger companies that produced keyboards and mouse devices, is that the technology at the wireless technology at the time was only able to work between 20-30 cm, whereas the company in my case study had a product with a longer range. Now that the company has been able to get into the market with these large multinational companies, they are able to control a substantial part. According to the R&D director the company now controls around 5-8% of the global scale, which considering the size of the company, is quite large. However it can never be taken for granted, and when the company releases a product, they need to ensure that the product is the best on the market. If not then it will be difficult for the sales department to sell the product to their customers. In the last four years particularly the company has grown as a result of advanced within the industry as shown in figure 11



**Figure 11 - Company Working Income (purehelp 2014)**

According to the R&D director, human talent is the most important resource the company has. They are dependent upon talented teams that can develop the additional functions requested by the customers, as well as developing ideas for what functions the next product will have. It is important that employees in the entire organization contribute to creating a original and competitive product.

*“We are dependent on everyone contributing with new solutions, as I said we need to have the best product on the day we launch the product. So it is impossible to think of a group that sits there and specifies what the next products will be, so you need to get ideas from the whole organization” (R&D director)*

The R&D director affirmed that it was important that everybody did not think similarly, but are able to discuss and develop new ideas with each other. It is not just a question of one creative person, but creativity within and across teams.

#### **4.4.3 The Importance of Human Talent**

According to the Norwegian employee problem solving and accuracy are important in regards to the work in systems integration, and therefore the employees in the group need to be systematic. The reason being is that they deal with millions of components, and if there is a mistake that goes out to 10 million customers, then there is a problem. There is an importance in logical thinking and problem solving work that is involved in the specification work for components.

The R&D director explained that when the company sets specifications for products, they do not just set a certain number of specifications that should all be completed within the deadline. Rather they brainstorm a list of possible specifications that can be developed in a new product, and they put the most important specifications on the top of the list. So for example if 7 specifications are brainstormed, the group will be required to finish the first four specifications before the deadline. If the group however finishes the first four specifications before the deadline, then they can work with more on the list. Such a processes allows creativity to flow in the organization, such that there is not a strict list of important specifications that the employees need to fix within the deadline, but also there is flexibility to work with more if time allows. It is these creative processes that help ensure the company delivers the best product on the market.

According to the R&D director deadlines are nevertheless important as the dates that they company releases the products need to coincide with the dates to their customers whom launch products around the holiday season. So for example there customers needs the product to be ready in August, meaning that the company I studied should have their new product launched in February or march – and if the company I studied can not get the product ready in time, then they will have to wait all the way until the next season to release the product, which means a substantial loss in income.

So therefore having talented and competent employees is a key for the company to succeed, according to the R&D director. However, he also noted that there are other important aspects as well, not just creative output such as ensuring the best products, ensuring their quality, and

ensuring that they will be launched in time. It is also important to hire people with good organizational, technical, and structural skills in addition to creativity.

In the last four years the R&D department has grown from 50 employees to 130, which has determined a range of diversity in where the employees come from and that there has been a much larger technical expertise within software in the company. Many of these new employees come from different countries.

*“And what we have seen is that there is a better total solution, and a better choice with software, which of course has to do with better software technology, but it also has to do with the background of the individual employees in that they ask questions to what is the better optimal solution” (R&D Director)*

According to the Norwegian informant, before 2005 there were practically only people from NTNU at the company, now the company is a diverse, multicultural place with employees that come from all around the world. The R&D director noted on the value of diversity in the organization, saying that there is an effect in regards to employees having different education backgrounds, which was an unexpected benefit when they started hiring foreign workers. Even though the science is the same, different education backgrounds have different ways of solving problems. So when a group is working on a project, there is a more robust discussion on the best way to solve a technical problem.

#### **4.4.4 Recruiting Talent**

NTNU is the main reason why the firm has its headquarters located in Trondheim, according to the R&D director and before 2005, most of the employees at the firm were originally students from NTNU. The switch happened mainly as the company started to work with Bluetooth technology, and there was a larger need for different types of expertise. The company cooperates frequently with NTNU in regards to master projects.

According to the Employee who leads the systems integration team, he is mostly recruiting master and Phd graduates from NTNU. Around 2/3s of those he recruits are new graduates. The reason being is the NTNU has a good electronic discipline and teaches the knowledge needed for systems integration. Although lately he has been hiring several International Students with Phd's. Although Phd's are not required for the positions in the group, the studies are within micro-

electronic design that is nice competence to have for the work. He has started to notice that most of the Phd students at NTNU are foreign students; the last three Phd graduates he has hired were foreign students.

However the employee explained that when it comes to graduates, he is more likely to hire Norwegian students than International students, unless the international students has extra experience or has a Phd. One of the reasons, he explained, is that when you employ an international student, you are a bit unsure about the cultural background. He explained this issue in the following way:

*In regards to employing persons, you can never be 100% sure that you are hiring the right person, and this is the same when you are employing a Norwegian, but you need to be a bit more sure when you employ a foreign worker because you do not know on the same level the cultural background, but if you feel that there is a good chemistry, and it is a highly-competent person, than there is nothing to be afraid of. But if the chemistry is not working well, than you should be careful (Norwegian Employee).*

Another reason also was that he could be much more sure about a Norwegian educational and career background, than a foreign one, because he knows the Norwegian system better. That being said, however, the Norwegian employee explained that they have had positive experiences with the international workers that they have hired. He also explained that he thought it was exciting to work with people from around the world.

Although the Norwegian informant was able to find most of his employees through recruiting channels at NTNU, this is not the same for the other groups within R&D. Other groups, such as software, are two-thirds International. While his group has 8 out of 32 employees that are International.

*“With verification and test there is a definitive international majority, almost everyone employed is foreign, it is important to find people with experience, and it is hard to find in Norway as most employees in Norway do not actively change jobs. Another aspect is that Norway has not had a very large electronics industry over time, and volume and testing is more prevalent in countries where there is a large mobile industry, that has a lot of experience with volume productions of electronics. There is a small environment for that in Trondheim that has long experience and is willing to switch jobs.” (Norwegian Employee)*

The R&D director also explained that some groups have more and better experience with international workers than others, and in some more experienced groups the International workers have more central positions.

Headhunting is rarely used in the company, and most of the foreign employees are hired after they sent an application to the company. The company has been successful in developing a large name for itself in the global electronics industry according to the R&D director. One way that the company built a name for itself was by working with a global mobile company that sought to expand Bluetooth technology on its phones in regards to Wifi and GPS, which ended up being sold to the Bluetooth organization.

*“There has been many that have come to us in the firm, and they see a small little company near the north pole, compared to the gigantic multinational companies, but here there is much more freedom to find the best technological solutions in standardization, and to not be crushed by long processes and approval systems on many levels before one can do something. So you are able to make a difference in a company with 100 employees, then a company with 30,000 employees.”*  
(R&D director)

The company is also known for working with only wireless technology, whereas their largest competitor is a large multinational company that works with everything in regards to electronics. So in other words the company has name in the global labor markets, and is able to attract talents from all around the world according to the R&D director.

In the interview with my informant who was an employee from India in the company, he had explained that he had been recruited to the company through a friend that was working in the case-study company. At the time he had already been working with an company in India where he was working with embedded software although the work was different from what he does now in the firm. His friend had been working for the company one year before my informant had and had been working on a project where they needed more people. The recruitment process went quickly, less than three months, so the decision was quite sudden. But my informant had talked with his spouse and they decided together to move to Trondheim.



#### **4.4.5 Work and Social Environment**

When the company is hiring talent from abroad they are generally looking for employees that will work on a long-term basis, except in the case of project work, but even then there has been a number who started in a project and was employed in a regular position afterwards. The R&D director explained that they look carefully at the CV and can see if a worker has been a typical “job shopper” who has worked for example 6 months in different companies.

*We don't take people for only 6 months because then you have not contributed to the creative processes in the company, you may be able to do the standard assignments, but you have not contributed to bringing the work forward. It takes two or three years in order to be part of the creative processes and to contribute. (R&D Director)*

The employee from India also noted that in India it is quite common for employees to change jobs often, but he noticed that in Norway people are used to staying in a job for a long time. The Norwegian employee stated that one of the major strengths in the company was that employees have been with the company for a long time.

It is important the new employees in the company to stay, according to the R&D director, but there is always a risk that a person may come to Trondheim and end up not enjoying their life here, and decide to leave. On the companies' side, it is therefore important that they are able to give new employees challenging, exciting, and interesting tasks that involve improving the project. When I asked if the company has been successful in this regards, the R&D director believed so, and that there were only 1-5 people every year who leave the company.

The Norwegian employee explained that his non-Norwegian co-workers have managed to deliver on a high-level and it would have been difficult with out them; the team could still grow, but the international co-workers have been an important factor. Nevertheless there were some cultural aspects that are important to consider. For example there are differences between employees from Asia or USA, for example, and that the employees from Asia are able to deliver very well on their tasks, but the seem to have respect for responsibility, and do not do more than what they are responsible for; while “Norwegians are all over the place”. Another thing the Norwegian employee noticed was that education that the employees had in other countries were quite good at

differentiation, while the education in Norway seemed to be better in regards to teamwork and giving roles.

The Norwegian informant also explained that another challenge were the language barriers. Although the company language is in English, and everything is written in English, it is much easier to go to the office of a colleague speaking Norwegian then it is going to a colleague who can't speak Norwegian.

*“For example if you are sitting on a computer and have a problem, then there is a lower threshold to speak with someone who knows your own language. That being said, in my group we think long-term and we ask people during the interview if they will learn Norwegian, because although it is not needed it shows a motivation to be here for a while. But we are very careful that during lunches and meetings everybody is understands what is being said.” (Norwegian Employee)*

When the Norwegian informant's group was hiring international workers, everyone was excited to see how speaking English at meetings would end up, but according to the Norwegian employee the transition was easier than he had thought.

The employee from India explained that his office took him in well, and everyone was friendly. However he noticed that the Norwegians were quite silent and do not like discussing for a long time, and he would have to book a meeting for such a discussion, so he found it a bit difficult. So he will first try to find out the answer himself, if it is a technical question, before he goes to ask someone else. At the same time, however, he noticed that there was not much hierarchy in the organization like he had experienced in India. He noted though that the working environment in the US was similar to Norway.

The Norwegian employee explained that the social environment at work was better with a more diverse group. He noted that they had hired one employee from Pakistan who was very engaged in regards to arranging social events and other activities after work, which was something the Norwegians were not very used to. The Norwegian employee also explained that the social environment is important for communication in the group, as it is easier to communicate when there is a social connection. This was seen as a way of lowering the threshold for Norwegian employees to talk with international employees at work, and vice versa. One example he gave

was of a Chinese colleague whom at first was quiet, but after some social activities, she had felt more comfortable with the group and had participated more in the discussions at work.

#### **4.4.6 Life in Trondheim**

*In India life is a bit more social, in my village with some hundred people, everyone knows each other and what they do, but here it is not like that. But I really do not have any problems, but at the same time I can not say I am within the society (Indian Employee)*

The employee from India was not sure how Trondheim could be a better city. He thought however the city is nice with the Indian communities made up of students and employees in R&D environments like SINTEF, NTNU, etc.. Getting in contact with Norwegians is not difficult, as he knows his colleagues and his neighbors, but it is a bit difficult to have a Norwegian neighbor as a friend, for example. He explained that there is this 8am-4pm culture in Norway that means that he has to wake up at 6 to bring his children to kindergarten and then leave work at 4, so the day ends up being quite busy – and during the weekends they are often shopping, so in the end he does not feel that it is problematic that they do not have more contact with Norwegian friends.

Nevertheless the Indian employee has been living in Norway for five years, and does not have any plans to move anytime soon. Although he could consider working in another job and in another country, he explained that he will see what happens, and if something changes. The employee keeps his children at the international school in Trondheim, because the language is in English (and they learn Norwegian as well) and if he where to go back to India or another country like the US or Canada, so then his children would have no trouble to continue school if they were to move. Although the employee does not wish to move at this moment, he does not see himself living in Norway for the rest of his life.

Another factor is that it is has been a long time for his wife to continue her career as a teacher. She was teaching mathematics and science in India, but when she moved to Norway she needed to learn Norwegian and take extra education at HIST in order to get a job as a teacher, however she finds it difficult because although she has proficiency in Norwegian, according to the Indian employee, she still feels that she can not express herself in the same way a Norwegian can, even though she has experience with teaching. It has also been difficult for the Indian's employee's

wife to build a network. For a while as well, when she was pregnant, she was afraid of walking outside on the ice and risk tripping, so she stayed home more often.

Another challenge in these regards, according to the Indian employee, is that living in Norway with a family with one wage is quite expensive. The employee said that having a car, a house, and sending his kids to an International school took a large portion of his wage – and that it seemed like the tax and financial system in Norway was built around both parents working. Although he knew that Norway was expensive, he did not expect the expenses to be like this. He also noted that finding a place to live was difficult for a foreigner and took some time.

Nevertheless the employee is happy with his work in the firm, he noted that he is able to contribute with his ideas in a group, and has a good career movement within the company. He has had very few conflicts with the way the company was run. The employee could see himself working with other groups and projects if he had the chance. One thing he likes and feels that he is good with is with debugging and solving problems, as well as making new things, and he gets the chance to do that with his work in the firm.

#### **4.4.7 Concluding Remarks**

The medium-sized company I studied is a global actor within the wireless microelectronic industry that delivers to several big name multinational actors who produce devices for phones, computers, consoles, etc. The company controls 5-8% of the market and competes with large, multinational microelectronic companies around the world. Therefore the company is under pressure to always deliver the best projects in time for the shopping season. The company needs to also make sure they can deliver in regards to volume production, and one mistake means millions of unhappy customers.

So when it comes to talent, the company needs to find people who have competence in electronics production and are able to work not only systematically and logically, but also creatively and are good at solving problems. Norway does not have a lot of experience in the production of microelectronics, compared to other countries with, for example, large mobile producers. This means that there is not much talented and experienced individuals to hire within Norway, and also Norwegian employees do not often change their work. So therefore the

company needs to set its sights to the global labor markets, and to hire talent wherever they come from.

Luckily the company has built a large name for itself and receives applications from all over the world, so there is not much of a need for headhunting. Also some of the employees in the company have networks back at home, and the employee I talked to from India was hired this way. The Norwegian employee explained that when it comes to hiring foreign employees, he looks for more experience and needs to be even more certain about the chemistry, than when he hires a regular Norwegian employee. Nevertheless he and the R&D director believes that it is exciting to work with their international colleagues, they deliver quite well on their tasks, and there is an overall more robust discussion in regards to technical solutions than there was when there was only Norwegian employees at the company.

The Norwegian employee explained however that it is a bit easier to go to an office of a Norwegian colleague, as there is a lower threshold to speak to someone in your mother tongue. The employee from India also noted that it wasn't very easy to go to an office of a Norwegian colleague and start a discussion about work, usually you had to book a meeting first. So there perhaps is somewhat of a barrier between the International and Norwegian colleagues at the company, at the same time however, the Norwegian employee said that it has become more social after the company hired expatriate employees.

The employee from India found that Norway to be quite expensive, more than he expected, because he is the only one working in the family. His wife is a teacher and is working hard to learn Norwegian and to get the qualifications she needs to teach in Norway. It seems that there is not so much time to be social, and although the employee felt that he had good contact with Norwegians, he did not have many Norwegian friends. In the end he did not feel like he was within Norwegian society, and he kept his children in an International school so that if someday they did decide to leave Norway, his children could easily start in a school in North America or back in India.

#### **4.5 Case Study 3: Microcontrollers**

My third case is an R&D department located in Trondheim belonging to a large transnational corporation with over 5000 employees. The firm was founded in 1984 and has its main headquarters in the United States. The location in Trondheim has around 200 employees, 45 of whom are expatriates. According to the HR-advisor, this R&D department has had an important role in the development of the corporation, as they have done much of the development work for the microcontroller that is now a major part of the company's profile.

The R&D department was established in Trondheim in 1995. Actually it was two employees from my second case company, whom played a key role in establishing the R&D department in Trondheim. These two employees were working on the microcontroller, but at the time the second case company did not have the sales offices needed to take the product out in the global markets. So the two employees presented the product to a large multinational company in the United States in whom would later decide to buy the rights to. The two founders were able to convince the company to establish the R&D department in Trondheim. Their main argument was the proximity to NTNU and HIST, and the talented engineering students.

To this day the proximity to NTNU and HIST is a major strength for the R&D department, according to the HR-Director, and the company hires most of its workforce from these institutions. Engineering and electronics talent is a major strength for the company in order to develop innovative products. However, at the same time recruiting students is competitive, and the company cannot recruit from NTNU alone. Norwegians rarely shift jobs, and the company does not proactively try to hire employees away from other companies in Norway.

The department in Trondheim has experienced major growth and larger role in the corporation in the recent years. In a recent newspaper article the department only accounted for 10% of corporate profits before, but ever since a heavy investment in microcontrollers, the department in Trondheim now accounts for 70% of the profits. The department has therefore had a large need for engineers in information technology and electronics, and has the need to set its sights abroad in order to find talent.

#### **4.5.1 Informants in the Company**

My main gatekeeper is an HR-advisor who had been working in the R&D department in Trondheim one year after it was established in 1995. Her responsibilities included supporting the different departments with the recruiting processes, and the process after an employee is selected for hire, as well as working with Expat Mid-Norway in regards to the relocation process for International employees. The HR advisor was well aware of the companies need for talent, and the important of attracting and retaining talent in the company.

My gatekeeper directed me to a Norwegian employee who had been working with the company for 10 years and was the leader for seven employees in the analogues group. There are two foreign employees in his group, but he also works with foreign employees from other groups as well as with employees in countries outside Norway.

I also got in contact with one of the international employees whom was a senior designer in the analogue group. The employee comes from Poland and has been with the company for three years. The employee lives in Trondheim with his wife and kids. He has never been working in another country before, but he has been working in another American corporation that had an office in Poland.

Before 1995 when the two founders of the R&D department in Trondheim had met with the company in the US, the company had no plans to start an office in Trondheim. The founders were able to convince the company to start the office in Trondheim, and they used NTNU, or NTH at that time, as a main argument for starting the R&D section in Trondheim. NTNU has been a major resource for the company, as most of their employees are NTNU students according to the HR advisor.

*“The office in Trondheim has been the brain behind the companies microcontroller that the main headquarters has invested heavily in lately” (HR Advisor)*

Since 2003 the company the amount of wages the department has payed out has increased from 43 million to 190 million, an increase of 370% in the last 10 years as shown in figure 12. The company has had considerable growth in the number of employees since 2003. At the same time the number of persons who have been accepted a year in the faculty for information technology has only increased from 746 students to 1327 students (DBH), an increase of only 170%. In a Tekna Magazine article in 2011 the company expected 10% growth in the number of employees, meaning around 20-25 new positions every year. In 2010 the company doubled their profits in microcontrollers, meaning there was a large need to develop the department in Trondheim that worked especially with microcontrollers.

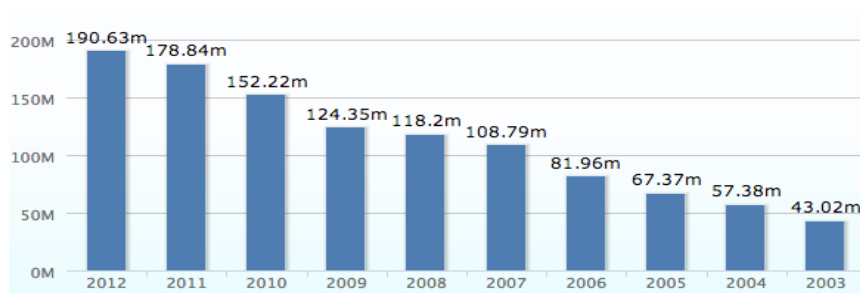


Figure 12 - Wages (Purehelp)

So in the last few years the company has not been able to recruit enough engineers in Norway, and therefore has needed to recruit from abroad. The company competes internationally with large multinational corporations in the development of microcontrollers. Surprisingly the largest competitor for my second case company is the same for my third case company. This competitor has namely 35,000 employees, so it is not surprising that it is a large competitor for both companies within the electronics industry.

Human talent, according to the HR advisor, is extremely important in the development of the microcontroller, especially within the development of touch-screen technology, in which the company has recently invested heavily in. She also explained that it was positive to have persons with a different education than from NTNU.

*“It is extremely important that these persons have freedom to invent and develop, and that has been the different in regards to the microcontroller we develop in comparison competitors, but also in touch technology they are talented, very talented engineers” (HR Advisor)*



The Norwegian employee I had talked to was the leader for the analogue group, which works with converting input from the sensors in mostly touch screens to data that the microcontroller can process. He had explained that it is important that the people within his group are able to solve problems through brainstorming. It is important that everybody is updated with the latest research and articles, and that people have experiences that they can share. One plus of having co-workers from other countries was also that they had different experiences that they brought to the group.

One example the Norwegian employee gave, was that before the group was used to working with what is called time domain when working with digital signal processing, whereas one of the International employees had a lot of experience in what is called frequency domain, and his experience has helped solve some problems the group has had with digital signal processing.

#### **4.5.2 Recruiting Human Talent**

According to the HR-advisor, NTNU has been the best recruiting channel, mostly through part-time and summer jobs that the company offers NTNU students, as well as holding company presentations on campus with two full-days for speed-interviews, mostly for summer jobs. The company, however, faces heavy competition from other companies that are also recruiting on campus. Norwegians who are already working don't usually change jobs as people are usually well-paid and only change work if the new job offer much more exciting. Another factor is that the HR-advisor sits on a HR-group with the HR-Advisors for different companies in the electronics industry, and they have made a pact to not actively contact employees from these companies for job offers.

The company therefore needs to set their sights abroad to find talent. According to the HR-advisor, if they had a choice than they would rather recruit people whom are already living in Norway. The reason being is that recruiting abroad and the relocation services are costly in both in finances and time spent.

*“One thing is dollars and pennies, but another thing is that it costs energy, we have to teach International employee in a different way. So if we could choose we would rather employ more Norwegians, but if we want to hire whoever is the best, then of course we will hire the best, no matter where they come from.” (HR-Advisor)*

The company started to hire foreign workers by using agencies and putting announcements on Finn.no. Employee referral works as well, and there were a few who transferred from other corporate locations in other countries. One employee had quit his job in the company location in France, and had decided afterwards to work in Trondheim. The company has been currently using headhunting and LinkedIn for recruiting abroad quite often.

The Polish employee that I had talked to said he was headhunted for the job through LinkedIn. At the time he was offered jobs via LinkedIn quite often, especially from the UK and Germany. The Polish employee thinks that the reason was because there are few people who work with analogue design. The employee says he still gets job offers quite often through LinkedIn. When he received the job offer from the company in Trondheim, he was interested, as he had not gotten any job offers before from Norway. The employee had recently been in Norway during vacations with his wife, and he was quite impressed of the country. He also liked the fact that everybody speaks English. It was not the salary that mattered for the Polish employee, but the lifestyle, and he had gotten a good impression of the lifestyle during his vacation in Norway.

One of the aspects of the company that the Polish employee liked was that the company is so close and has influence for the main headquarters in the US. In his previous company, which was also an American corporation, the office used to be owned by a Portuguese company, had been recently bought by the American corporation. So his previous company in Poland was not very close to the top level management. However the company in Trondheim is responsible for the microcontroller that accounts for 6 billion USD in profits for the company, and therefore is very close to top-level management.

The HR-Advisor also explained that many people from abroad apply for a job in the department in Trondheim because they are aware of the history that the department in Trondheim has for the American corporation.

*“I believe there is different reasons for why people move from their home country to start a career at our company, but one aspect is that the company has a big name and is well-known.” (HR-Advisor)*

All of the positions in the company are posted on the company website, so many people who know the company will naturally search the website for job offers.

For the HR-Advisor, in regards to recruiting, she does not have much to do with main interviews. However she does work with screening of potential applicants, and then puts the right candidates forward for the next step. However after the main interview, the HR-Advisors involves the company Expat Mid-Norway, a relocation company for foreign workers. The reason the company is involved is that they often have a conversation with the prospective foreign workers in order to ensure that the person is prepared and can adapt to living to Norway. It is not just important that the person has good expertise, but also that they will fit in with the company. In some cases the company has said no to person with good expertise, as they did not seem like they would fit well in the company. *“We take a skype conversation with a applicant to be 100% certain that the applicant wants to come to Norway”* (HR-Advisor). The reason being is that in order for the company to get a return on their investment for hiring a foreign worker, a employee needs to stay in the company for a while.

The company needs its employees to be working for at least three years, as it usually takes up to one year for the employee to be trained. It is costly for the company if the employee decides to before three years of employment. When I asked the HR-Advisor about why a company should spend money on a Expat services, she explained that not having the service is much more costly as an employee hired can decide to leave because they are not well received and taken care of in Trondheim.

One service for example that Expat Mid-Norway arranges is taking the visa application not to the police in Trondheim, but to UDI in Oslo. If not than the processing of the application takes a long time in Trondheim, considering it is usually sent to Oslo anyways. It is important the visa is processed quickly, especially for the renewals, because the employees are not allowed to travel outside of Norway and in Trondheim the renewal process can take up to 6 months. So since expat fixes this, the company saves money by having the service. This service is also beneficial for the employee has he or she usually cannot travel while an application is being processed, and living in Norway is difficult without a personal number, which can only be received after an approved application.

### 4.5.3 Retaining Human Talent

*“Around 6 to 7 years ago we came in contact with Expat Mid-Norway and per today we would not have managed without their help, it is alpha-omega for us in our success with employing foreign workers. One thing is to employ them, but it is another thing to keep them. And perhaps that is the most important, otherwise it can be very costly” (HR-Advisor)*

The HR-advisor explained that very few of the International Workers gave quit their job at the Firm. Some had left because their spouse could not find a job in Trondheim and another had moved back to take care of their sick parents at home. Overall the HR-advisor believed that they were very successful in keeping employs in the company.

As explained before Expat Mid-Norway is part of the recruiting process arranges a Skype interview to ensure that the person is prepared and willing to live in Trondheim. It is important for the company to set expectations, so that people don't come to Norway disappointed. The Expat-Service also arranges receiving the employee at the airport and to be there for any questions about living in Trondheim. According to the HR-advisor this is especially important for international workers that are bringing their families with them to Trondheim.

*“I believe that the services we have received from Expat-Mid Norway is the key to success, because one thing is all the practical things that need to be done: being met at the airport, help with housing, taking them to the police, going to the tax office to get a tax card, or to the bank for a bank account, or for a bus card. There are also information meetings throughout the year where somebody from the schools, fire department, and insurance, also many practical issues such as filling out a tax form. There are many things the new international employees are wondering about, that we Norwegians don't realize is a challenge.” (HR-Advisor)*

The company also pays a substantial amount to Expat in regards to running Norwegian courses for it's employees. Expat also holds an exam for the courses, so that the employees can fulfill the language requirements in order to receive a permanent residence. In addition the HR-advisor also encourages the Norwegian employees to speak Norwegian with the International employees, especially during lunchtime. “If our employees are going to understand humor and such, and live in Norway, then we recommend strongly that they learn Norwegian” (HR-Advisor).

The company also arranges a buddy program between the new and old employees, as well as a personal meeting for all the new employees – at the meeting the HR-advisor tries to explain

Norwegian company culture and the flat structure between employees and leaders. She also, with Expat, tries to explain how Norwegians are and how they live, so there are not any misunderstandings. The company has a social club, which has been great for the foreign employees to get to know each other and their Norwegian colleagues better.

According to the HR advisor Expat has also worked recently with the spouses of the foreign employees by arranging knitting evenings, or Norwegian conversation groups. Expat is not just good for arranging events only for employees of the firm, but also has employees from different companies on the events, such that people have the chance to also meet other expatriates around town.

The Polish employee that I had talked to had appreciated the services Expat provided and that he was received well. He thought that everybody was quite nice and helpful. Although for a while Expat was silent in regards to helping his wife find a job, the company in Trondheim had made an agreement with Expat so that they would help in the process of finding a job for his wife. He also thought that even though he knew that he could call expat to ask a question, it was not clear what they can and cannot help with. The employee was given a page with a list of things they could and could not help with.

#### **4.5.4 Work and Social Environment**

*“We have a social club in our company that arranges both sports and social activities for the employees with the purpose of creating an arena and happenings for people to do something together outside of working hours. This is important because people get to know each other and thus are better at working together. So sometimes they have indoor training, but there was one employee from Germany that thought it was strange to do this with the boss, and the boss tried to explain that he should be treated like everybody else” (HR-Advisor)*

The HR-advisor mentioned that she had to sometimes explain how the work culture was in Norway - one is supposed to have respect for their leader, but the leader is interested in hearing the employee's opinion, even if they do not agree, but the employee should say what he thinks. The leader should not be treated much differently, as there is a flat leadership structure, according to the HR-advisor.

The Polish employee explained that when he worked in Poland there was less freedom to choose what he wanted to work with, but in Trondheim he had more freedom to choose he would be doing. He noticed also that Norwegians do not stress as much. For example when he wrote emails, nobody would reply if they did not need to, but on the other hand there was much more discussion during meetings. He had been used to making sure everything was done efficiently and quickly in Poland, but here there was more time for work and everything was calmer. He noted however, that it might have to do with the different company profile, rather than the work culture in Norway. However he had the impression that in Poland work is a bigger part of their lives, whereas in Norway family and private life are important. The reason may be that in Norway their jobs are more secure, but in Poland when people have a good job, they care so much about it that they sacrifice their personal lives. The employee noted that he liked the Norwegian way of working better.

The Norwegian employee explained that even though there are employees from France, Poland, India, and Bulgaria everybody knew how to work on a common technical platform and there was usually good communication. However he noticed when he worked with departments in other countries then there was a culture clash. For example he had worked with an office in Shanghai and India where there were younger employees and they were much more occupied with hierarchy, so they had to give “orders” much more often than they do in the office in Trondheim. It is important for the Norwegian employee to be able to give a challenge to his workers, and that his workers have time to “play” so that they can figure out how to solve the challenge, instead of him telling his employees what to do. “Play” was very important for innovation in the group, although he noted they often did not have enough time for this.

#### **4.5.5 Situation for the spouse of the Polish Employee**

*“Whether or not I stay in Norway will depend on different things. I like it here, but probably my wife’s situation will be the most important factor here, so if she cannot develop professionally then it will be a problem. But for me it is okay living in Trondheim. I am gaining experience and I am working in an advanced place” – (Polish Employee)*

The Polish employee had moved to Norway with his wife and his small child. It was a good time to move, as the wife would need to take some time off from work anyways in order to take care

of their child. The wife was working as a clinical psychologist in Poland before she had moved to Norway. For the first years the wife was trying to learn Norwegian and to build a social network. There are many Poles living in Trondheim, so it was easier to get in touch with them than Norwegians. The Employees wife was also able to get her Polish psychology education qualified for work in Norway, but her main problem is that in order to work as a psychologist she needs to be fluent in Norwegian. Clinical psychology involves communication, and therefore she needs to have a strong command of the language. The wife has worked with “Språkpraksis”, an initiative from NAV that allows immigrants to work in an internship for an employer for some months to help improve their Norwegian. So the wife was able to get an internship as a kindergarten assistant through this program.

The wife however had lost her place in the “Språkpraksis” because of changes to the rules in NAV, according to the Polish employee that made the program unavailable to EU/EEA nationals. The Polish employee said that he was told that because they come from the EU, and that he is working, his wife does not have a right to help from NAV. In addition his wife decided to stay home in order to take care of their second 6-month old child, so at this point she is not looking for work. The Polish employee said that his wife does not want to work in cleaning or in a factory, because there is no chance for her to learn Norwegian here, and she wants to be able to work with something close to her field in psychology.

The Polish employee said that he knows many foreign workers who are thinking about leaving Norway or going to another country because of their spouses situation. It is easy for engineers to get a job in Norway, but for their spouses whose education is not in engineering, it is much more difficult.

The Polish employee likes his work in the firm and he is starting to get used to the relaxed Norwegian style of working, but one of the worries he has is that he is getting too narrow of an experience in his field, and that it would be difficult to find a job in Poland if he is to specify in his experience. There is not much work in Poland for this field. He explained that he would not move to another country, because he feels like moving to a new country is an investment in learning language and getting used to a new life. So in the end he would most likely move back to Poland. However he said he would not move to the south of Poland, because for him this is

just as far (in regards to traveling) to the north of Poland, as it is to travel from Norway. So the employee needs to decide soon if he and his family will stay in Trondheim.

#### **4.5.6 Concluding Remarks**

The department in Trondheim has been a major asset, especially in its later years, for the American corporation that it belongs to. The strong demand for microcontrollers in smart phones and touch screen technology has resulted in the corporation investing heavily in Trondheim. Perhaps the biggest success factor has been the company's access to talented engineers from NTNU and the company's ability to invent and develop new technology.

However the company needs to recruit 20-25 employees every year, and the number of NTNU graduates has not been able to keep up with the firm's employment rate. In addition engineers in Norway are not switching employers often, and the company does not actively try to hire employees from other companies. Hiring employees from abroad is expensive, and if the company could, they would hire Norwegians. However, they need to hire the best, and the most talented, and therefore they set their sights abroad in order to find talent.

Expat Mid-Norway has been a major success factor for the company in regards to hiring and retaining foreign workers. The company pays for Norwegian courses and relocation services, as well as consulting services for the recruitment process. This has been "Alpha-Omega" for the HR-advisor. Although the Expat services are expensive, it is even more expensive for the company if their employees leave shortly after they are hired because they are not well settled in Trondheim. There have been foreign engineers who had left because of their spouses situation in finding a career in Trondheim.

The polish employee I talked to found himself in this situation. His wife has expertise as a psychologist, but in order to find work in Trondheim she needs to have a strong command of Norwegian language. The best opportunity for her so far was a language internship run by NAV at kindergarten, but NAV had changed the rules so that this was no longer available for her. The wife has no interest in cleaning or working in a factory, because there is no opportunity to learn Norwegian. If the wife's situation does not get better, they will move back to Poland.



## 5 Discussion

The previous chapter presented the situation for three high-technology firms in Trondheim Region in regards to hiring expatriate employees. The chapter examined aspects of internationalization strategies, adaptability to global markets, the need for human talent, and the hiring of expatriate employees in the firms. In light of the empirical evidence collected, this chapter will discuss the relevance of the case studies in regards to the research questions of this thesis. The first question is: *Why is the hiring of expatriates significant for High-technology firms in Trondheim Region.* In chapter two it was proposed that it is important for firms to invest in locations where their knowledge resources are prevalent. Florida argues that firms will locate to the places where talent can be most easily mobilized, and while I do not necessarily disagree with this proposition, I argue that reality is more complicated. It is proposed in this thesis that high-technology firms are interested in investing and developing their current R&D locations, as this is where their most important knowledge assets are prevalent. It is the individual employees in the firm who, according to Blackler (2005), own the firm's means of production through their expertise, and the employees are not necessarily mobile. In addition firms have built up particular knowledge systems and are embedded in local knowledge environments that are also intangible elements difficult to transfer to other locations.

Nevertheless Florida's argument (2005) that it is important for firms to mobilize talent is still relevant. It is therefore argued that hiring expatriates is significant as it allows for firms to invest in growth and innovation while at the same time developing their own knowledge assets despite skill shortages. The empirical evidence discussed in the previous chapter showed that for all three firms, they started to hire expatriates after significant changes in company strategy and new projects which resulted in significant growth in the companies. Without being able to hire expatriates investing in such growth would have been difficult.

However the hiring of expatriates has not only implications for dealing with skill shortages but also with knowledge development and strategy for the company. It was asked *How do expatriates as dynamic actors themselves influence company organization and strategy?* In chapter two it was proposed that diversity in education, experiences, and perspectives influence knowledge development in the company. Holden (2002) argues that cultural management in an organization

should be a part of knowledge management in the firms, as diversity becomes an important part of the organization's portfolio. Both the managers and the Norwegian employees in the firms agreed that diversity brought more robust discussions in the groups.

Milliken (2003) agrees that cultural diversity can influence positively of quality of innovative output in groups, but it can also create conflicts that can impede diversity as well. It is important that expatriates become more integrated into the groups and are able to put a foot down in the organization. Yet a challenge for the high-technology firms that hire expatriates is that there is a risk that if they are unsatisfied with their life situation in Trondheim then they may choose to leave the firm and the city. It is proposed that the life situation of expatriates has implications for the firm, as firms need to focus on retaining such employees for organizational development. The firms studied recognized this issue and dealt with it, for example, by using relocation services from the organization Expat Mid Norway which helped with the integration of expatriate employees and their families in Trondheim Region.

### **5.1 Knowledge Environments and Firm location in Trondheim Region**

In 1995 when the two founders of the microcontroller in the third case company went to the United States and present their technology to the company, they were asked to start the R&D department in the United States. According to the HR-Director, the two founders argued instead that the R&D department should be located in Trondheim. They argued that Trondheim has strong IT-research environments and that there were talented graduate from the NTH (Former NTNU) that would be a good source of human capital for the company. As the founders were the ones with the competence and ownership of the idea, the American company chose to invest in an R&D department in Trondheim.

In the theoretical chapter it was discussed that high-technology companies do not only follow capital and labor flows, but rather knowledge flows. Although it may be been more economically reasonable to start an R&D department in the US, Trondheim was the home of the founders and a place with excellent knowledge environments in ICT. Florida (2005) argues that knowledge intensive firms will be locate in the places where talent is easiest mobilized, not where labor is the cheapest. Yet high-technology firms are located in Trondheim even though mobilizing talent is difficult due to skill shortages and high wages. According to the Teknisk Beregningsutvalget,

an organization that analyzes Norwegian wages, it was reported that the wage levels in Norway are 28% above Swedish levels, 40% above Danish, 54% above German, and 69% above the average for the countries that Norway trades with (Jensen 2013; pg. 15). Although it is agreed with Florida that mobilizing talent is important high-technology firms, it is argued that the reality is more complex. Florida views the world as a single geography where firms relate to labor flows which are drawn to the most “attractive places”, however there are other important aspects to consider as well.

Dicken (2011) however argues that firms must not just relate to a single global geography, but that economic and production flows occur in multiple geographical levels. These processes include *Globalization, Nationalization, Regionalization and Localization*. For the case firms in this thesis it was shown that the firms relate to globalization processes, for example, for the last two firms their production facilities and markets were separate from Norwegian markets. However it is also shown through the case studies that the firms are embedded in local knowledge environments. In addition it was also shown that the companies also built up knowledge resources inside the company that are not easily transferable to other locations. Dicken's argument is therefore incomplete in that he does not include knowledge management in his theories.

Blackler (2004), however, although he does not specifically mention globalization processes he does recognize the importance of knowledge management for high tech firms and recognizes that some types of knowledge can be codified and transferred to other locations, while other types of knowledge are more implicit. Powell and Snellman (2004) say, for example, that for knowledge industries the intellectual capabilities in the firm are more important than physical inputs. In other words high-technology firms rely on having talented employees. The Finance manager of the first case company stated that it really did not matter where the company was located, but since Trondheim was the place where the senior consultants lived, they are located in Trondheim. According to Blackler these key members are important for the organization, as the firm has developed specific social learning systems with implicit social rules. McElroy (2001) explains that social innovation capital is just as important as human capital, as it is the social relation between members that produces innovation. The key members of the organization are important in that they communicate such social systems to new members of the firm. The Norwegian employee

in the first company, for example, explained that there was a group of senior consultants in the company which had been employed for quite some time and had good experience with customer relationships and expert studies, and then there were the newer junior consultants. These senior consultants were responsible for the groups of junior consultants and since it takes a while for consultants to put a foot down in the organization, the juniors need to rely on the senior consultants for a while.

Another important aspect of location for the case firms is being embedded in local knowledge environments. Gertler states that: *“A shared background within the same industry can also provide the foundation for enhanced bandwidth and mutual understanding between actors”* (Amin & Roberts 2008; 7). What was common for all of the companies is that they, one way or the other, grew out of the technological research environments from NTNU and SINTEF. All of the companies explained that these research institutions were important for their continued development, and a large factor for their location. Even though the case firms needed to keep updated on global markets and technological advancement, a major source of knowledge came from being located within Trondheim’s knowledge environments. In addition, managers in all three of the companies stated that NTNU was a major source of candidates for the company, and that the companies employed primarily NTNU graduates until they reached a point where recruiting NTNU graduates was not enough. They also explained the need for different types of competences and experiences that was hard to come by in Trondheim and Norway, but was more prevalent in other countries.

Despite the obvious skill shortages for all three case companies, they all relied on NTNU as a major source for recruiting. These companies were built by graduates from NTNU and a majority of their employees are NTNU graduates. For the first company, the economic advisor stated that the company was mainly NTNU graduates up until 2010. The Norwegian employee in the second case company stated that two thirds of those he hires are graduates from NTNU. The economic advisor also stated that they cooperate tightly on student master theses with the objective of recruiting graduates. The HR-Advisor in the third case company also stated that they are arranging business presentations at NTNU and are recruiting students for summer jobs, which leads to permanent employment afterwards. The second and the third case firms had more resources for recruiting, but also employed more than the first case company. The HR-advisor in

the third case firm stated that every year they hire around 25 employees. The HR-Advisor also said that there was a large competition for NTNU graduates from other large companies located in Norway. As explained by Florida (2005) in the theoretical chapter for firms it is important to be able to mobilize talent, and for the firms studied NTNU was an important source of talent.

Yet despite NTNU being an important source of candidates, the managers interviewed explained there was not enough graduates to fulfill company human resource needs. In addition there is a need for expertise in certain areas in which recent graduates do not have. Nevertheless the number of engineers educated in Norway has remained stagnant compared to the growth in the technological industries. As shown in figure 4 in the theoretical chapter section 2.3.2, the number of engineers in the ages of 30-34 has remained stagnant since 2001. Nevertheless all three of the companies have had large investments and experienced growth in the recent years. All three companies also underwent organizational changes: The first company was developing a new line of software. The second company they had switched from consulting to electronics in the early 2000's, and experienced a growth spurt in the last four years. The third case company they had experienced a boom in demand due to the rise of smart phone technology. For these companies sudden growth and investments have been a major factor for their reliance on expatriates. Although according to Cohen and Zaidi another means of dealing with skill shortages it to outsource project to other places. Christian Madsen (2013) explained that companies in Norway have dealt with skill shortages by outsourcing projects to countries like Singapore. However for the case firms in Trondheim their successful knowledge assets and knowledge systems were located in Trondheim. Therefore hiring expatriates was an important means to developing the location in Trondheim despite skill shortages.

## **5.2 The Significance of Hiring Expatriates**

Cohen and Zaidi (2002) described hiring immigrants as one of the coping mechanisms for dealing with skill shortages. For high-technology firms in the United States, foreign workers have played an important role. Companies in Japan and Germany, whom were previously reluctant to hiring foreign workers are now following the United States example. Generally companies focus on hiring within the domestic population over hiring foreigners, according to Cohen & Zaidi, as

the adjustment costs are higher for foreign workers. However in the face of skill shortages, companies set their sights abroad to hire expatriates.

In all of the case firms, the main reason for hiring expatriates was due to the difficulties in recruiting Norwegian candidates. The finance manager in the first case company felt that it was easy to recruit talented expatriates and she did not experience competition in those regards. But it was quite competitive in regards to hiring Norwegian employees. Florida (2005) stated that there is a global competition for talent, but after my dialogue with the managers in the case companies, it was not noticeable. However the Polish employee did explain that he got many job offers from England and Germany, yet chose Norway because he admired the lifestyle. So in that example Florida's argument that place is important is valid.

However what is most noticeable is that there is a large competition for talented Norwegian engineers. As the director of Ingeniør-Companiget, a work agency in Trondheim for engineers, explained: hiring Norwegian Engineers is difficult because most of them are already employed. It was explained before that the unemployment rate for engineers in Norway is quite low. Students remain an important part of recruitment processes, companies also need candidates with experience in certain fields, and this is difficult to obtain in Norway. If the costs for hiring such engineers becomes too high, then the companies will be less likely to invest in new employees according to Cohen and Zaidi (2002).

The HR-Advisor for both the second and third case company stated that they also do not actively go out and recruit candidates that are already employed in other companies as they follow a sort of gentlemen's code to not steal away employees. The native employee in the second case company also stated that there was a need for experienced employees in certain fields in which there is not a large market for in Norway, and therefore there are few native employees with such a desired background.

According to Stalker, often immigration is controversial because it is assumed that immigrants take work and lower the wages for Native Employees. Stalker (1999) argues against the argument that immigrants take work from native employees. All of the managers explained, nevertheless, that if they could hire native employees rather than importing expatriates, they would, but in the end they are concerned with hiring whoever is best, no matter where they come from. Another

argument that Stalker (1999) argues against is that foreign workers will work for less and therefore companies will hire immigrants instead of natives. However the management in the different companies noted that hiring foreign workers was often more time and resource consuming. The economic advisor in the first case company stated that training expatriates required more time and resources than training native employees. In the second case company the Norwegian employee stated that it is easier to hire other native employees, as he was more secure about their backgrounds. And in the third case company the HR-advisor stated that hiring international employees cost both resources and time, and there was a larger risk that these employees were unsatisfied with their life in Trondheim, and would choose to leave early. Therefore it was important to spend resources on Expat-services just to ensure that expatriates would not leave. So in the end it was more costly to hire an expatriate than it was to hire a Norwegian.

In addition it did not seem that foreign employees would necessarily work for lower wages. From the employees I spoke to, although they thought Norway would have high wages, in the end they felt that the wages were not particularly high, because the cost of living was expensive in Norway, especially when there is only one person in the family working. So in other words the argument that immigrants will work for less and take jobs from natives is not valid in these cases. However what is argued in this thesis is that expatriates are important for growth in Trondheim's technological industries, and it is this growth which eventually raises demand and wages according to Cohen and Zaidi (2002).

Florida (2005) argues that being able to mobilize talent is an important competitive advantage for innovative companies as they invest in growth and innovation activities. An interesting finding from the empirical studies was that all of the case firms began to hire expatriates after significant growth and changes in organization strategy. According to Cohen and Zaidi skill shortages result when the demand for labor in an occupation exceeds the supply. However the case companies did not only have challenges to recruit skilled labor, but also they were interested in recruiting new types of skills, diversifying their profile, in addition to recruiting the best candidates. In the first company, for example, when developing a new growth strategy for the company, the managers decided that they would need to hire the best no matter where they came from. It is interesting to note that the companies recruited mainly Norwegians for quite a period of time until there was a

shift in organization strategy and a period of growth. It was at these point where recruiting Norwegian engineers was not enough.

In the first case firm the hiring of expatriates was connected to the strategic growth plan developed in cooperation with investors. With 15 million invested in 2010 and 23 million invested in 2011, the number of employees in the company was raised from 10 to 30. In addition the company switched from working mainly with consulting to working with software development for well risk reliability. Thus there was the need for other types of competences then the company had previously relied on.

The second case company also experienced a surge in the number of employees it needed to hire, as in 2004 they had switched from working with consultancy to focusing on the development of wireless microelectronics. Here the R&D department in the company grew from 50 to 130 employees in the last four years due to a increasing demand for the product in the global markets. The company now owns 5-8% of the total market. The Norwegian employee in the company also explained that there was a large need for expatriates in the software verification unit as this was a subject that was not largely developed in Norway.

The third case company also saw a boost in investments due to the increasing demand through for smart phone technology. The company has increased wage payments from 2003 to 51 million to 190 million in 2012 (Purehelp 2014). In 2010 the company had doubled their profits, and thus invested heavily in development of new technologies. Here the company also needed to hire many people in a short amount of time. According to the HR director they now hire around 20-25 people every year.

What all of the cases show was a need to mobilize talent quickly and therefore hiring expatriates was significant for the firms. In case context in section 4.1 it was noted that even though the high-technology industries in Trondheim have doubled in revenue since 2005 (Impello 2012), the number of young, highly educated graduates in the STEM fields has remained stagnant. However it is not just the lack of young engineers that served as a reason for these companies to hire expatriates, but also the need for different types of experience. For example the Norwegian employee in the second case firm described that Norway lags behind other countries in regards to volume production of electronics. Countries like Finland and South Korea, for example, have



long experience with mobile operators and there are many employees whom have experience in this field, and finding such engineers in Norway is more challenging according to the Norwegian employee.

For these companies being able to mobilize talent quickly after large investments was a key for their continued success. Florida (2005) argued that economic growth was connected to where there was a large supply of creative talent, as companies rely on being able to mobilize talent easily. Being able to mobilize talent easily is an important competitive factor for companies, and therefore they depend on local pools of talent. In order to analyze this point in regards to the case studies, it is therefore important to look at their competitive situation in global markets.

In the traditional labor economic theories growing companies will increase wages as to pull employees from more stagnate industries that are unable to increase wages (Cohen & Zaidi 2002). The difficulty with a balanced view of labor economics is that often the process is more dynamic and complicated, especially when operating in global economies. Companies are less reliant upon local economic and labor flows, and are more dependent upon global economic and labor markets. Another problem with such a rational view of labor economics is that companies do not often work within such a framework. The firms, for example, in case two and one stated that they are in the same HR group and do not proactively try to recruit each others employees. The leader of Ingeniør-Kompaniget also stated that Norwegian Engineers often stay in the same job for a long period of time, and do not easily switch jobs. The R&D director of the first company said generally they do not want employees who switch jobs very often, as it shows that they are not committed to a position in a single company.

There is also a limit to how much the company can actually raise on wages while staying competitive. According to the Norwegian employee in the first case company the challenge is to be able to make a product that will give a value equal to what it costs to create it, and there is a need to create a demand in the market. Meaning that the development costs cannot run higher than what the product would actually cost to develop. The second case company stated that volume production was the most important to keep high development costs down, and therefore the company needed to cooperate with the largest actors in order to survive.

As was described before with Cohen and Zaidi's theories in section 2.2.3, raising wages in order to attract employees is difficult, as it would result in having to raise wages for other employees already in the company. Therefore a company may choose simply to not invest in new development projects, or to restructure the existing work organization. However as described by Spilling (2006) *creative destruction* is when more mature firms stagnate in growth, thus giving the opportunity for other firms to grow in the market. The R&D director of the second case company stated that they need to always release the best product on the market, otherwise they give the sales personal a difficult job.

According to Cohen and Zaidi (2002) firms may also raise wages in order to attract workers from more stagnant industries to their company. While this works in theory, the managers of the companies I spoke specifically stated that they do not actively try to recruit employees from other companies. The leader of Ingeniør-Companiget also argued that Norwegian engineers do not shift their careers so often compared to engineers in other countries. Cohen and Zaidi argues that there are difficulties in raising wages, for example outsiders should not have better wages than insiders, so if then the company needs to raise wages in the entire company. However if the company does raise prices for wages, and also prices for its products, then it will also risk not being able to compete in the market. As shown by the NHO Barometer in table 1 in section 2.1.1, 37% of companies stated that the difficulties recruiting talented workers was a major hinder for new investments. The managers I spoke to argued that lowering the price of innovation was important for competition in global markets, and if the prices are too high then the company will have difficulties.

Although on the short term it may seem that expatriates hinder wage growth, because then the companies would need to increase wages to cope with skill shortages. However since wages are already quite high in Norway compared to other countries, then increasing wages on the short term would be a hinder for innovation in the company. However another way of looking at the issue is that by hiring expatriates companies are investing in Trondheim despite skill shortages. Without hiring expatriates than companies would either have to not invest or outsource work according to Cohen. As explained before the firms studied wanted to invest in Trondheim. By hiring expatriate firms are able to invest, innovate, and grow and through this growth there is a need for more engineers and eventually on the long term perhaps wage growth. Therefore it is

significant for high-technology firms to hire expatriates in order to be able to mobilize talent in periods of growth for the firms.

### **5.3 The Importance of Diversity for Knowledge Development**

Previously it was discussed that it was significant for the companies to hire of expatriates in order to develop and invest in continued growth and innovation in Trondheim Region. However expatriates themselves are not static factors in the company's decision-making, they are dynamic actors that can make decisions that has implications for company organization and strategy. Understanding the significance of hiring expatriates, and the implications that expatriates, as dynamic actors, have for the firms are two sides of the same coin.

In chapter two it was proposed that expatriates have experience and backgrounds that were different and therefore could influence either positively or negatively innovation in the company. According to Holden (2002), traditional literature on cultural diversity in organizations has focused on coping and managing cultural conflict between native and non-native employees. Milken and Martins (1996), for example, talk about the possible hinders diversity has for group cooperation in the early phases, that often individuals in groups adhere to others most similar to them and sometimes exclude the different members. This process can eventually hinder creative processes within work groups.

One such hinder, according to Millken (2003) is that the members of the same background in the groups form relationships easier with than with members of different backgrounds. The Norwegian employee in the second case firm stated that even though the working language of the firm is in English, he still finds it more comfortable to speak Norwegian. So when he has a question or needs to talk about something, he is more likely to go to his Norwegian colleagues office than his non-Norwegian colleagues. The expatriate from India in the same company explained that it seemed like he could not just drop by a Norwegian colleagues office to start a discussion, and he would instead need to start a discussion.

In the first case firm the employee did not have this problem however, he noticed that everyone was very friendly and open for discussion. However it was observed during the case study that the first company had a much smaller office and a more open area, at the same time everybody knew each other. The second case company however was a bit more closed off and there were

many more people working in the firm. Nevertheless the managers in both of the firms explained that after hiring more expatriates then the company became more settled into working with expatriates. For example, the Pakistani employee in the first case firm said that since he was the first foreign employee everybody was skeptical at first, but nevertheless friendly. Soon it became very comfortable working in the company.

When I asked the managers in all three companies if it was particularly challenging to hire and work with expatriates, many of them said that their was nothing particular about it, they just learned that there was a need for more social activities to get everybody comfortable with each other. It was also important to be “culturally aware”, and understand that new employees might find the Norwegian way of working a bit strange. The first case company arranged different events such as “Lutefisk” tasting, and the third case company had a social club. The native employees I talked to also said that they did not feel like they needed extra experience or know-how to work in with the non-natives, everything developed naturally.

Holden argues that companies should consider culture as a part of knowledge management, and that management of culture should not be associated with conflict management, but rather culture involves “intersecting zones of collaborative learning, pools of common knowledge” (Holden 2002, 285). In other word Holden argues against a “top-down” approach of cultural management, and instead argues that as a company meets external sources of knowledge and different perspectives, but companies portfolio and its organization changes and it is up to management in order to create an opportunity from these dynamics.

The finance manager of the first case company explained this well, as she argued that before 2010 the firm was not International – it was a group of Norwegian men all from NTNU with the same educational backgrounds. The employees worked as consultants, and according to the employee I talked to, he stated that as it was mainly engineer to engineer sales, and word of mouth that produced sales, they were able to sit comfortably in Norway and not sell proactively. However now as the company will produce software that will be sold in the well reliability markets, the type of organization has changed. The financial manager stated that as the profile of the company changed, there was a larger need for them to be able to “match” their customers. So they had employees from China that functioned as translators, for example, and the employee from Pakistan who had better know-how on how bartering in the Middle East. In other words by

seeing expatriates not through a cultural lense, but more through a knowledge management lenses, the company was able utilize these knowledge assets. It was also a question, according to the finance manager, of the company's portfolio being able to match their customers whom were also international. The Norwegian employee in the first case company also stated that before when the company worked mainly with consulting, they were used to working on their own terms, they were working in their own offices mainly and they were not selling proactively. Yet when the company decided to work more with software production, then the company needed to "match" their customers on a higher level. For the financial manager in the first case company, this was a unpredicted implication of hiring expatriates that ended up being positive.

Millken, Bartel and Kurtsberg (2003) argues that diversity in itself may not necessarily create creative output, but rather creative output is a result of the processes involved in working in a diverse group. The key to understanding is to look at group life cycles, and to understand how diversity can either hinder or provide opportunity for creative discussion. Expatriates themselves bring diverse experiences and ideas that may have positive implications for the company.

All three of the companies studied noticed did not particularly notice that the expatriates by themselves brought impulses and innovation to the company. What they did notice, however, is that the discussion within the groups became more robust and that the expatriates brought new perspectives that the Norwegians would not have come with otherwise. The R&D director in the second case firm noted that the Norwegian employees all had the same background from NTNU, with the same professor, and the same "methods" in tackling problems. He noted the expatriates, however, had different methods and perspectives, thus creating a overall better discussion in the groups. This correlates with Millken's, Bartel's and Kurtsberg's (2003) research that found that the groups that were more diverse did not necessarily come up with more ideas, but the quality of the ideas was much better. The R&D director of the second case company also noticed that since hiring expatriates, that innovation processes have had a better quality.

McElroy (2002) defines Social Innovation Capital as a manner in which collective systems organize themselves and carry out production and integration of new knowledge (2002, pg. 4). Meaning that although human capital is important, in regards to the ability for each individual member to contribute, social capital is the systems ability to create a framework of relationships that create innovation. These are such work systems that ensure innovation in the system, and

most of the time they are informal and encultured in a particular context, thus going back to the idea that companies are not as easily mobile as Florida (2005) explains, because they are dependent upon knowledge resources that are implicit and explicit. The implicit resources are particular work systems such as listing specifications and developing as many as they could before the deadline in the second case company. Another example of work systems was the relationships between senior and junior consultants in the first case company, as the senior consultants had important expertise in these fields. In the third case company, in the analogous group, there was an importance in everyone keeping updated on the latest technology, and having time to “play” with new developments. These are examples particular work cultures that create innovation in the companies.

Work systems work best when they are implicit, and working across distances can be challenging. Employees in both the first and the third firm noticed that working with professionals located in other countries was challenging. The Norwegian employee in the third company explained that working with those in India was challenging as there was cultural difference that made communication challenging. The Pakistani and Norwegian employees in the first company both explained that it was difficult working with the customers in the US, because they were very demanding and very business oriented. The Pakistani employee explained that he preferred much more the Norwegian way of doing things. Whereas the company and employees did not notice that cultural differences inside the company was challenging, they did notice it was challenging to work with different cultures abroad. Therefore it is argued that it is not particularly culture which creates challenges, but it is a question of employees to be able to get used to and grow a part of work systems, as well as influencing these systems themselves.

Which goes back to Backler’s (2004) theories on knowledge categories, as it seems that different types of knowledge are transferable in different ways. Some Knowledge types that can be coded is easily transferable through technology, but embedded, embodied and encultured knowledge are transferred from person to person or a person’s experience of working within an organization. Embodied is situational understanding so that employees learn in the organization the situational knowledge. Embedded is knowledge in systematic routines that can be different work systems, and encultured is shared cultural understandings. However it is not just a question of the

expatriates experience with these knowledge systems, but how the expatriates themselves influence such systems.

Another aspect that is important to point out is how the expatriate in the company perceived and dealt with work culture and work systems within the Norwegian companies, it is also interesting to note how the work systems in the companies changed as a result. Here work systems are understood also through a lens of knowledge management, as employees are required to have knowledge of these systems. These work systems are dynamic however and are continually developing in the face of new knowledge systems. In the example of first case company it was noted by the Norwegian employee that before the strategic growth plan, there was mainly a group of seniors that all worked quite individually on their expert studies for their customers. However after the hirings in 2010 there was a group of new employees and juniors, also a need to form teams with both the senior and junior consultants worked together on projects. The native employee noted that senior consultants were before used to working independently and there wasn't much formal structure in the company; however after hiring more junior consultants, there was a need to cooperate in teams and more formal leadership structures.

The Native employee in the first company noted that it takes a long time for junior consultants to be able to build enough experience and network with the customers; therefore it is important that new employees work in the organization for a while, in order that they are able to contribute more. They learned that it is important for the companies to keep expatriates within the organization for a while, as it several years before they are able to work more directly with customers. Referring back to Millken's, Bartel's, and Kurtsberg's (2003), diverse members of groups are able to contribute later in the group cycle as groups become more used to their presence. The managers of companies explained that it was more risky to hire expatriates because if they are not well-integrated into local society, they become dissatisfied with their life situation and are more likely to leave the company.

#### **5.4 Expatriate Life Situation and Strategy for Retaining Expatriate Employees**

Stalker (1999) argues that there are push and pull factors that explain why individuals migrate. Such factors can be social, economic and structural events that shape their lives. Part of the research of this study looks at the reasons why expatriates working at the three case companies had decided to emigrate to Norway and what factors control their decision to stay or leave Norway.

In the third case study the Polish employee said that the job offer was important for him, as he knew the company was a interesting company. He had received offers from both Germany and England quite often and did not consider them. He had been in Norway before on vacation and thought that it was a nice country and was attracted to the life-style and nature. Florida argues that people are not necessarily attracted for economic and job advantages, but also to a particular culture and life-style. Such a reason would perhaps support Florida's argument that people do not only migrate to a particular city for a job offer, but also are attracted to culture and life-style.

Florida uses a Bohemian index to show how cultural a city is and argues that people are attracted to where other talent is. However in the interview with the Pakistani employee in the first company he stated that he likes Trondheim for the opposite reason; he likes the fact that it was not a "crazy expat city" with many other expatriates; he also liked the fact that prices for housing and international schools were cheaper than Stavanger for example, where there are many expatriates. The Pakistani employee however was a student at NTNU and was attracted for the studies rather than a job offer.

In the second case company the Indian employee explained that his decision to come to Trondheim was quick and he was not thinking particularly about the culture and life-style in Trondheim. He was rather drawn to Trondheim through a friend who noted that there was a job offer in the company and he had traveled three months afterwards. Such an example goes back to Stalkers argument for "pioneer migrants" that often come and settle, then help those who follow, in this case it was the Indian employees friend.

The three examples show very different reasons why these expatriates moved to Trondheim and therefore Florida's argument may be a bit too simple on why people move to certain cities. Florida also argues for competition for talent on a global scale, but the companies I had



interviewed did not notice such a large competition for talent; they felt that they had no difficulty bringing in good employees. However Florida does argue that it is important for a city to be able to retain employees and here his argument makes more sense as the expatriates interviewed discussed different reasons why they would leave Trondheim.

According to Florida (2005) it is not just important for places to attract talent, but also to retain talent. Short and Kim (1999) also state that globalization, which makes it easier than before for people to migrate between different countries also makes it important for places to develop specific cultures that convinces residents to stay. As described before, it is important for companies that the expatriates they hire stay with the company for a long time, as the company seeks to gain the most out of the investments to relocate a expatriate to Trondheim. In addition the expatriate is able to contribute more to the organization and innovation processes, when he or she has a better experience of working with systems that produce innovation within the company. According to Stalker (1999) the life situation of expatriates create push and pull factors that may influence the expatriates decision to migrate.

One such factor is wages and that in theories about labor migration it is argued that people will move to where they get the best return on their skills according to Stalker (1999). According to the Indian employee in the second case study he argued that it was in fact more expensive to live in Norway than other countries despite higher wages. He noted that in Norway wages are high if both partners are working, but if only one partner is supporting the family then it is expensive. Since his wife had difficulties in finding a career as a teacher, then it became more attractive to live somewhere else. Although he does not feel excluded from Norwegian society, he said he did not feel fully integrated also. The Indian employee missed the social life in India, explaining that it was an easier for him to relate to.

Florida (2005) argues that it is important for places to be attractive for international workers as it is easy for them to travel to other places if they are unsatisfied. However from the empirical studies it seems that expatriates have different experiences with places, for example the Pakistani employee in the first company said he had a good experience of living in Trondheim, but he noted that it was perhaps easier for him to integrate in Norway as he started as a student, and student culture is easier to become a part of. The finance manager of the same company stated that they hire employees who are already in Norway as the recruiting and relocation costs for

such employees are less than recruiting employees in other countries. However the Pakistani employee said he would consider moving to Oslo as he thought that Trondheim was perhaps a bit too small. The employee from Poland had no convictions against staying in Trondheim, but he also noted that the situation for his wife was quite difficult in regards to finding a job. She needed more experience with speaking Norwegian and if the situation for his wife did not improve then they would perhaps go back to Poland.

Kennard (2012) explains that the spouses of expatriates have been shown to be a major driver for migration decisions in such families. Therefore it is important for companies to develop a strategy around this issue. The manager noted in third case company noted that that they worked with this issue by asking Expat Mid-Norway to develop a career services for spouses to International Workers. The need for paying for Norwegian language education for spouses was also recognized by the manager. The manager noted that although paying for the Expat Mid-Norway services are expensive, it is more expensive when the company loses employees due to poor integration in Trondheim.

Therefore due to the risk that expatriates and their families can become dissatisfied with their life situation in Norway and could perhaps move to another location if the desired. This has influenced firms to develop a strategy around retaining employees by helping them with relocation to Trondheim. They also noted the importance for increased social activities for their employees. The managers in the case companies nevertheless noted that they had good experience with hiring expatriates and that there was few who had left the company.

## 6 Conclusion

In the beginning of the thesis it was indicated that there has been an ongoing trend for high-technology firm to hire expatriates. A report developed by the Chamber of Commercences in Norway outlined the need for a comprehensive skilled immigration policy (Jensen 2013). In Trondheim Region, municipal authorities have agreed upon a strategic economic development plan that has the goal of increasing Trondheim's share of national GDP; one of the strategies in the report was to take better care of expatriates who wish to settle in the region (Trondheim Region 2013). Although it has been argued in the report by the Chamber of Commerce that it is significant for high-technology companies to hire expatriates, the explanation towards *why it is significant for high-technology firms in Trondheim Region to hire expatriates* needed be expanded. In addition it is also interesting to understand *how expatriates themselves are dynamic actors with their experiences, backgrounds and perspectives influence company organization and strategy*.

This thesis has sought to investigate these questions by using illustrative cases of high-technology firms in Trondheim Region. It was argued that in order to answer these questions it was important to investigate the phenomenon in the firms situational context. Situational context refers to how firms relate to global and local processes, innovation, knowledge development and skill-shortages. In the theoretical framework chapter it was argued that firms relate to processes that occur under different geographies as argued by Dicken (2011). However these processes do not only include economic and production flows, as Dicken argues, but for high-technology companies they also include knowledge flows. It is argued through Blackler (2004) that there are different types of knowledge assets relevant for firms and that these assets are important for firm's strategy. Firms therefore may adhere to a particular location, as the knowledge assets developed in this location are not easily transferable to other locations.

In the case studies it was shown that the firms had developed successful R&D activities within Trondheim Region, partially in thanks to the knowledge environments from NTNU and SINTEF. NTNU has also been an important recruitment channel for these companies, but recently the graduates from NTNU have not been enough to fulfill the case companies needs for expertise. These companies have also had a need for more experienced personal in new areas in which are

hard to find in Norway. It is argued by Florida (2005) that the ease of mobilizing talent is a key competitive advantage for high-tech firms.

The firms that were studied in this thesis had started to hire expatriates intensively after they had undergone organization and strategy changes, as well as major investments in new markets. The first case firm had worked before 2010 with consulting with tailored products as an additional service, but had changed company strategy and obtained investments to work with the production of software with consulting as an additional service. The second company had started to hire expatriates after they had switched from consulting to wireless products, and in the last four years has been hiring more due to advances in the technology. The third company experienced a major growth spurt due to the advent of smart-phone technology and has begun to hire many expatriates due to this growth. It is argued that without these expatriates the company would not be able to innovate and grow. For these companies, hiring expatriates was important in order to invest in their current location during periods of high growth.

Based on the theories outlined in chapter two it was proposed that it is significant for high-technology firms to hire expatriates as a means to develop and invest in locations where they have developed specific intangible knowledge systems. Blackler (2004) argues that not all types of knowledge are transferable, for example there are implicit social systems that have been developed over time and are connected to key members in the organization. In addition according to Gertler firms are embedded in local knowledge systems in which also give the firm an important competitive advantage. The firms that were studied in this project were all founded in NTNU and SINTEF environments which according to Impello (2004) is a key resource for the region. It was also shown that the firms have developed specific work systems that gave the firm an important advantage in the global markets.

Nevertheless the firms did struggle with skill shortages and, as Florida (2005) argues, it is important for firms to be able to mobilize talent. All of the firms began to hire expatriates after significant changes in the firm. The first firm had shifted from consulting to production of software products. The second firm also switched from consulting to production of wireless electronic components in addition to a growth spurt in the market. The third firm also experienced an important growth spurt due to smart-phone technology and thus began to hire expatriates. However through the theories of Cohen and Zaidi (2002) it is explained that skill

shortages can hinder investments. Therefore it is argued that without being able to hiring expatriates in the face of skill shortages, this would be a hindrance for innovation and growth in the company.

Holden (2002) argues that cultural diversity in an organization has important implications for knowledge management in the firm; diversity, for example, has implications for the firm's portfolio. It is argued in this thesis that expatriates through their backgrounds, experiences and perspectives have an important influence on company organization and strategy. The finance manager in the first company indicated that hiring expatriates was important in order for the company to match their customers and become more "International". Whereas before the company was mostly made up of engineers from NTNU and the company was able to work within their own terms as a consultancy company. The company now needs to produce products and to match their customers better who are also diverse international companies. In other word having expatriates in the firm was now a part of the firm's organizational portfolio.

All of the managers interviewed in the companies stated that an important influence that the expatriates had for the company was that they brought different experience and perspectives that ultimately contributed to creativity and organization in the company. McElroy (2002) defines social innovation capital as being the relationships between members of an organization that positively influence innovation in the firm. Millken (2003) argues that diversity can improve innovation within groups, as it brings different perspectives and experiences together. Therefore it is argued expatriates can have important implications for company organization and strategy, as well as contributing to growth and innovation in the firm.

However on the other side it is also argued that diversity can also bring conflict to group dynamics, according to Millken (2003), and that diversity usually works best when the expatriate is better settled within the firm. For firms to get the best return on their investment in expatriates, it is important that they are able to retain these employees. However as shown through the case studies, the life situation of expatriates has a major influence on the expatriates decision to stay or leave Trondheim. The situation for the partners of the expatriates also was a factor in the expatriate's perception of whether he or she would leave the company after a number of years. It is therefore argued that companies need to consider the life situation of employees and ensure that they can settle comfortably and easily in Trondheim. That being said, all of the managers

spoken to did take this into consideration. For example the first and third case studied had hired Expat-Mid Norway to work with such relocation services.

## **6.1 Implications of study**

Through this study the significance of hiring expatriates for high-technology companies in Trondheim Region is explained. The study presented can be interesting for other companies that are interested in hiring expatriates and wish to get a better understanding of why other companies hire expatriates. This study may also be interesting for policy makers in Trondheim Region who wish to get a better understanding of why hiring expatriates are significant to growth and innovation in high-technology companies. Also it is useful if they are considering developing policies in regards to the comprehensive skilled immigration politics as outlined by the Chamber of Commerce's report (Jensen 2013).

One key aspect to be gained by the study is to understand that by hiring expatriates, companies are investing in Trondheim despite skill shortages. Such investments involve a certain amount of risk; as there is a higher risk that expatriates or their partners will not be well-integrated in Norway and choose to leave their employer and Trondheim. Both for Trondheim and for the employer this can be considered the loss of an important asset. In order for companies to get the best return on their investment to hire expatriates, it is important that they are retained for a longer period of time. Therefore it may be not just important for the company to develop a strategy around this issue, but also for policy makers to also develop a regional policy around the issue.

This thesis may also be interesting for companies who hire expatriates or who are considering hiring, in order to understand the implications that hiring expatriates has for company organization and strategy. In the case studies presented it was shown that hiring expatriates followed with changes within company strategy and vice versa. It is argued that managing cultural and skill-sets of expatriates is an important part of knowledge management in the company.

## **6.2 Suggestions for further study**

Within the theme studied there were many topics that would have been interesting to explore further, but due to restrictions could not be studied under this project. For example it is claimed in this study that it is important for companies to hire expatriates in order to invest in Trondheim Region despite skill shortages. All though the evidence gathered from the case studies would suggest that this is important, the argument could be validated further if more firms were studied to see if they do indeed locate to places where talent is more easily mobilized. So it would be interesting, for example, to study firms in Trondheim Region who have invested in R&D locations in other countries as a result of the skill shortage in Trondheim.

Another topic briefly explored in this study was the influence expatriates have on company organization and strategy. Therefore a study that further explores this argument by cross-comparing companies that hire expatriates and understanding organizational changes as a result could further investigate the influence expatriates have on company organization and strategy.

Another interesting topic was mobility for expatriates within the company. Some of my interviews revealed that expatriates had received promotions, but it would have been interesting to study upward mobility of expatriates compared to native employees. It would be interesting to see if expatriates are missing key competences that could further their upward mobility in the company.

Nevertheless the study presented in this thesis has provided interesting examples of why it is significant for high-technology firms in Trondheim Region to hire expatriates and the implications these expatriates cause for company organization and strategy. This report can be a part of an ongoing discussion in Trondheim and Norway about the hiring of expatriates in high-technology firms and how these expatriates influence innovation, work systems, and strategy in these firms.





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## **Appendix A: Interview Guide – Representative from Management**

What is the importance for companies in Trondheim to hire professionals from abroad in order to compete in a global market? In what ways do foreign professionals contribute to innovation in a company?

According to a report by Tekna magazine over 4200 non-native engineers were hired in the last two years in Norway. At the end of last year there was around 15000 non-native engineers working in Norway.

In my study, Global Talent and Mobility, I wish to study the connection between international human talent and value creation in a global market, especially in regards to innovation. My study will be an in-depth case study of three companies that export technological products or services to a global market. By gaining a better understanding on the challenges and opportunities that these companies face, I hope to further draw a connection to these companies need to hire foreign workers in order to bring certain competences and experiences that these companies need in order to remain competitive. In addition I hope to draw a connection between a multicultural workforce and creativity in a company.

### **Key Topics**

- Recruitment history of Company
- Is there a lack of human talent in Norway?
- What does innovation mean for the company, how much of it is R&D?
- Who are the competitors?
- Opportunities and Challenges with International HR
- Challenges of doing business in Trondheim Region

### **Interview Guide**

#### **Background**

- What is firm history in Trondheim?
- How many employees in Trondheim?
- When did you start recruiting abroad?
- Business Language
- What is the product that you develop?

#### **Competition**

*Here I want to get a overview over how competitive the field is, including example of outside competitors. How can the firm ensure quality, cost effectiveness, etc. Also what is the importance of location in regards to the competition?*

- Who are the customers? What does the firm in Trondheim deliver?

- Who are some of the major competitors in regards to your field?
- Where is the competition coming from?
- How important is innovation in regards to competition?
- How much of the companies revenue is spent on development?
- What are some of the challenges in remaining competitive?
- Expanding Abroad
- High Wages in Norway and Productivity.

### **Recruiting**

*Here I want to understand the challenges of recruiting the top engineers in the R&D institute, and why the firm needs to recruit engineers from abroad.*

- How do you go about the process of recruiting?
- Recruiting from NTNU
- Pool of Engineers
- Costs involved in recruitment
- Recruiting from abroad
- Profile of those being recruited
- Experience with R&D
- Labour Supply and Demand
- Creativity
- Wages
- Education levels abroad
- Better selection
- Global Trends in Recruiting abroad?

### **Innovation**

*Here I would like to get a perspective on how innovation in the company works and how foreign engineers have been involved*

- Patents
- Teams
- Diversity
- Ideas
- Culture
- Experience
- Creativity
- Brainstorming
- Process
- Success histories
- Negative Experience

### **Region**

*Here I want a better understanding of why R&D stays in Trondheim and what the advantages of that is.*

- What are the advantages of having the R&D center in Trondheim?



- What are some of the disadvantages of having the R&D center in Trondheim?
- Do you think it is important to be located close to an R&D group?
- Are there any places in the world that have a particularly good R&D cluster?
- What about places like Silicon Valley that have a pool of talented engineers?
- Do you think there is a good pool of engineers in Trondheim?
- How would you say firm creates value in the region?



## **Appendix B: Interview Guide – Norwegian Employee**

What is the importance for companies in Trondheim to hire professionals from abroad in order to compete in a global market? In what ways do foreign professionals contribute to innovation in a company?

According to a report by Tekna magazine over 4200 non-native engineers were hired in the last two years in Norway. At the end of last year there was around 15000 non-native engineers working in Norway.

In my study, Global Talent and Mobility, I intend to examine the connection between international human talent and value creation in a global market, especially in regards to innovation. My paper will be an in-depth case-study of three companies that export technological products or services to a global market. By gaining a better understanding of the challenges and opportunities that these companies face. I hope to demonstrate that the hiring of foreign workers will bolster the company's competitive edge. In addition I hope to draw a connection between a multicultural workforce and a company's creativity.

### **Key Topics**

- Importance of Work at the firm
- Working in a Multicultural Team
- Development of Multicultural Teams
- Significance in Regards to Creativity/Innovation
- Challenges in a Multicultural Team
- Social Differences

### **Background**

- What is your position in the firm
- History of Career at the firm
- University
- International Experience
- What is the function in your team
- What kind of expertise is in the team
- Mostly internal or external
- Value of work for firm
- Sales
- Innovation?

### **Working in a Multinational team**

- Previous Experience of working in a Multicultural Team
- Challenges
- Rewarding Experiences
- Cultural Differences
- Ways of doing things

- Norwegian Leadership Style
- Need for Expertise

### **Innovation**

- Leading Innovation
- Project Work
- How to Stimulate Group Creativity
- Importance of co-workers with other colleagues
- What non-Norwegian colleagues contribute
- Does it make Norwegian colleagues more innovative?

### **Social**

- What is the importance of making a social group
- Changing Norwegian Habits
- Changing International Habits
- Social Life in a International Organization

## **Appendix C: Interview Guide – Expatriate Employee**

What is the importance for companies in Trondheim to hire professionals from abroad in order to compete in a global market? In what ways do foreign professionals contribute to innovation in a company?

According to a report by Tekna magazine over 4200 non-native engineers were hired in the last two years in Norway. At the end of last year there was around 15000 non-native engineers working in Norway.

In my study, Global Talent and Mobility, I wish to study the connection between international human talent and value creation in a global market, especially in regards to innovation. My study in-depth case study of three companies that export technological products or services to a global market. By gaining a better understanding on the challenges and opportunities that these companies face, I hope to further draw a connection to these companies need to hire foreign workers in order to bring certain competences and experiences that these companies need in order to remain competitive. In addition I hope to draw a connection between a multicultural workforce and creativity in a company.

### **Key Topics**

- Previous Global Experience
- Work at the firm
- Trends in Global Mobility
- Working with Norwegian Colleagues
- Creativity and Innovation?
- Understanding in Internationalization

### **Interview Guide**

#### **Background**

*What is your position in firm? How did you end up in the position?*

- What is your position in the firm?
- What competence is needed for the position?
- How long have you worked in the firm?
- How did you find out about the position?
- Where you looking at any other positions?

#### **Motivation to come to Norway?**

- How did you hear about the company
- Situation at Home
- Friends who have worked abroad
- Family at Home
- Family here in Trondheim

- What did you hear about Norway before you came
- Expectations

### **Working in a Norwegian company in Norway?**

- How well received where you?
- Challenges in the first months in work
- Getting to know your colleagues
- Getting to know the work
- Training
- Norwegian Work Culture
- Leadership in Norway
- Workers rights in Norway.

### **Innovation**

- Do you see firm as an innovative company?
- Are you interested in Innovation yourself?
- Do you see a noticeable difference between your way of solving problems and your colleague's way of solving problems?
- Did you ever get a new, creative idea and followed through with it?
- Examples?
- Are you involved in the commercialization of the product/working with external partners?
- Do you feel that you can contribute more at this company than you would if working in your home country?
- Do you feel like you create value for the company?

### **Living in Norway**

- How were your first months when you arrived in Norway?
- Finding about Trondheim
- Getting Information you needed
- Learning Norwegian Language
- Future plans in Norway
- Future career at the firm
- Future Career in Norway
- Family Situation